

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A01R-01-BAC** **Piney Run**

Cause Location: Begins at the mouth of an unnamed pond on Piney Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1APIA001.80 at Route 671 (Harpers Ferry Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Piney Run bacteria TMDL (Eq ID POL0023) was approved by the EPA on 07/06/2004 (Fed ID 24398). The SWCB approved the TMDL on 12/02/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A01R_PIA01A00 / Piney Run / Segment begins at the mouth of an unnamed pond on Piney Run and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2006	L	3.95

Piney Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.95

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A01R-01-BEN** **Dutchman Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Dutchman Creek at rivermile 2.9 and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2015 and 2016 at DEQ station 1aDUT000.62 at Route 674 and a total of three biological monitoring events in 2015 and 2016 at DEQ station 1aDUT002.72 at Route 673 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A01R_DUT01A06 / Dutchman Creek / Segment begins at the confluence with an unnamed tributary to Dutchman Creek (streamcode XCO) and continues downstream until the confluence with the Potomac River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.25
VAN-A01R_DUT02A06 / Dutchman Creek / Segment begins at the confluence with an unnamed tributary to Dutchman Creek, at rivermile 2.9, and continues downstream until the confluence with another unnamed tributary (XCO).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	0.69

Dutchman Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.94

Sources: Source Unknown

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Cause Group Code: **A02R-01-BAC** **Catoctin Creek**

Cause Location: Begins at the confluence with Milltown Creek, approximately 1.3 rivermiles downstream of Route 673, and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACAX004.57 at Route 663 (Taylorstown Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Catoctin Creek bacteria TMDL (Eq ID POL0169) was approved by the EPA on 05/31/2002 (Fed ID 24399). The SWCB approved the TMDL on 06/17/2004. A bacteria TMDL Implementation Plan for the Catoctin Creek watershed (ID 96) was approved by the EPA on 01/10/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_CAX01A00 / Catoctin Creek / Segment begins at the confluence with Milltown Creek, approximately 1.3 rivermiles downstream of Route 673, and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2006	L	7.5

Catoctin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.5

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A02R-01-BEN** **Catoctin Creek**

Cause Location: Begins at the confluence of the North and South Fork Catoctin Creek and continues downstream until the confluence with Milltown Creek, approximately 1.3 rivermiles downstream of Route 673.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017 and 2018 at DEQ station 1aCAX008.61 at Route 673 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_CAX02A08 / Catoctin Creek / Segment begins at the confluence of the North and South Fork Catoctin Creek and continues downstream until the confluence with Milltown Creek, approximately 1.3 rivermiles downstream of Route 673.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	6.53

Catoctin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.53

Sources: Source Unknown

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Cause Group Code: **A02R-02-BAC** **North Fork Catoctin Creek**

Cause Location: Begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.75 rivermile upstream from Route 719 near Hillsboro, and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (9 of 12 samples - 75.0%) at DEQ station 1aNOC000.42 at Route 681.

2018 Assessment: E. coli bacteria criterion excursions (5 of 11 samples - 45.5%) at DEQ station 1aNOC004.38 at Route 287.

2010 Assessment: E. coli bacteria criterion excursions (4 of 10 samples - 40.0%) at DEQ station 1aNOC009.37 at Route 812.

The Catoctin Creek bacteria TMDL for the North Fork Catoctin Creek watershed (Eq ID POL0166) was approved by the EPA on 05/31/2002 (Fed ID 24402). The SWCB approved the TMDL on 06/17/2004. The Catoctin Creek bacteria TMDL Implementation Plan for the North Fork Catoctin Creek watershed (ID 94) was approved by the EPA on 01/10/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_NOC01A00 / North Fork Catoctin Creek / Segment begins at the confluence with an unnamed tributary to North Fork Catoctin Creek, approximately 0.15 rivermile downstream from the Route 287 bridge, and continues downstream until the confluence with Catoctin Creek.	4A	Escherichia coli (E. coli)	2010	L	4.43
VAN-A02R_NOC02A02 / North Fork Catoctin Creek / Segment begins at the outlet from an unnamed impoundment, approximately 0.4 rivermile upstream from the Route 611 bridge, and continues downstream until the confluence with an unnamed tributary 0.15 rivermile downstream from the Route 287 bridge.	4A	Escherichia coli (E. coli)	2008	L	3.43
VAN-A02R_NOC03A02 / North Fork Catoctin Creek / Segment begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.75 rivermile upstream from Route 719 near Hillsboro, and continues downstream 2.45 rivermiles to an unnamed impoundment.	4A	Escherichia coli (E. coli)	2004	L	2.55

North Fork Catoctin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.41

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A02R-02-BEN** **North Fork Catoctin Creek**

Cause Location: Begins at the confluence with an unnamed tributary to North Fork Catoctin Creek, approximately 0.15 rivermile downstream from the Route 287 bridge, and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2020 Assessment: One biological monitoring event in 2014 at DEQ station 1aNOC000.42 at Route 681 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The TMDL and Watershed Plan to Address Sediment in North Fork Catoctin Creek (Eq ID 2339) was approved by the EPA on 7/29/2020. The SWCB approved the TMDL and Watershed Plan on 06/29/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_NOC01A00 / North Fork Catoctin Creek / Segment begins at the confluence with an unnamed tributary to North Fork Catoctin Creek, approximately 0.15 rivermile downstream from the Route 287 bridge, and continues downstream until the confluence with Catoctin Creek.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	4.43

North Fork Catoctin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.43

Sources: Agriculture; Construction; Post-development Erosion and Sedimentation; Runoff from Forest/Grassland/Parkland; Site Clearance (Land Development or Redevelopment); Streambank Erosion

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Cause Group Code: **A02R-03-BAC** **South Fork Catoctin Creek**

Cause Location: Begins at the headwaters of South Fork Catoctin Creek and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ASOC001.66 at Route 698 (Old Wheatland Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aSOC007.06 at Route 738 (2016 assessment): E. coli bacteria criterion excursions (4 of 13 samples - 30.8%). DEQ station 1aSOC011.82 at Route 611 (2016 assessment): E. coli bacteria criterion excursions (3 of 18 samples - 16.7%). DEQ station 1aSOC013.05 at Route 7 Bypass (2016 assessment): E. coli bacteria criterion excursions (3 of 12 samples - 25.0%).

The Catoctin Creek bacteria TMDL for the Upper (Eq ID POL0168) and Lower (Eq ID POL0167) South Fork Catoctin Creek watersheds was approved by the EPA on 05/31/2002 (Fed ID 24401). The SWCB approved the TMDL on 06/17/2004. The Catoctin Creek bacteria TMDL Implementation Plan for the South Fork Catoctin Creek watershed (IDs 95 and 97) was approved by the EPA on 01/10/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_SOC01A00 / South Fork Catoctin Creek / Segment begins at the confluence with an unnamed tributary to South Fork Catoctin Creek, approximately 0.7 rivermile upstream from Route 9, and continues downstream until the confluence with Catoctin Creek.	4A	Escherichia coli (E. coli)	1996	L	6.34
VAN-A02R_SOC02A02 / South Fork Catoctin Creek / Segment begins at confluence with an unnamed tributary, 0.75 rivermile upstream from the Route 287 bridge, and continues downstream until the confluence with another unnamed tributary, approximately 0.7 rivermile upstream from the Route 9 bridge.	4A	Escherichia coli (E. coli)	2002	L	3.24
VAN-A02R_SOC03A04 / South Fork Catoctin Creek / Segment begins at the northwest corner of the town of Purcellville, 0.48 rivermiles upstream from the Route 690 bridge, and continues downstream until the confluence with an unnamed tributary to SOC, 0.75 rivermile upstream from the Route 287 bridge.	4A	Escherichia coli (E. coli)	2004	L	3.60
VAN-A02R_SOC04A04 / South Fork Catoctin Creek / Segment begins at the headwaters of South Fork Catoctin Creek and continues downstream until the Purcellville town limits, 0.48 rivermiles upstream from the Route 690 bridge.	4A	Escherichia coli (E. coli)	1996	L	5.34

South Fork Catoctin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		18.52

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Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A02R-03-BEN** **South Fork Catoctin Creek**

Cause Location: Begins at the confluence with an unnamed tributary to South Fork Catoctin Creek, approximately 0.7 rivermile upstream from Route 9, and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aSOC002.93 (Next to Charles Henry Pl) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_SOC01A00 / South Fork Catoctin Creek / Segment begins at the confluence with an unnamed tributary to South Fork Catoctin Creek, approximately 0.7 rivermile upstream from Route 9, and continues downstream until the confluence with Catoctin Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.34

South Fork Catoctin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.34

Sources: Source Unknown

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Cause Group Code: **A02R-04-BEN** **North Fork Catoctin Creek**

Cause Location: Begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.75 rivermile upstream from Route 719 near Hillsboro, and continues downstream 2.45 rivermiles to an unnamed impoundment.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: One biological monitoring event in 2014 at DEQ station 1aNOC009.37 at Route 812 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

A new TMDL is not required for this impaired segment of North Fork Catoctin Creek because the Benthic TMDL Development Stressor Analysis Report for North Fork Catoctin Creek (09/15/2015) determined that this impairment is primarily due to low-flow conditions, and recommended that this segment be re-classified as Category 4C because the impairment is not caused by a pollutant.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_NOC03A02 / North Fork Catoctin Creek / Segment begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.75 rivermile upstream from Route 719 near Hillsboro, and continues downstream 2.45 rivermiles to an unnamed impoundment.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	2.55

North Fork Catoctin Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.55

Sources: Reduced Freshwater Flows

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Cause Group Code: **A02R-05-BAC** Milltown Creek

Cause Location: Begins at the confluence with an unnamed tributary to Milltown Creek, approximately 1.1 rivermile upstream from Route 681 near Milltown, and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 10 samples - 40.0%) at DEQ station 1aMIH001.98 at Route 673.

A new TMDL is not required for this impaired segment of Milltown Creek because the downstream Catoctin Creek bacteria TMDL (Fed ID 24399, 05/31/2002) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0169). A bacteria TMDL Implementation Plan for the Catoctin Creek watershed (ID 96) was approved by the EPA on 01/10/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_MIH01A06 / Milltown Creek / Segment begins at the confluence with an unnamed tributary to Milltown Creek, approximately 1.1 rivermile upstream from Route 681 near Milltown, and continues downstream until the confluence with Catoctin Creek.	4A	Escherichia coli (E. coli)	2006	L	3.91

Milltown Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.91

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A02R-05-BEN** Milltown Creek

Cause Location: Begins at the confluence with an unnamed tributary to Milltown Creek, approximately 1.1 rivermile upstream from Route 681 near Milltown, and continues downstream until the confluence with Catoctin Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of three monitoring events in 2019 and 2020 at DEQ station 1aMIH001.98 at Route 673 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_MIH01A06 / Milltown Creek / Segment begins at the confluence with an unnamed tributary to Milltown Creek, approximately 1.1 rivermile upstream from Route 681 near Milltown, and continues downstream until the confluence with Catoctin Creek.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.91

Milltown Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.91

Sources: Source Unknown

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Cause Group Code: **A02R-06-BAC** **Unnamed tributary to Catoctin Creek**

Cause Location: Begins at the confluence with an unnamed tributary, approximately 1.2 miles upstream from the Route 693 crossing, and continues downstream until the confluence with Catoctin Creek, at rivermile 9.81.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (2 of 4 samples - 50.0%) at DEQ station 1aXJT002.22 at Cottage Grove Lane.

A new TMDL is not required for this impaired segment of an unnamed tributary to Catoctin Creek because the downstream Catoctin Creek bacteria TMDL (Fed ID 24399, 05/31/2002) included modeling, source identification, and reductions that covered the entire Catoctin Creek watershed (Eq ID POL0169). The SWCB approved the TMDL on 06/17/2004. A bacteria TMDL Implementation Plan for the Catoctin Creek watershed (ID 96) was approved by the EPA on 01/10/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A02R_XJT01A06 / Unnamed tributary to Catoctin Creek / Segment begins at the confluence with an unnamed tributary, approximately 1.2 miles upstream from the Route 693 crossing, and continues downstream until the confluence with Catoctin Creek, at rivermile 9.81.	4A	Escherichia coli (E. coli)	2006	L	4.36

Unnamed tributary to Catoctin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.36

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A03R-01-BAC** **Limestone Branch**

Cause Location: Begins at the headwaters of Limestone Branch and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ALIM001.16 at Route 15 (James Monroe Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Limestone Branch bacteria TMDL (Eq ID POL0026) was approved by the EPA on 07/06/2004 (Fed ID 24403). The SWCB approved the TMDL on 12/02/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A03R_LIM01A00 / Limestone Branch / Segment begins at the edge of the 8b PWS supply designation, approximately 0.05 rivermile upstream from the Route 15 bridge, and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2002	L	1.26
VAN-A03R_LIM01B06 / Limestone Branch / Segment begins at the headwaters of Limestone Branch and continues downstream until the edge of the 8b PWS supply designation, approximately 0.05 rivermile upstream from the Route 15 bridge.	4A	Escherichia coli (E. coli)	2002	L	3.67

Limestone Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.93

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A03R-02-BAC** **Clarks Run**

Cause Location: Begins at the confluence with an unnamed tributary to Clarks Run, at rivermile 5.4, and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ACLK002.40 at Route 658 (St. Clair Lane): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A03R_CLK01A08 / Clarks Run / Segment begins at the confluence with an unnamed tributary to Clarks Run, at rivermile 5.4, and continues downstream until the confluence with the Potomac River.	5A	Escherichia coli (E. coli)	2008	L	5.46

Clarks Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.46

Sources: Source Unknown

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Cause Group Code: **A03R-03-BAC** **Unnamed tributary to Limestone Branch**

Cause Location: Begins at the confluence with an unnamed tributary and continues downstream until the confluence with Limestone Branch.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AXAQ000.85 at Route 661 (Limestone School Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of the unnamed tributary to Limestone Branch because the downstream Limestone Branch bacteria TMDL (Fed ID 24403, 07/06/2004) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0026).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A03R_XAQ01A04 / Unnamed tributary to Limestone Branch / Segment begins at the boundary of the 8b PWS area designation, just upstream of the Route 661 bridge, and continues downstream until the confluence with Limestone Branch.	4A	Escherichia coli (E. coli)	2006	L	0.92
VAN-A03R_XAQ01B06 / Unnamed tributary to Limestone Branch / Segment begins at the confluence with an unnamed tributary and continues downstream until the boundary of the 8b PWS area designation, just upstream of the Route 661 bridge.	4A	Escherichia coli (E. coli)	2006	L	1.02

Unnamed tributary to Limestone Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.94

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A03R-03-BEN** **Big Spring Creek**

Cause Location: Begins at the headwaters of Big Spring Creek and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of three biological monitoring events in 2015 and 2016 at DEQ station 1aBSC000.45 at Twin Maple Lane resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A03R_BSC01A06 / Big Spring Creek / Segment begins at the headwaters of Big Spring Creek and continues downstream until the confluence with the Potomac River. Contains DGIF/DWR Class iii water (Big Spring downstream to Potomac River).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.49

Big Spring Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.49

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A03R-04-BAC** **Unnamed tributary to Limestone Branch**

Cause Location: Segment begins at the headwaters of the unnamed tributary and continues downstream to the confluence with Limestone Branch.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 10 samples - 30.0%) at DEQ station 1aXGJ000.42 at Selma Lane.

A new TMDL is not required for this impaired segment of the unnamed tributary to Limestone Branch because the downstream Limestone Branch bacteria TMDL (Fed ID 24403, 07/06/2004) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0026).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A03R_XGJ01A04 / Unnamed tributary to Limestone Branch / Segment begins at the boundary of the Section 8 PWS area designation and continues downstream to the confluence with Limestone Branch.	4A	Escherichia coli (E. coli)	2014	L	3.81
VAN-A03R_XGJ01B10 / Unnamed tributary to Limestone Branch / Segment begins at the headwaters of the unnamed tributary and continues downstream to the Section 8 PWS designation.	4A	Escherichia coli (E. coli)	2014	L	1.33

Unnamed tributary to Limestone Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.14

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A04R-01-BAC** **Goose Creek**

Cause Location: Begins at the confluence with Kettle Run and continues downstream until the confluence with Bolling Branch.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AGOO044.36 at Route 17 (Winchester Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A04R_GOO01B00 / Goose Creek / Segment begins at the confluence with Kettle Run and continues downstream until the confluence with Bolling Branch.	4A	Escherichia coli (E. coli)	2004	L	4.31

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.31

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A04R-02-BAC** **Gap Run**

Cause Location: Begins at the confluence with an unnamed tributary to Gap Run, just downstream from Route 712, and continues downstream until the confluence with Goose Creek.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AGAR002.24 at Route 623 (Rokeby Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Gap Run because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A04R_GAR01A04 / Gap Run / Segment begins at the confluence with an unnamed tributary to Gap Run, just downstream from Route 712, and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2004	L	3.21

Gap Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.21

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A04R-03-BAC** **Crooked Run**

Cause Location: Begins at the confluence with an unnamed tributary to Crooked Run, just downstream from Route 724, and continues downstream until the confluence with Goose Creek.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACRA000.42 at Route 623 (Jackstown Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Crooked Run because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A04R_CRA01A04 / Crooked Run / Segment begins at the confluence with an unnamed tributary to Crooked Run, just downstream from Route 724, and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2010	L	1.86

Crooked Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.86

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A04R-04-BAC** **Bolling Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Bolling Branch, just upstream from Route 723, and continues downstream until the confluence with Goose Creek.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 6 samples - 33.3%) at DEQ station 1aBOL000.05 at Route 713.

A new TMDL is not required for this impaired segment of Bolling Branch because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A04R_BOL01A04 / Bolling Branch / Segment begins at the confluence with an unnamed tributary to Bolling Branch, just upstream from Route 723, and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2006	L	3.64

Bolling Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.64

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A04R-05-BAC** **Unnamed tributary to Goose Creek**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream to the confluence with Goose Creek, at rivermile 45.10.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 10 samples - 20.0%) at DEQ station 1aXLW000.75 at Route 55.

A new TMDL is not required for this unnamed tributary to Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A04R_XLW01A14 / Unnamed tributary to Goose Creek / Segment begins at the headwaters of the unnamed tributary and continues downstream to the confluence with Goose Creek, at rivermile 45.10.	4A	Escherichia coli (E. coli)	2014	L	5.91

Unnamed tributary to Goose Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.91

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: A05R-01-BAC Cromwells Run

Cause Location: Begins at the headwaters of Cromwells Run and continues downstream until the confluence with Rocky Creek, approximately 0.4 rivermile downstream from Route 50.

Cause City/County: Fauquier County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (6 of 24 samples - 25.0%) at DEQ station 1aCRM001.20 at Route 50. 2018 Assessment: E. coli bacteria criterion excursions (3 of 10 samples - 30.0%) at DEQ station 1aCRM005.39 at Route 715.

The Goose Creek bacteria TMDL for the Cromwells Run watershed (Eq ID POL0064) was approved by the EPA on 05/01/2003 (Fed ID 24404). The SWCB approved the TMDL on 06/17/2004. The Goose Creek bacteria TMDL Implementation Plan for the Cromwells Run watershed (ID 133) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_CRM01A00 / Cromwells Run / Segment begins at the confluence with an unnamed tributary to Cromwells Run, approximately 0.78 rivermile downstream from Route 715, and continues downstream until the confluence with Rocky Creek, approximately 0.4 rivermile downstream from Route 50.	4A	Escherichia coli (E. coli)	2016	L	3.82
VAN-A05R_CRM02A06 / Cromwells Run / Segment begins at the headwaters of Cromwells Run and continues downstream until the confluence with an unnamed tributary (XMI), at rivermile 4.61.	4A	Escherichia coli (E. coli)	2012	L	6.76

Cromwells Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.58

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A05R-01-BEN** **Wancopin Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Wancopin Creek, just upstream from Route 50, and continues downstream until the confluence with Goose Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2008 Assessment: Two biological monitoring events in 2002 at DEQ station 1aWAC003.31 at Route 50 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_WAC01A04 / Wancopin Creek / Segment begins at the confluence with an unnamed tributary to Wancopin Creek, just upstream from Route 50, and continues downstream until the confluence with Goose Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.44

Wancopin Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.44

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-02-BEN** **Jeffries Branch**

Cause Location: Begins at the confluence with unnamed tributary XCD and continues downstream until the confluence with Panther Skin Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2020 Assessment: Five biological monitoring events in 2013, 2014, and 2015 at DEQ station 1aJEE000.23 at Route 719 and six biological monitoring events in 2013, 2014, and 2015 at DEQ station 1aJEE002.22 at Route 743 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_JEE01A16 / Jeffries Branch / Segment begins at the confluence with unnamed tributary XCD and continues downstream until the confluence with Panther Skin Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.42

Jeffries Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.42

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-03-BAC** **Goose Creek**

Cause Location: Begins at the confluence with Panther Skin Creek and continues downstream until the confluence with Rocky Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AGOO030.75 at Route 611 (Saint Louis Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_GOO02A06 / Goose Creek / Segment begins at the confluence with Panther Skin Creek and continues downstream until the confluence with Rocky Creek.	4A	Escherichia coli (E. coli)	2006	L	2.75

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.75

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-03-BEN** Goose Creek

Cause Location: Begins at the headwaters of Cromwells Run and continues downstream until the confluence with Rocky Creek, approximately 0.4 rivermile downstream from Route 50.

Cause City/County: Fauquier County; Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aCRM004.09 at the end of Hatchers Mill Road resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_CRM01A00 / Cromwells Run / Segment begins at the confluence with an unnamed tributary to Cromwells Run, approximately 0.78 rivermile downstream from Route 715, and continues downstream until the confluence with Rocky Creek, approximately 0.4 rivermile downstream from Route 50.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.82
VAN-A05R_CRM02A06 / Cromwells Run / Segment begins at the headwaters of Cromwells Run and continues downstream until the confluence with an unnamed tributary (XMI), at rivermile 4.61.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	6.76

Goose Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.58

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-04-BAC** Panther Skin Creek

Cause Location: Begins at the headwaters of Panther Skin Creek and continues downstream until the confluence with Goose Creek.

Cause City/County: Fauquier County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aPAE002.54 at Route 623.

2020 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aPAE004.21 at Route 719.

A new TMDL is not required for this impaired segment of Panther Skin Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_PAE01A02 / Panther Skin Creek / Segment begins at the confluence with Jeffries Branch and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2012	L	3.92
VAN-A05R_PAE02A06 / Panther Skin Creek / Segment begins at the headwaters of Panther Skin Creek and continues downstream until the confluence with Jeffries Branch.	4A	Escherichia coli (E. coli)	2006	L	5.27

Panther Skin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.19

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-05-BAC** **Jeffries Branch**

Cause Location: Begins at the confluence with unnamed tributary XCD and continues downstream until the confluence with Panther Skin Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AJEE000.23 at Route 719 (Green Garden Rd.): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1AJEE002.22 at Route 743 (Millville Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Jeffries Branch because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_JEE01A16 / Jeffries Branch / Segment begins at the confluence with unnamed tributary XCD and continues downstream until the confluence with Panther Skin Creek.	4A	Escherichia coli (E. coli)	2016	L	4.42

Jeffries Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.42

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-06-BAC** **Goose Creek**

Cause Location: Begins at the confluence with Gap Run and continues downstream until the confluence with Panther Skin Creek.

Cause City/County: Fauquier County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2010 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at station 1aGOO034.20 at Route 624.

2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at station 1aGOO036.61 at Route 710.

A new TMDL is not required for this impaired segment of Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and tributaries watershed (Eq ID POL0063). The Goose Creek bacteria TMDL Implementation Plan for the Upper Goose Creek watershed (ID 131) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_GOO02B06 / Goose Creek / Segment begins at the confluence with an unnamed tributary to Goose Creek, at rivermile 35.28, and continues downstream until the confluence with Panther Skin Creek.	4A	Escherichia coli (E. coli)	2006	L	2.69
VAN-A05R_GOO02C04 / Goose Creek / Segment begins at the confluence with Gap Run and continues downstream until the confluence with an unnamed tributary to Goose Creek, at rivermile 35.28.	4A	Escherichia coli (E. coli)	2016	L	3.27

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.96

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A05R-07-BAC** **Unnamed tributary to Jeffries Branch**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 0.32 and continues downstream to the confluence with Jeffries Branch.

Cause City/County: Fauquier County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 11 samples 36.4%) at DEQ station 1aXCD000.07 at Route 619.

A new TMDL is not required for this impaired segment of an unnamed tributary to Jeffries Branch because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A05R_XCD01A16 / Unnamed tributary to Jeffries Branch / Segment begins at the confluence with an unnamed tributary at rivermile 0.32 and continues downstream to the confluence with Jeffries Branch.	4A	Escherichia coli (E. coli)	2018	L	0.32

Unnamed tributary to Jeffries Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.32

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A06R-01-BAC** North Fork Goose Creek

Cause Location: Begins at the outlet from Sleeter Lake and continues downstream until the confluence with Crooked Run.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ANOG005.69 at Route 722: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aNOG011.60 at Route 782 (2012 Assessment): E. coli bacteria criterion excursions (2 of 6 samples - 33.3%).

The Goose Creek bacteria TMDL for the North Fork Goose Creek watershed (Eq ID POL0065) was approved by the EPA on 05/01/2003 (Fed ID 24405). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_NOG02A00 / North Fork Goose Creek / Segment begins at the confluence with an unnamed tributary to North Fork Goose Creek, approximately 0.23 rivermiles upstream from Route 725, and continues downstream until the confluence with Crooked Run.	4A	Escherichia coli (E. coli)	1998	L	4.70
VAN-A06R_NOG03A02 / North Fork Goose Creek / Segment begins at the outlet from Sleeter Lake and continues downstream until the confluence with an unnamed tributary to North Fork Goose Creek, approximately 0.23 rivermiles upstream of Route 725.	4A	Escherichia coli (E. coli)	2008	L	2.97

North Fork Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.67

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A06R-01-BEN** North Fork Goose Creek

Cause Location: Begins at the confluence with an unnamed tributary to North Fork Goose Creek, approximately 0.23 rivermile upstream from Route 725, and continues downstream until the confluence with Crooked Run.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: One biological monitoring event in 2008 at DEQ station 1aNOG005.69 at Route 722 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_NOG02A00 / North Fork Goose Creek / Segment begins at the confluence with an unnamed tributary to North Fork Goose Creek, approximately 0.23 rivermiles upstream from Route 725, and continues downstream until the confluence with Crooked Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	4.7

North Fork Goose Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.7

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A06R-01-PH** **Jacks Run**

Cause Location: Begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Excursions less than the lower limit of the pH criterion range (2 of 12 samples - 16.7%) at DEQ station 1AJAC001.06 at Rt. 690.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_JAC01A04 / Jacks Run / Segment begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.	5A	pH	2020	L	3.18

Jacks Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A06R-02-BAC** **Crooked Run**

Cause Location: Begins at the confluence with an unnamed tributary to Crooked Run, at the Route 725 bridge, and continues downstream until the confluence with North Fork Goose Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACRF001.18 at Route 727 (Forest Mill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Crooked Run because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_CRF01A02 / Crooked Run / Segment begins at the confluence with an unnamed tributary to Crooked Run, at the Route 725 bridge, and continues downstream until the confluence with North Fork Goose Creek.	4A	Escherichia coli (E. coli)	2014	L	2.17

Crooked Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.17

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A06R-02-BEN** **Jacks Run**

Cause Location: Begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aJAC000.74 at 0.4 miles downstream from Route 690 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_JAC01A04 / Jacks Run / Segment begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.18

Jacks Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A06R-03-BAC** **Jacks Run**

Cause Location: Begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AJAC001.06 at Route 690: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID 24405, 05/01/2003) included modeling, source identification, and reductions that covered the entire North Fork Goose Creek watershed (Eq ID POL0065).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A06R_JAC01A04 / Jacks Run / Segment begins at the headwaters of Jacks Run and continues downstream until the confluence with North Fork Goose Creek.	4A	Escherichia coli (E. coli)	2018	L	3.18

Jacks Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.18

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A07R-01-BAC** Beaverdam Creek

Cause Location: Begins at the confluence with North Fork Beaverdam Creek, approximately 0.27 rivermile upstream of Route 746, and continues downstream until the confluence with North Fork Goose Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ABEC004.76 at Route 734 (Snickersville Turnpike): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Goose Creek bacteria TMDL for the Beaverdam Creek watershed (Eq ID POL0066) was approved by the EPA on 05/01/2003 (Fed ID 23318). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A07R_BEC01A00 / Beaverdam Creek / Segment begins at the confluence with North Fork Beaverdam Creek, approximately 0.27 rivermile upstream of Route 746, and continues downstream until the confluence with North Fork Goose Creek.	4A	Escherichia coli (E. coli)	2006	L	6.5

Beaverdam Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.5

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A07R-02-BAC** North Fork Beaverdam Creek

Cause Location: Begins at the confluence with Butchers Branch and continues downstream until the confluence with the main stem of Beaverdam Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aNOB000.75 at Route 630.

2010 Assessment: E. coli bacteria criterion excursions (3 of 6 samples - 50.0%) at DEQ station 1aNOB005.49 at Route 719.

A new TMDL is not required for this impaired segment of North Fork Beaverdam Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23318, 05/01/2003) included modeling, source identification, and reductions that covered the entire Beaverdam Creek watershed (Eq ID POL0066).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A07R_NOB01A02 / North Fork Beaverdam Creek / Segment begins at the confluence with an unnamed tributary to North Fork Beaverdam Creek, at rivermile 3.12, and continues downstream until the confluence with the main stem of Beaverdam Creek.	4A	Escherichia coli (E. coli)	2012	L	3.16
VAN-A07R_NOB02A04 / North Fork Beaverdam Creek / Segment begins at the confluence with Butchers Branch and continues downstream until the confluence with an unnamed tributary to North Fork Beaverdam Creek, at rivermile 3.12.	4A	Escherichia coli (E. coli)	2006	L	2.61

North Fork Beaverdam Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.77

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A07R-02-BEN** North Fork Beaverdam Creek

Cause Location: Begins at the headwaters of North Fork Beaverdam Creek and continues downstream until the confluence with the main stem of Beaverdam Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aNOB000.75 at Route 630 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A07R_NOB01A02 / North Fork Beaverdam Creek / Segment begins at the confluence with an unnamed tributary to North Fork Beaverdam Creek, at rivermile 3.12, and continues downstream until the confluence with the main stem of Beaverdam Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.16
VAN-A07R_NOB02A04 / North Fork Beaverdam Creek / Segment begins at the confluence with Butchers Branch and continues downstream until the confluence with an unnamed tributary to North Fork Beaverdam Creek, at rivermile 3.12.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.61

North Fork Beaverdam Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.77

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A07R-03-BAC** Beaverdam Creek

Cause Location: Begins at the confluence with an unnamed tributary, at rivermile 13.2, and continues downstream until the confluence of with Dog Branch.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2010 Assessment: E. coli bacteria criterion excursions (4 of 6 samples - 66.7%) at DEQ station 1aBEC009.01 at Route 626.

2016 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aBEC011.76 at Route 630.

A new TMDL is not required for this impaired segment of Beaverdam Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23318, 05/01/2003) included modeling, source identification, and reductions that covered the entire Beaverdam Creek watershed (Eq ID POL0066).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A07R_BEC02A04 / Beaverdam Creek / Segment begins at the confluence with an unnamed tributary to Beaverdam Creek, just upstream from Route 626, and continues downstream until the confluence of with Dog Branch.	4A	Escherichia coli (E. coli)	2006	L	1.27
VAN-A07R_BEC03A12 / Beaverdam Creek / Segment begins at the confluence with an unnamed tributary, at rivermile 13.2, and continues downstream to the confluence with an unnamed tributary to Beaverdam Creek, just upstream from Route 626.	4A	Escherichia coli (E. coli)	2012	L	4.38

Beaverdam Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.65

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08L-02-BAC** **Goose Creek Reservoir**

Cause Location: Includes all of Goose Creek Reservoir.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) in the pooled data at DEQ stations 1AGOO004.93 and 1AGOO005.57.

A new TMDL is not required for this impairment because the Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions for the watershed in which this reservoir is located (Goose Creek and Tributaries, Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08L_GOO02A02 / Goose Creek Reservoir / Segment includes the impounded waters downstream of the Dulles Greenway Road bridge.	4A	Escherichia coli (E. coli)	2018	L	39.64
VAN-A08L_GOO02B06 / Goose Creek Reservoir / Segment includes the impounded waters upstream of the Dulles Greenway Road bridge.	4A	Escherichia coli (E. coli)	2018	L	58.13

Goose Creek Reservoir

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	97.77	

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-01-BAC** **Goose Creek**

Cause Location: Begins below the Goose Creek impoundment and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (6 of 34 samples - 17.6%) at DEQ station 1aGOO002.38 at Route 7.

The Goose Creek bacteria TMDL for the Goose Creek and Tributaries watershed (Eq ID POL0063) was approved by the EPA on 05/01/2003 (Fed ID 23319). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_GOO01A00 / Goose Creek / Segment begins below the Goose Creek impoundment and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2006	L	4.82

Goose Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.82

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-01-BEN** **Goose Creek**

Cause Location: Begins below the Goose Creek impoundment and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2016 Assessment: Two biological monitoring events in 2009 at DEQ station 1aGOO002.38 at Route 7 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Goose Creek and Little River sediment TMDL for the Goose Creek watershed (Eq ID POL0072) was approved by the EPA on 04/26/2004 (Fed ID 23320). The SWCB approved the TMDL on 08/31/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_GOO01A00 / Goose Creek / Segment begins below the Goose Creek impoundment and continues downstream until the confluence with the Potomac River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.82

Goose Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.82

Sources: Channel Erosion/Incision from Upstream Hydromodifications; Crop Production (Crop Land or Dry Land); Post-development Erosion and Sedimentation; Rangeland Grazing; Site Clearance (Land Development or Redevelopment)

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-01-PCB** **Broad Run, Difficult Run, Goose Creek**

Cause Location: Includes the following tributaries between the Virginia/Maryland state line near the Route 340 bridge (Loudoun County) to the I-395 bridge in Arlington County (above the Woodrow Wilson Bridge): Goose Creek up to the Dulles Greenway Road Bridge, Broad Run up to the Route 625 bridge, and Difficult Run up to the Route 7 bridge.

Cause City/County: Fairfax County; Loudoun County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month.

Additionally, there were two exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for PCBs in fish tissue recorded two species of fish (American eel and channel catfish) collected in 2015 at DEQ station 1aBRB002.15 and one exceedance of the TV in one species of fish (American eel) in 2015 at DEQ station 1AGOO002.38.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08L_GOO02A02 / Goose Creek Reservoir / Segment includes the impounded waters downstream of the Dulles Greenway Road bridge.	5A	PCBs in Fish Tissue	2006	L	39.64
VAN-A08R_GOO01A00 / Goose Creek / Segment begins below the Goose Creek impoundment and continues downstream until the confluence with the Potomac River.	5A	PCBs in Fish Tissue	2006	L	4.82
VAN-A09R_BRB01A00 / Broad Run / Segment begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.	5A	PCBs in Fish Tissue	2006	L	2.94
VAN-A09R_BRB02A06 / Broad Run / Segment begins at the confluence with Cabin Branch and continues downstream until the confluence with Beaverdam Run.	5A	PCBs in Fish Tissue	2006	L	2.27
VAN-A09R_BRB03A06 / Broad Run / Segment begins at the Route 625 crossing and continues downstream until the confluence with Cabin Branch.	5A	PCBs in Fish Tissue	2006	L	1.12
VAN-A11R_DIF01A00 / Difficult Run / Segment begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.	5A	PCBs in Fish Tissue	2006	L	3.18
VAN-A11R_DIF01B06 / Difficult Run / Segment begins at the Route 7 bridge crossing and continues downstream until the confluence with Captain Hickory Run.	5A	PCBs in Fish Tissue	2006	L	1.06

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Broad Run, Difficult Run, Goose Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	39.64	15.39

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-02-BAC** Little River

Cause Location: Begins the confluence with Bartons Creek and continues downstream until the confluence with Goose Creek.

Cause City/County: Fauquier County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 13 samples - 30.8%) at DEQ stations 1aLIV004.78 and 1aLIV004.79 at Route 50. 2012 Assessment: E. coli bacteria criterion excursions (2 of 4 samples - 50.0%) at DEQ station 1aLIV006.92 at Route 629. 2020 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 1aLIV012.12 at Route 776.

The Goose Creek bacteria TMDL for the Little River watershed (Eq ID POL0067) was approved by the EPA on 05/01/2003 (Fed ID 24406). The SWCB approved the TMDL on 06/17/2004. The Goose Creek bacteria TMDL Implementation Plan for the Little River watershed (ID 132) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_LIV01A00 / Little River / Segment begins at the confluence with Hungry Run, approximately 1.5 rivermiles upstream from Route 50 near Aldie, and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2016	L	6.42
VAN-A08R_LIV02A06 / Little River / Segment begins at the confluence with an unnamed tributary and continues downstream until the confluence with Hungry Run, approximately 1.5 rivermiles upstream from Route 50 near Aldie.	4A	Escherichia coli (E. coli)	2006	L	2.48
VAN-A08R_LIV02B10 / Little River / Segment begins at the confluence with Bartons Creek and continues downstream until the confluence with an unnamed tributary.	4A	Escherichia coli (E. coli)	2016	L	4.36

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.26

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-03-BAC** Sycolin Creek

Cause Location: Begins at the headwaters of Sycolin Creek and continues downstream until the confluence with Goose Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: DEQ station 1ASYC002.03 at Route 652 (Grant Lane): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aSYC004.93 at Route 621 (2004 Assessment): fecal coliform bacteria criterion excursions (3 of 5 samples - 60.0%). DEQ station 1aSYC007.43 at Route 797 (2006 Assessment): fecal coliform bacteria criterion excursions (3 of 7 samples - 42.8%).

The Goose Creek bacteria TMDL for the Sycolin Creek watershed (Eq ID POL0069) was approved by the EPA on 05/01/2003 (Fed ID 24408). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_SYC01A00 / Sycolin Creek / Segment begins at rivermile 1.20, the boundary of the PWS designation, and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	1998	L	1.19
VAN-A08R_SYC01B06 / Sycolin Creek / Segment begins at the confluence with an unnamed tributary to Sycolin Creek, approximately 0.23 rivermile upstream from Route 643, and continues downstream until rivermile 1.20, the boundary of the PWS designation.	4A	Escherichia coli (E. coli)	1998	L	1.90

Sycolin Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

Escherichia coli (E. coli) - Total Impaired Size by Water Type: 3.09

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_SYC02A02 / Sycolin Creek / Segment begins at the confluence with South Fork Sycolin Creek and continues downstream until the confluence with an unnamed tributary to Sycolin Creek, approximately 0.23 rivermile upstream from Route 643.	4A	Fecal Coliform	1998	L	4.01
VAN-A08R_SYC03A02 / Sycolin Creek / Segment begins at the headwaters of Sycolin Creek and continues downstream until the confluence with South Fork Sycolin Creek.	4A	Fecal Coliform	1998	L	3.99

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Sycolin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			8

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-04-BAC** South Fork Sycolin Creek

Cause Location: Begins at the headwaters of South Fork Sycolin Creek and continues downstream until the confluence with Sycolin Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (2 of 2 samples - 100%) at DEQ station 1aSFS000.28 at Route 15.

The Goose Creek bacteria TMDL for the South Fork Sycolin Creek watershed (Eq ID POL0068) was approved by the EPA on 05/01/2003 (Fed ID 33840). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_SFS01A02 / South Fork Sycolin Creek / Segment begins at the headwaters of South Fork Sycolin Creek and continues downstream until the confluence with Sycolin Creek.	4A	Escherichia coli (E. coli)	2002	L	3.77

South Fork Sycolin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.77

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-04-BEN** Tuscarora Creek

Cause Location: Begins at the confluence with Town Branch and continues downstream until the confluence with Goose Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of two biological monitoring events in 2012 at station 1aTUS003.19 at Route 643 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_TUS01A00 / Tuscarora Creek / Segment begins at the boundary for the PWS designation area, approximately 0.1 rivermile downstream from the Route 15 crossing, and continues downstream until the confluence with Goose Creek.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.81
VAN-A08R_TUS01B06 / Tuscarora Creek / Segment begins at the confluence with Town Branch and continues downstream until the boundary for the PWS designation area, approximately 0.1 rivermile downstream from the Route 15 crossing.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.09

Tuscarora Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.9

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A08R-05-BAC** Tuscarora Creek

Cause Location: Begins at the confluence with Town Branch and continues downstream until the confluence with Goose Creek.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (2 of 3 samples - 66.7%) at DEQ station 1aTUS000.04 at the golf cart bridge.

A new TMDL is not required for this impaired segment of Tuscarora Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_TUS01A00 / Tuscarora Creek / Segment begins at the boundary for the PWS designation area, approximately 0.1 rivermile downstream from the Route 15 crossing. and continues downstream until the confluence with Goose Creek.	4A	Escherichia coli (E. coli)	2004	L	2.81
VAN-A08R_TUS01B06 / Tuscarora Creek / Segment begins at the confluence with Town Branch and continues downstream until the boundary for the PWS designation area, approximately 0.1 rivermile downstream from the Route 15 crossing.	4A	Escherichia coli (E. coli)	2004	L	1.09

Tuscarora Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.9

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-05-BEN** Dry Mill Branch

Cause Location: Segment begins at the confluence with an unnamed tributary at rivermile 2.97 and continues downstream to the confluence with Tuscarora Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two monitoring events in 2016 at DEQ station 1ADRL001.00, upstream of Route 699, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_DRL01A16 / Dry Mill Branch / Segment begins at the confluence with an unnamed tributary at rivermile 2.97 and continues downstream to the confluence with Tuscarora Creek.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.97

Dry Mill Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.97

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-06-BAC** **Goose Creek**

Cause Location: Begins at the confluence with the Little River and extends downstream until the backwaters of the Goose Creek Reservoir, at approximately rivermile 10.2.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AGOO011.23 at Route 621 (Evergreen Mills Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Goose Creek because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_GOO03A02 / Goose Creek / Segment begins at the confluence with the Little River and extends downstream until the backwaters of the Goose Creek Reservoir, at approximately rivermile 10.2.	4A	Escherichia coli (E. coli)	2006	L	2.54

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.54

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-06-BEN** **Goose Creek**

Cause Location: Begins at the confluence with the Little River and extends downstream until the backwaters of the Goose Creek Reservoir, at approximately rivermile 10.2.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2016 at DEQ station 1aGOO011.23 at Route 621 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_GOO03A02 / Goose Creek / Segment begins at the confluence with the Little River and extends downstream until the backwaters of the Goose Creek Reservoir, at approximately rivermile 10.2.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.54

Goose Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.54

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A08R-07-BAC** **Howsers Branch**

Cause Location: Begins at the headwaters of Howsers Branch and continues downstream until the confluence with Little River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AHOW000.52 at Tamworth Farm Lane: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Howsers Branch because the downstream Goose Creek bacteria TMDL (Fed ID 24406, 05/01/2003) included modeling, source identification, and reductions that covered the entire Little River watershed (Eq ID POL0067). The Goose Creek bacteria TMDL Implementation Plan for the Little River watershed (ID 132) was approved by the EPA on 04/02/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_HOW01A08 / Howsers Branch / Segment begins at the headwaters of Howsers Branch and continues downstream until the confluence with Little River.	4A	Escherichia coli (E. coli)	2008	L	5.11

Howsers Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.11

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A08R-07-BEN** **Cattail Branch**

Cause Location: Begins downstream from Lake Sherred near Route 15 and continues downstream to the confluence with Goose Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2015 and 2016 at DEQ station 1aCAC000.16 at Riverlook Court resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_CAC01A18 / Cattail Branch / Segment begins downstream from Lake Sherred near Route 15 and continues downstream to the confluence with Goose Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.41

Cattail Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.41

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-08-BAC** **Big Branch**

Cause Location: Begins at the headwaters of Big Branch and continues downstream to the confluence with Goose Creek

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 9 samples - 33.3%) at DEQ station 1aBIB000.69 at Route 650.

A new TMDL is not required for this impaired segment of Big Branch because the downstream Goose Creek bacteria TMDL (Fed ID 23319, 05/01/2003) included modeling, source identification, and reductions that covered the entire Goose Creek and Tributaries watershed (Eq ID POL0063).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_BIB01A14 / Big Branch / Segment begins at the headwaters of Big Branch and continues downstream to the confluence with Goose Creek	4A	Escherichia coli (E. coli)	2014	L	2.61

Big Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.61

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-08-BEN** Sycolin Creek

Cause Location: Begins at the headwaters of Sycolin Creek and continues downstream until the confluence with South Fork Sycolin Creek.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aSYC007.43 at Route 797 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_SYC03A02 / Sycolin Creek / Segment begins at the headwaters of Sycolin Creek and continues downstream until the confluence with South Fork Sycolin Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.99

Sycolin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.99

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A08R-09-BEN** **Howsers Branch**

Cause Location: Begins at the headwaters of Howsers Branch and continues downstream until the confluence with Little River.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2017 at DEQ station 1aHOW003.68 at Route 50 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A08R_HOW01A08 / Howsers Branch / Segment begins at the headwaters of Howsers Branch and continues downstream until the confluence with Little River.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	5.11

Howsers Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.11

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-01-BAC** **Unnamed tributary to the Potomac River**

Cause Location: Begins at an unnamed tributary at rivermile 1.82, and continues downstream to the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1AXLE001.62 at Algonkian Parkway (near Middle School): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_XLE01A10 / Unnamed tributary to Potomac River / Segment begins at an unnamed tributary at rivermile 1.82, and continues downstream to the confluence with the Potomac River.	5A	Escherichia coli (E. coli)	2010	L	1.74

Unnamed tributary to the Potomac River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.74

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-01-BEN** **Broad Run**

Cause Location: Begins at the confluence with Horsepen Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events in 2012 at DEQ station 1aBRB002.15 at Route 7 and two biological monitoring events in 2012 at DEQ station 1aBRB006.97 (upstream from Route 625 (Waxpool Road)) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BRB01A00 / Broad Run / Segment begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.	5A	Benthic Macroinvertebrates Bioassessments	2006	H	2.94
VAN-A09R_BRB02A06 / Broad Run / Segment begins at the confluence with Cabin Branch and continues downstream until the confluence with Beaverdam Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	2.27
VAN-A09R_BRB03A06 / Broad Run / Segment begins at the Route 625 crossing and continues downstream until the confluence with Cabin Branch.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	1.12
VAN-A09R_BRB03B08 / Broad Run / Segment begins at the confluence with Horsepen Run and continues downstream until the Route 625 crossing.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	2.12

Broad Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.45

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-01-HG** **Broad Run**

Cause Location: Begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2010 Assessment: Two exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded in two species of fish (smallmouth bass and yellow bullheaded catfish) collected in 2004 at DEQ station 1aBRB002.15

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BRB01A00 / Broad Run / Segment begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.	5A	Mercury in Fish Tissue	2010	L	2.94

Broad Run

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			2.94

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-02-BAC** **Broad Run**

Cause Location: Begins at the confluence with Horsepen Run, and continues downstream until the confluence with Cabin Branch, at rivermile 5.35. Also, begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ABRB002.15 at Route 7 (Leesburg Pike): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aBRB006.33 at Route 625 (2018 Assessment): E. coli bacteria criterion excursions (2 of 12 samples - 16.7%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BRB01A00 / Broad Run / Segment begins at the confluence with Beaverdam Run and continues downstream until the confluence with the Potomac River.	5A	Escherichia coli (E. coli)	2014	L	2.94
VAN-A09R_BRB03A06 / Broad Run / Segment begins at the Route 625 crossing and continues downstream until the confluence with Cabin Branch.	5A	Escherichia coli (E. coli)	2010	L	1.12
VAN-A09R_BRB03B08 / Broad Run / Segment begins at the confluence with Horsepen Run and continues downstream until the Route 625 crossing.	5A	Escherichia coli (E. coli)	2010	L	2.12

Broad Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-02-BEN** **Broad Run**

Cause Location: Begins at the perennial headwaters and continues downstream until the confluence with Horsepen Run.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events in 2012 at DEQ station 1aBRB015.43, upstream of Route 621, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BRB03C10 / Broad Run / Segment begins at the confluence of Broad Run with South Fork Broad Run, and continues downstream until the confluence with Horsepen Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	H	5.76
VAN-A09R_BRB04A08 / Broad Run / Segment begins at the perennial headwaters and continues downstream until the confluence with South Fork Broad Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	3.70

Broad Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.46

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-03-BAC** **Broad Run**

Cause Location: Begins at the perennial headwaters and continues downstream until the confluence with South Fork Broad Run.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aBRB015.38 at Route 621.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BRB04A08 / Broad Run / Segment begins at the perennial headwaters and continues downstream until the confluence with South Fork Broad Run.	5A	Escherichia coli (E. coli)	2012	L	3.7

Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.7

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-03-BEN** **Horsepen Run**

Cause Location: Segment begins at the headwaters of Horsepen Run and continues until the confluence with an unnamed tributary to Horsepen Run, approx. 1.0 rivermile downstream from Route 28.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2020 Assessment: A total of four biological monitoring events in 2013 and 2014 at DEQ station 1aHPR003.93 (upstream of the confluence with Merrybrook Run) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_HPR01A00 / Horsepen Run / Segment begins at the headwaters of Horsepen Run and continues downstream until the confluence with Stallion Branch, 0.83 rivermile upstream from Route 606.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	8.18

Horsepen Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-04-BAC** **South Fork Broad Run**

Cause Location: Begins at the headwaters of South Fork Broad Run and continues downstream until the confluence with Broad Run.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aSOR000.59 at Route 621.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_SOR01A04 / South Fork Broad Run / Segment begins at the headwaters of South Fork Broad Run and continues downstream until the confluence with Broad Run.	5A	Escherichia coli (E. coli)	2014	L	5.28

South Fork Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.28

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-04-BEN** **South Fork Broad Run**

Cause Location: Begins at the headwaters of South Fork Broad Run and continues downstream until the confluence with Broad Run.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of four biological monitoring events in 2011 and 2012 at DEQ station 1aSOR000.59 at Route 621 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_SOR01A04 / South Fork Broad Run / Segment begins at the headwaters of South Fork Broad Run and continues downstream until the confluence with Broad Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	5.28

South Fork Broad Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.28

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-05-BAC** **Beaverdam Run**

Cause Location: Begins at the confluence with of an unnamed tributary to Beaverdam Run, in Ashburn Park, and continues downstream until the confluence with Broad Run.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 7 samples - 28.6%) at DEQ station 1aBEM000.60 at Route 607.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BEM01A04 / Beaverdam Run / Segment begins at the confluence with of an unnamed tributary to Beaverdam Run, and continues downstream until the confluence with Broad Run.	5A	Escherichia coli (E. coli)	2014	L	2.31
VAN-A09R_BEM02B10 / Beaverdam Run / Segment begins at the confluence with an unnamed tributary to Beaverdam Run, in Ashburn Park, and continues downstream until the confluence with an unnamed tributary to Beaverdam Run.	5A	Escherichia coli (E. coli)	2014	L	1.55

Beaverdam Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.86

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-05-BEN** **Beaverdam Run**

Cause Location: Begins at the confluence with of an unnamed tributary to Beaverdam Run, in Ashburn Park, and continues downstream until the confluence with Broad Run.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2020 Assessment: A total of four biological monitoring events in 2013 and 2014 at DEQ station 1aBEM000.60 at Route 607 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_BEM01A04 / Beaverdam Run / Segment begins at the confluence with of an unnamed tributary to Beaverdam Run, and continues downstream until the confluence with Broad Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	2.31
VAN-A09R_BEM02B10 / Beaverdam Run / Segment begins at the confluence with an unnamed tributary to Beaverdam Run, in Ashburn Park, and continues downstream until the confluence with an unnamed tributary to Beaverdam Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	1.55

Beaverdam Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.86

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-06-BAC** Indian Creek

Cause Location: Begins at the headwaters of Indian Run and continues downstream to the confluence with Horsepen Run.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (5 of 15 samples - 33.3%) at DEQ station 1aINI000.80 at Route 606 (Old Ox Road).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_INI01A14 / Indian Creek / Segment begins at the headwaters of Indian Creek and continues downstream to the confluence with Horsepen Run.	5A	Escherichia coli (E. coli)	2014	L	3.48

Indian Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.48

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-06-BEN** **Frying Pan Branch**

Cause Location: Begins at the perennial headwaters and continues downstream to the confluence with Horsepen Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aFRY000.85 at 0.25 mile upstream of Route 608 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_FRY01A18 / Frying Pan Branch / Segment begins at the perennial headwaters and continues downstream to the confluence with Horsepen Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	H	1.42

Frying Pan Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.42

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-07-BAC** **Horsepen Run**

Cause Location: Segment begins at the headwaters of Horsepen Run and continues until the confluence with an unnamed tributary to Horsepen Run, approx. 1.0 rivermile downstream from Route 28.

Cause City/County: Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 17 samples - 11.8%) at DEQ station 1aHPR003.87 at Dulles Airport Access Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_HPR01A00 / Horsepen Run / Segment begins at the headwaters of Horsepen Run and continues downstream until the confluence with Stallion Branch, 0.83 rivermile upstream from Route 606.	5A	Escherichia coli (E. coli)	2016	L	8.18

Horsepen Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-07-BEN** **Russell Branch**

Cause Location: Segment begins at the perennial headwaters and continues downstream to the confluence with Beaverdam Run.

Cause City/County: Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2017 at DEQ station 1aRUS001.36 at Casablanca Drive resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_RUS01A20 / Russell Branch / Segment begins at the start of the PWS designation and continues downstream to the confluence with Beaverdam Run.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	1.96
VAN-A09R_RUS02A20 / Russell Branch / Segment begins at the perennial headwaters and continues downstream to the start of the PWS designation.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	0.14

Russell Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.1

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A09R-08-BAC** **Frying Pan Branch**

Cause Location: Begins at the perennial headwaters and continues downstream to the confluence with Horsepen Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1AFRY000.60 at Route 657 (Centreville Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A09R_FRY01A18 / Frying Pan Branch / Segment begins at the perennial headwaters and continues downstream to the confluence with Horsepen Run.	5A	Escherichia coli (E. coli)	2018	L	1.42

Frying Pan Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.42

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A10R-01-BAC** **Sugarland Run**

Cause Location: Begins at the confluence with Folly Lick Branch and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (10 of 32 samples - 31.2%) at DEQ station 1aSUG004.42 at Route 7.

The Tributaries to the Potomac River bacteria TMDL for the Sugarland Run watershed (Eq ID 782) was approved by the EPA on 09/26/2013 (Fed ID 53779). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A10R_SUG01A00 / Sugarland Run / Segment begins at the boundary of the PWS designation area, at rivermile 4.82, and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2002	L	4.89
VAN-A10R_SUG01B06 / Sugarland Run / Segment begins at the confluence with Folly Lick Branch and continues downstream until the boundary of the PWS designation area, at rivermile 4.82.	4A	Escherichia coli (E. coli)	2006	L	1.07

Sugarland Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.96

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A10R-01-BEN** **Sugarland Run**

Cause Location: Begins at the confluence with Smilax Branch and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County; Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of four biological events in 2009 and in 2010 at station 1aSUG006.28 at Wiehle Avenue and two biological monitoring events in 2010 at DEQ station 1aSUG003.52 (adjacent to Brasswood Place) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A10R_SUG01A00 / Sugarland Run / Segment begins at the boundary of the PWS designation area, at rivermile 4.82, and continues downstream until the confluence with the Potomac River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.89
VAN-A10R_SUG01B06 / Sugarland Run / Segment begins at the confluence with Folly Lick Branch and continues downstream until the boundary of the PWS designation area, at rivermile 4.82.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.07
VAN-A10R_SUG02A02 / Sugarland Run / Segment begins at the confluence with Smilax Branch and continues downstream until the confluence with Folly Lick Branch.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	3.77

Sugarland Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.73

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-01-BAC** **Difficult Run**

Cause Location: begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ADIF000.86 at Route 193 (Georgetown Pike): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples.

The Difficult Run bacteria TMDL (Eq ID POL0557) was approved by the EPA on 11/07/2008 (Fed ID 38239). The SWCB approved the TMDL on 04/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DIF01A00 / Difficult Run / Segment begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2004	L	3.18

Difficult Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.18

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-01-BEN** **Difficult Run**

Cause Location: Begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at station 1aDIF000.86 (Route 193) and two biological monitoring events in 2007 at station 1aDIF000.80 (downstream of Route 193) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Difficult Run sediment TMDL (Eq ID POL0558) was approved by the EPA on 11/07/2008 (Fed ID 37087). The SWCB approved the TMDL on 04/27/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DIF01A00 / Difficult Run / Segment begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	3.18

Difficult Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.18

Sources: Post-development Erosion and Sedimentation; Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-01-HEPOXID** **Difficult Run**

Cause Location: Begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Heptachlor epoxide in Fish Tissue/5A

Cause Description: 2008 Assessment: Three total exceedances of the water quality criterion based tissue screening value (TV) of 6.6 parts per billion (ppb) for heptachlor epoxide in fish tissue were recorded in one species of fish (American eel) in samples collected in 2001 and 2004 at monitoring station 1aDIF000.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DIF01A00 / Difficult Run / Segment begins at the confluence with Captain Hickory Run and continues downstream until the confluence with the Potomac River.	5A	Heptachlor epoxide in Fish Tissue	2006	L	3.18

Difficult Run

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Heptachlor epoxide in Fish Tissue - Total Impaired Size by Water Type:			3.18

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-02-BAC** Mine Run

Cause Location: Begins at the confluence with an unnamed tributary to Mine Run, approximately 0.5 rivermile upstream from River Bend Road, and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (2 of 13 samples - 15.4%) at DEQ station 1aMNR000.72 at Route 603.

The Tributaries to the Potomac River bacteria TMDL for the Mine Run watershed (Eq ID 783) was approved by the EPA on 09/26/2013 (Fed ID 53778). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_MNR01A04 / Mine Run / Segment begins at the confluence with an unnamed tributary to Mine Run, approximately 0.5 rivermile upstream from River Bend Road, and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2006	L	1.02

Mine Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.02

Sources: Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-02-BEN** **Captain Hickory Run**

Cause Location: Begins at the headwaters of Captain Hickory Run and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2008 Assessment: Two biological monitoring events in 2001 at DEQ freshwater probabilistic station 1aCAH001.82 (upstream from Route 681) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_CAH01A04 / Captain Hickory Run / Segment begins at the boundary of the PWS designation area, approximately 0.86 rivermile upstream from the confluence with Piney Run, and continues downstream until the confluence with Difficult Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.19
VAN-A11R_CAH01B06 / Captain Hickory Run / Segment begins at the headwaters of Captain Hickory Run and continues downstream until the boundary of the PWS designation area, approximately 0.86 rivermile upstream from the confluence with Piney Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.09

Captain Hickory Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.28

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-03-BAC** **Difficult Run**

Cause Location: Begins at confluence with Rocky Branch, approximately 0.25 rivermile upstream of Route 672, and continues downstream until the confluence with Wolftrap Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ADIF005.06 at Route 675 (Browns Mill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ADIF010.48 at Route 672 (Vale Road): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

A new TMDL is not required for this impaired segment of Difficult Run because the downstream bacteria TMDL (Fed ID 38239, 11/07/2008) included modeling, source identification, and reductions that covered the entire Difficult Run watershed (Eq ID POL0557).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DIF02A02 / Difficult Run / Segment begins at the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Wolftrap Creek, and continues downstream until the confluence with Wolftrap Creek.	4A	Escherichia coli (E. coli)	2010	L	0.49
VAN-A11R_DIF02B06 / Difficult Run / Segment begins at the confluence with Piney Branch and continues downstream until the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Wolftrap Creek.	4A	Escherichia coli (E. coli)	2010	L	2.34
VAN-A11R_DIF03A02 / Difficult Run / Segment begins at confluence with Rocky Branch, approximately 0.25 rivermile upstream of Route 672, and continues downstream until the confluence with Piney Branch.	4A	Escherichia coli (E. coli)	2006	L	3.55

Difficult Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.38

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-03-BEN** **Difficult Run**

Cause Location: Begins at confluence with Rocky Branch, approximately 0.25 rivermile upstream of Route 672, and continues downstream until the confluence with Wolftrap Creek.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aDIF005.06 at Route 675 and two biological monitoring events in 2007 at DEQ station 1aDIF010.48 at Route 672 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DIF02A02 / Difficult Run / Segment begins at the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Wolftrap Creek, and continues downstream until the confluence with Wolftrap Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	0.49
VAN-A11R_DIF02B06 / Difficult Run / Segment begins at the confluence with Piney Branch and continues downstream until the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Wolftrap Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.34
VAN-A11R_DIF03A02 / Difficult Run / Segment begins at confluence with Rocky Branch, approximately 0.25 rivermile upstream of Route 672, and continues downstream until the confluence with Piney Branch.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.55

Difficult Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			6.38

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-04-BAC** **Snakeden Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Snakeden Branch, approximately 0.4 rivermile downstream from the Twin Branches Road bridge, and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (4 of 13 samples - 30.8%) at DEQ station 1aSNA000.21 at Route 677.

A new TMDL is not required for this impaired segment of Snakeden Branch because the downstream Difficult Run bacteria TMDL (Fed ID 38239, 11/07/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0557).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_SNA01A02 / Snakeden Branch / Segment begins at the confluence with an unnamed tributary to Snakeden Branch, approximately 0.4 rivermile downstream from the Twin Branches Road bridge, and continues downstream until the confluence with Difficult Run.	4A	Escherichia coli (E. coli)	2006	L	0.98

Snakeden Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.98

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-04-BEN** **Colvin Run**

Cause Location: Begins at the headwaters of Colvin Run and continues downstream until the confluence with an unnamed tributary (streamcode XJJ) flowing from Lake Anne.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aCOV003.32 (Wiehle Ave) resulted in a VSCI score which indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_COV02A02 / Colvin Run / Segment begins at the headwaters of Colvin Run and continues downstream until the confluence with an unnamed tributary (streamcode XJJ) flowing from Lake Anne.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.1

Colvin Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.1

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-05-BAC** **Little Difficult Run**

Cause Location: Begins at the confluence with South Fork Little Difficult Run and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (3 of 13 samples - 23.1%) at DEQ station 1aLID000.64 at Route 669 (Stuart Mill Road).

A new TMDL is not required for this impaired segment of Little Difficult Run because the downstream bacteria TMDL (Fed ID 38239, 11/07/2008) included modeling, source identification, and reductions that covered the entire Difficult Run watershed (Eq ID POL0557).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_LID01A02 / Little Difficult Run / Segment begins at the confluence with South Fork Little Difficult Run and continues downstream until the confluence with Difficult Run.	4A	Escherichia coli (E. coli)	2008	L	1.76

Little Difficult Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.76

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-05-BEN** **Snakeden Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Snakeden Branch, approximately 0.4 rivermile downstream from the Twin Branches Road bridge, and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aSNA000.21 at Route 677 (Hunter Station Road) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_SNA01A02 / Snakeden Branch / Segment begins at the confluence with an unnamed tributary to Snakeden Branch, approximately 0.4 rivermile downstream from the Twin Branches Road bridge, and continues downstream until the confluence with Difficult Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.98

Snakeden Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.98

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-06-BAC** **Wolftrap Creek**

Cause Location: Begins at the confluence with Old Courthouse Spring Branch and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aWOT000.92 at Route 702.

A new TMDL is not required for this impaired segment of Wolftrap Creek because the downstream Difficult Run bacteria TMDL (Fed ID 38239, 11/07/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0557).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_WOT01A02 / Wolftrap Creek / Segment begins at the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Difficult Run, and continues downstream until the confluence with Difficult Run.	4A	Escherichia coli (E. coli)	2008	L	0.49
VAN-A11R_WOT01B06 / Wolftrap Creek / Segment begins at the confluence with Old Courthouse Spring Branch and continues downstream until the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Difficult Run.	4A	Escherichia coli (E. coli)	2008	L	2.24

Wolftrap Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 2.73

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-06-BEN** **Little Difficult Run**

Cause Location: Segment begins at the confluence with South Fork Little Difficult Run and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aLID000.64 at Route 669 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_LID01A02 / Little Difficult Run / Segment begins at the confluence with South Fork Little Difficult Run and continues downstream until the confluence with Difficult Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.76

Little Difficult Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.76

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-07-BAC** **Captain Hickory Run**

Cause Location: Begins at the headwaters of Captain Hickory Run and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (2 of 9 samples - 22.2%) at DEQ station 1aCAH000.96 at Fringe Tree Road.

A new TMDL is not required for this impaired segment of Captain Hickory Run because the downstream Difficult Run bacteria TMDL (Fed ID 38239, 11/07/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0557).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_CAH01A04 / Captain Hickory Run / Segment begins at the boundary of the PWS designation area, approximately 0.86 rivermile upstream from the confluence with Piney Run, and continues downstream until the confluence with Difficult Run.	4A	Escherichia coli (E. coli)	2010	L	2.19
VAN-A11R_CAH01B06 / Captain Hickory Run / Segment begins at the headwaters of Captain Hickory Run and continues downstream until the boundary of the PWS designation area, approximately 0.86 rivermile upstream from the confluence with Piney Run.	4A	Escherichia coli (E. coli)	2010	L	1.09

Captain Hickory Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.28

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-07-BEN** **Old Courthouse Spring Branch**

Cause Location: Begins at the headwaters of Old Courthouse Spring Branch and continues downstream until the confluence with Wolftrap Creek.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aOCS000.43 at Laurel Hill Road resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_OCS01A04 / Old Courthouse Spring Branch / Segment begins at the headwaters of Old Courthouse Spring Branch and continues downstream until the confluence with Wolftrap Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.12

Old Courthouse Spring Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.12

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-08-BAC** **Nichols Run**

Cause Location: Begins at the headwaters of Nichols Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ANIC002.10 at Route 603 (Beach Mill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_NIC01A02 / Nichols Run / Segment begins at the headwaters of Nichols Run and continues downstream until the confluence with the Potomac River.	5A	Escherichia coli (E. coli)	2012	L	4.57

Nichols Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.57

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-08-BEN** **Turkey Run**

Cause Location: Begins at the headwaters of Turkey Run, near Langley High School, and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Two biological monitoring events in 2009 at DEQ station 1aTUY000.26, upstream of the G.W. Parkway, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_TUY01A06 / Turkey Run / Segment begins at the headwaters of Turkey Run, near Langley High School, and continues downstream until the confluence with the Potomac River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.35

Turkey Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.35

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-09-BEN** **Dead Run**

Cause Location: Begins at the headwaters of Dead Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Two biological monitoring events in 2009 at DEQ station 1aDED000.29, upstream of G.W. Parkway, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_DED01A04 / Dead Run / Segment begins at the headwaters of Dead Run and continues downstream until the confluence with the Potomac River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.83

Dead Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.83

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A11R-10-BEN** **Wolftrap Creek**

Cause Location: Begins at the boundary of the PWS designation area, approximately 0.73 rivermile upstream from the confluence with Difficult Run, and continues downstream until the confluence with Difficult Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 1aWOT000.92 at Route 702 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A11R_WOT01A02 / Wolftrap Creek / Segment begins at the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Difficult Run, and continues downstream until the confluence with Difficult Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	0.49
VAN-A11R_WOT01B06 / Wolftrap Creek / Segment begins at the confluence with Old Courthouse Spring Branch and continues downstream until the boundary of the PWS designation area, approximately 0.49 rivermile upstream from the confluence with Difficult Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.24

Wolftrap Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.73

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A12E-01-BAC** **Four Mile Run**

Cause Location: Includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line.

Cause City/County: Alexandria; Arlington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AFOU000.19 at George Washington Parkway: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Tidal Four Mile Run bacteria TMDL (Eq ID POL0737) was approved by the EPA on 06/14/2010 (Fed ID 38716). The SWCB approved the TMDL on 09/30/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12E_FOU01A00 / Four Mile Run / Segment includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line. Portion of CBP segment POTTF.	4A	Escherichia coli (E. coli)	1996	L	0.05

Four Mile Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.05		

Sources: Illicit Connections/Hook-ups to Storm Sewers; Sanitary Sewer Overflows (Collection System Failures); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A12E-01-CDANE** **Four Mile Run**

Cause Location: Includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line.

Cause City/County: Alexandria; Arlington County

Use(s): Fish Consumption

Causes(s)/VA Category: Chlordane in Fish Tissue/5A

Cause Description: 2014 Assessment: three exceedances of the water quality criterion based fish tissue value (TV) of 100 parts per billion (ppb) for total chlordane in fish tissue were recorded in two species of fish (carp and channel catfish) in samples collected in 2008 at DEQ station 1aFOU000.45.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12E_FOU01A00 / Four Mile Run / Segment includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line. Portion of CBP segment POTTF.	5A	Chlordane in Fish Tissue	2010	L	0.05

Four Mile Run

Fish Consumption

Chlordane in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.05		

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A12E-01-PCB** Potomac River Embayments (FOU downstream until POM)

Cause Location: Includes the tidal portions of the following tributaries and embayments from the I-395 bridge (above the Woodrow Wilson Bridge) to the Potomac River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Pohick Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powells Creek, Quantico Creek, Chopawamsic Creek, Aquia Creek, and Potomac Creek.

Cause City/County: Alexandria; Arlington County; Fairfax County; King George County; Prince William County; Stafford County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: The fish consumption use is impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 12/13/04 and 10/7/09, limits consumption of bullhead catfish, channel catfish less than 18 in long, largemouth bass, anadromous (coastal) striped bass, sunfish species, smallmouth bass, white catfish, white perch, gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp, and channel catfish greater than 18 in long.

The following exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for PCBs in fish tissue were recorded: 7 in 5 species (largemouth bass, carp, channel catfish, gizzard shad, blue catfish) in 2015 at 1aFOU000.45; 6 in 6 species (largemouth bass, carp, channel catfish, gizzard shad, white catfish, blue catfish) in 2015 at 1aHUT000.01; 4 in 3 species (carp, channel catfish, blue catfish) in 2015 at 1aLIF000.01; 10 in 7 species (largemouth bass, carp, channel catfish, bluegill sunfish, brown bullhead catfish, northern snakehead, gizzard shad) in 2015 at 1aNEA000.57; 8 in 7 species (largemouth bass, bluegill sunfish, channel catfish, blue catfish, brown bullhead catfish, carp, northern snakehead) collected in 2015 at 1aPOH002.27; 18 in 9 species (largemouth bass, yellow perch, channel catfish, carp, brown bullhead catfish, American eel, white perch, gizzard shad, bluegill sunfish) in 2008 at 1aCHO000.90 (2014IR); 9 in 5 species (largemouth bass, channel catfish, blue catfish, brown bullhead catfish, carp) in 2015 at 1aPOW001.11; 10 in 6 species (bluegill sunfish, channel catfish, blue catfish, white catfish, gizzard shad, northern snakehead) in 2015 and 1 in 1 species (northern snakehead) in 2016 at 1aAUA003.71; 10 in 5 species (blue catfish, channel catfish, carp, gizzard shad, northern snakehead) in 2015 at 1aPOM001.04; 7 in 7 species (brown bullhead catfish, carp, channel catfish, gizzard shad, largemouth bass, pumpkinseed sunfish and yellow perch) in 2005 (2012IR), 5 in 1 species (American shad) in 2006 (2012IR), and 3 in 3 species (largemouth bass, gizzard shad, bluegill sunfish) in 2008 (2014IR) at 1aACO001.78; 3 in 3 species (largemouth bass, bullhead catfish, sunfish) in 1996 at 1aQUA002.76 (2002IR); 1 in 1 species (northern snakehead) in 2019 at 1AQUA000.85; 7 in 4 species (largemouth bass, carp, channel catfish, gizzard shad) in 2008 at 1aQUA001.00 (2014IR); 9 in 7 species (striped bass, largemouth bass, bluegill sunfish, channel catfish, flathead catfish, white catfish, carp) in 2015, 1 in 1 species (northern snakehead) in 2016, 2 in 1 species (northern snakehead) in 2018, and 1 in 1 species (northern snakehead) in 2019 at 1aOCC002.47; 1 in 1 species (northern snakehead) in 2017 at 1AOCC006.71; and 1 in 1 sp. (northern snakehead) in 2017 at 1aDOU001.02.

2012IR: 2 exceedances of the human health criteria for PCBs were recorded in water samples collected in 2006 at 1aHUT001.72 and 1 exceedance was recorded in SPMD data collected in 2005 at 1aHUT001.54.

The Tidal Potomac River PCB TMDL was approved by EPA 10/31/07 and by SWCB 4/11/08

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12E_FOU01A00 / Four Mile Run / Segment includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.050

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12E_POT01A16 / Potomac River / Segment includes all tidal Virginia water adjacent to Alexandria, from Second Street to King Street. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2016	L	0.047
VAN-A13E_HFF01A06 / Hooff Run / Segment contains the tidal portion of Hooff Run; begins at the Alexandria National Cemetery and continues downstream until the confluence with Hunting Creek. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2006	L	0.003
VAN-A13E_HUT01A02 / Hunting Creek / Segment includes all tidal waters of Hunting Creek; beginning at the Route 241 (Telegraph Road) bridge crossing and continuing downstream until the mouth of the embayment, at Jones Point and Belle View. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2004	L	0.529
VAN-A14E_DOU01A00 / Dogue Creek / Segment includes all tidal waters of Dogue Creek, extending from approximately rivermile 2.1 until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.736
VAN-A14E_LIF01A00 / Little Hunting Creek / Segment includes all tidal waters of Little Hunting Creek, extending from approximately rivermile 1.7 downstream until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.250
VAN-A14E_POT01A08 / Potomac River / Segment includes all tidal waters downstream of the mouth of the Hunting Creek embayment, at Jones Point and Belle View. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2004	L	0.848
VAN-A14E_POT02A16 / Potomac River / Segment includes all tidal Virginia water adjacent to Alexandria, from King Street to the DC/MD boundary. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2016	L	0.029
VAN-A15E_ACO01A06 / Accotink Bay / Segment includes tidal waters of Accotink Creek until the confluence with the tidal waters of Pohick Bay/Gunston Cove. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.395
VAN-A15E_POH01A00 / Gunston Cove / Segment extends from rivermile 1.31 in Gunston Cove until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	1.504
VAN-A15E_POH02A00 / Pohick Bay / Segment includes tidal waters of Pohick Creek, from the boundary of watershed A15, and extends until rivermile 1.31 in Gunston Cove. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.450

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16E_POH01A06 / Pohick Bay / Segment includes tidal waters of Pohick Creek upstream from the boundary of watershed A16. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.461
VAN-A25E_MAE01A16 / Massey Creek / Segment extends from 0.29 rivermile upstream of monitoring station 1aMAE000.21 until the confluence with the tidal waters of Occoquan River within Occoquan Bay. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.065
VAN-A25E_MAU01A12 / Marumsco Creek / Segment includes all the tidal waters of Marumsco Creek from the end of the free-flowing stream to the open Occoquan Bay. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.025
VAN-A25E_NEA01A00 / Neabsco Bay / Segment includes the tidal waters of Neabsco Bay, beginning at rivermile 1.37, downstream until the confluence with Occoquan Bay. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.545
VAN-A25E_NEA20A02 / Neabsco Creek / Segment begins at the upstream limit of the tidal waters on Neabsco Creek and continues downstream until the start of the open waters of Neabsco Bay, approximately 0.8 rivermile upstream from monitoring station 1aNEA000.57. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.182
VAN-A25E_OCC01A04 / Occoquan Bay / Segment extends 0.5 mile around the Coastal 2000 monitoring station 1aOCC000.77, just west of the Potomac Shoreline of Mason Neck State Park. The downstream limit is the state line at the Potomac River. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.720
VAN-A25E_OCC01A10 / Occoquan Bay / Segment includes waters of Occoquan Bay within a 0.5 mile radius of station 1aOCC001.29. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.598
VAN-A25E_OCC01A12 / Occoquan Bay/Belmont Bay / Segment includes waters of Occoquan Bay in a 0.5 mile radius around station 1aOCC000.01 down to the Virginia state line. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.412
VAN-A25E_OCC01B12 / Occoquan Bay / Segment includes waters of Occoquan Bay located approximately 0.5 mile radius around station 1aOCC001.69. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.709
VAN-A25E_OCC01C16 / Occoquan Bay/Belmont Bay / Segment includes waters of Occoquan Bay located approximately 0.5 mile radius around station 1aOCC001.04. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.438

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_OCC02A00 / Occoquan Bay / Segment extends 0.5 mile around the around monitoring station 1aOCC002.47. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.633
VAN-A25E_OCC03A04 / Belmont Bay (Occoquan River) / Segment extends 0.5 mile around Coastal 2000 monitoring station 1aOCC002.62 (coordinates 38.6382, -77.208). Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.286
VAN-A25E_OCC04A02 / Belmont Bay / Segment extends 0.5 mile around the monitoring station 1A0CC-766-ALL (coordinates 38.647, -77.195). Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.412
VAN-A25E_OCC04B08 / Occoquan River / Segment extends from 0.5 rivermile upstream of monitoring station 1aOCC004.52 until 0.5 rivermile downstream of monitoring station 1aOCC003.82. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.561
VAN-A25E_OCC04C18 / Occoquan River / Segment extends from 0.5 rivermile upstream of monitoring station 1aOCC005.16 until 0.5 rivermile downstream of monitoring station 1aOCC005.16. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.104
VAN-A25E_OCC05A02 / Occoquan River / Segment extends from the end of the free-flowing waters to 0.5 rivermile upstream of monitoring station 1aOCC005.16. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.086
VAN-A25E_OCC20A02 / Occoquan Bay/Belmont Bay / Segment includes all waters of the Occoquan and Belmont Bays not included in other delineated segments. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	2.623
VAN-A25E_OCC30A02 / Occoquan Bay/Belmont Bay / Segment includes all tidal waters in the Occoquan watershed not included in other delineated stream segments. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.126
VAN-A25E_POT01A10 / Potomac River / Segment includes the Potomac River embayment located between Hallowing Point and Sycamore Point. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2010	L	0.633
VAN-A26E_CHO01A04 / Chopawamsic Creek / Segment includes the lower most portion of Chopawamsic Creek embayment downstream until the state line at the confluence with the Potomac River. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.595
VAN-A26E_CHO01B06 / Chopawamsic Creek / Segment includes all Chopawamsic Creek tidal waters not included in other delineated segments. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.103

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26E_POT01A08 / Potomac River / Segment includes the tidal waters of the Potomac River embayment surrounding Chopawamsic Island. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2008	L	0.265
VAN-A26E_POW01A02 / Powells Creek / Segment extends to a 0.5 mile radius around the ACB station 1aPOW-865-ALL (38.5862, -77.253). Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.229
VAN-A26E_POW01B20 / Powells Creek / Segment extends approximately to a 0.5 mile radius around station 1aPOW000.25. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.527
VAN-A26E_POW02A02 / Powells Creek / Segment extends to a 0.5 mile radius around the ACB station 1aPOW-765-ALL (38.5842, -77.2647). Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.402
VAN-A26E_POW03A20 / Powells Creek / Segment begins at the upstream limit of the tidal waters of Powells Creek and continues downstream to approximately 0.5 rivermile upstream from ACB station 1aPOW-765-ALL (38.5842, -77.2647). Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.136
VAN-A26E_QUA01A10 / Quantico Creek / Segment includes Quantico Creek approximately 0.2 miles upstream of station 1aQUA000.43 to the downstream limit of Quantico Creek at the state line at the Potomac River. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.187
VAN-A26E_QUA01B04 / Quantico Creek / Segment extends to a 0.5-mile radius around station 1aQUA001.09. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.419
VAN-A26E_QUA01C18 / Quantico Creek / Segment includes all tidal waters in Quantico Creek watershed not Segment extends from 0.5 mile downstream of station 1aQUA002.38 to 0.5 mile upstream of station 1aQUA001.09. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.268
VAN-A26E_QUA02A06 / Quantico Creek / Segment extends to an approximate 0.5 mile radius around station 1aQUA002.38. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.209
VAN-A26E_QUA20A10 / Quantico Creek / Segment includes tidal waters in Quantico Creek watershed from the riverine boundary downstream to approximately 0.5 mile upstream of station 1aQUA002.38. Portion of CBP segment POTTF.	4A	PCBs in Fish Tissue	2002	L	0.023
VAN-A28E_AUA01A14 / Aquia Creek / Segment includes the tidal waters of Aquia Creek from the Thorney Point - Simms Point transect to the downstream limit of Aquia Creek at the state line at the Potomac River. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.741

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A28E_AUA01B06 / Aquia Creek / Segment extends to 0.5 mile upstream of station 1aAUA-SCSHORE-ALL and 0.5 mile downstream of station 1aAUA001.39 (Thorney Point - Simms Point transect). Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	1.165
VAN-A28E_AUA01B20 / Aquia Creek / Segment begins approximately 0.5 miles downstream from station 1aAUA003.71 and continues downstream to approximately 0.5 mile upstream of station 1aAUA-SCSHORE-ALL. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.603
VAN-A28E_AUA01B22 / Aquia Creek / Segment includes shoreline of Aquia Creek at Widewater State Park and location of VDH HAB station 1aAUA-WSPHAB-VDH. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2022	L	0.041
VAN-A28E_AUA01C00 / Aquia Creek / Segment extends from rivermile 4.28 to rivermile 3.28 in Aquia Creek encompassing a 0.5-mile radius around station 1aAUA003.71. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.364
VAN-A28E_AUA01D06 / Aquia Creek / Segment extends from approximately rivermile 6.70 and continues downstream until approximately rivermile 4.19. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.578
VAN-A28E_AUA02A04 / Aquia Creek / Segment begins at the upstream limit of the tidal waters of Aquia Creek and continues downstream until the confluence with Austin Run. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.235
VAN-A29E_CHN01A10 / Chotank Creek / Segment includes the tidal portion of Chotank Creek, from the fire road crossing inside Caledon State Park until its confluence with the Potomac River. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.123
VAN-A29E_CHN02A10 / Chotank Creek / Segment includes the tidal portion of Chotank Creek, from its headwaters until the fire road crossing inside of Caledon State Park. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.054
VAN-A29E_POM01A04 / Potomac Creek / Segment extends to a 0.5 mile radius around station 1aPOM000.11. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2004	L	0.344
VAN-A29E_POM01B06 / Potomac Creek / Segment extends from rivermile 1.91 until rivermile 1.09 along Potomac Creek. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.587
VAN-A29E_POM02A02 / Potomac Creek / Segment extends a half-mile radius around monitoring station 1aPOM002.41. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.600

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29E_POM02B16 / Potomac Creek / Segment extends from rivermile 3.72 until rivermile 2.92 along Potomac Creek Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.184
VAN-A29E_POM03A08 / Potomac Creek / Segment extends to a half-mile radius around station 1aPOM-SCSPILL-ALL (38.345, -77.3515). Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.321
VAN-A29E_POM20A04 / Potomac Creek / Segment includes all tidal waters of Potomac Creek not included in other segments; beginning at the upstream limit of the tidal waters and continuing downstream until the confluence with the Potomac River at the state line. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2002	L	0.418
VAN-A29E_POT01A06 / Fairview Beach/Potomac River / Segment includes all of Fairview Beach on the Potomac River. Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.005
VAN-A29E_POT20A06 / Potomac River / Segment includes Potomac River tidal tributary water in Caledon State Park Portion of CBP segment POTOH.	4A	PCBs in Fish Tissue	2006	L	0.007

Potomac River Embayments (FOU downstream until POM)

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	24.192		

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13E_HUT01A02 / Hunting Creek / Segment includes all tidal waters of Hunting Creek; beginning at the Route 241 (Telegraph Road) bridge crossing and continuing downstream until the mouth of the embayment, at Jones Point and Belle View. Portion of CBP segment POTTF.	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.529

Potomac River Embayments (FOU downstream until POM)

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:	0.529		

Sources: Atmospheric Deposition - Toxics; Clean Sediments; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-01-BAC** **Four Mile Run**

Cause Location: Begins at the headwaters of Four Mile Run and continues downstream until rivermile 1.46, approximately 0.27 rivermile upstream from the Arlington Ridge Road bridge. Segment includes non-tidal waters of Four Mile Run.

Cause City/County: Alexandria; Arlington County; Fairfax County; Falls Church

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AFOU001.92 at Route 120 (W. Glebe Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1AFOU004.22 at Route 244 (Columbia Pike): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Four Mile Run bacteria TMDL (Eq ID POL0071) was approved by the EPA on 05/31/2002 (Fed ID 26433). The SWCB approved the TMDL on 06/17/2004. The Four Mile Run bacteria TMDL Implementation Plan (ID 38) was completed on 03/31/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_FOU01A00 / Four Mile Run / Segment begins at the headwaters of Four Mile Run and continues downstream until approximately 0.27 rivermile upstream from the Arlington Ridge Road bridge. Segment includes non-tidal waters of Four Mile Run.	4A	Escherichia coli (E. coli)	1994	L	7.96

Four Mile Run	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.96

Sources: Illicit Connections/Hook-ups to Storm Sewers; Wastes from Pets; Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-01-BEN** **Pimmit Run**

Cause Location: Begins at the Route 309 bridge crossing and continues downstream until the confluence with Little Pimmit Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events in 2011 at DEQ station 1aPIM001.89 at Ranleigh Road resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_PIM02A00 / Pimmit Run / Segment begins at the Route 309 bridge crossing and continues downstream until the confluence with Little Pimmit Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.77

Pimmit Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.77

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: A12R-01-PCB Pimmit Run

Cause Location: Includes the following tributaries between the Virginia/Maryland state line near the Route 340 bridge (Loudoun County) to the I-395 bridge in Arlington County (above the Woodrow Wilson Bridge): Pimmit Run up to the Route 309 bridge.

Cause City/County: Arlington County; Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month.

The Tidal Potomac River PCB TMDL was approved by the EPA on 10/31/2007 (Fed ID 35018). The SWCB approved the TMDL on 04/11/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_PIM01A00 / Pimmit Run / Segment begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.	4A	PCBs in Fish Tissue	2006	L	1.65
VAN-A12R_PIM02A00 / Pimmit Run / Segment begins at the Route 309 bridge crossing and continues downstream until the confluence with Little Pimmit Run.	4A	PCBs in Fish Tissue	2006	L	2.77

Pimmit Run

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			4.42

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-02-BAC** **Pimmit Run**

Cause Location: Begins at the headwaters of Pimmit Run, upstream from Route 7, and continues downstream until the confluence with the Potomac River.

Cause City/County: Arlington County; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (8 of 30 samples - 26.7%) at DEQ station 1aPIM000.15 at Route 120 (Glebe Road).

2014 Assessment: E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at DEQ station 1aPIM001.89 at Ranleigh Road.

2016 Assessment: E. coli bacteria criterion excursions (3 of 9 samples - 33.3%) at DEQ station 1aPIM004.16 at Route 309.

The Tributaries to the Potomac River bacteria TMDL for the Pimmit Run watershed (Eq ID 784) was approved by the EPA on 09/26/2013 (Fed ID 53776). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_PIM01A00 / Pimmit Run / Segment begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2010	L	1.65
VAN-A12R_PIM02A00 / Pimmit Run / Segment begins at the Route 309 bridge crossing and continues downstream until the confluence with Little Pimmit Run.	4A	Escherichia coli (E. coli)	2010	L	2.77
VAN-A12R_PIM02B06 / Pimmit Run / Segment begins at the headwaters of Pimmit Run, upstream from Route 7, and continues downstream until the Route 309 bridge crossing.	4A	Escherichia coli (E. coli)	2010	L	3.34

Pimmit Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.76

Sources: Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-02-BEN** **Four Mile Run**

Cause Location: Begins at the headwaters of Four Mile Run and continues downstream until rivermile 1.46, approximately 0.27 rivermile upstream from the Arlington Ridge Road bridge. Segment includes non-tidal waters of Four Mile Run.

Cause City/County: Alexandria; Arlington County; Fairfax County; Falls Church

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2015 at DEQ station 1aFOU002.06 between West Glebe Rd. and I-395 and a total of two biological monitoring events in 2015 at DEQ station 1aFOU005.16 above bike trail bridge in Glencarlyn Park resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_FOU01A00 / Four Mile Run / Segment begins at the headwaters of Four Mile Run and continues downstream until approximately 0.27 rivermile upstream from the Arlington Ridge Road bridge. Segment includes non-tidal waters of Four Mile Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	7.96

Four Mile Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.96

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-03-BAC** **Long Branch**

Cause Location: Begins at the headwaters of Long Branch and continues downstream until the confluence with Four Mile Run.

Cause City/County: Arlington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 5 samples - 40.0%) at DEQ station 1aLBR000.04 at Route 120 (Glebe Road).

A new TMDL is not required for this impaired segment of Long Branch because the downstream Four Mile Run bacteria TMDL (Fed ID 26433, 05/31/2002) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0071). The Four Mile Run bacteria TMDL Implementation Plan (ID 38) was completed on 03/31/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_LBR01A08 / Long Branch / Segment begins at the headwaters of Long Branch and continues downstream until the confluence with Four Mile Run.	4A	Escherichia coli (E. coli)	2012	L	1.98

Long Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.98

Sources: Illicit Connections/Hook-ups to Storm Sewers; Wastes from Pets; Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-03-CDANE** **Pimmit Run**

Cause Location: Begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Arlington County; Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Chlordane/5A

Cause Description: 2008 Assessment: Exceedances of the water quality criterion based tissue value (TV) of 100 parts per billion (ppb) for chlordane in fish tissue were recorded in two total samples of one fish species (American eel) collected in 2001 and 2004 at DEQ station 1aPIM000.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_PIM01A00 / Pimmit Run / Segment begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.	5A	Chlordane	2006	L	1.65

Pimmit Run

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlordane - Total Impaired Size by Water Type:			1.65

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-03-HEPOXID** **Pimmit Run**

Cause Location: Begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.

Cause City/County: Arlington County; Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Heptachlor epoxide in Fish Tissue/5A

Cause Description: 2008 Assessment: Exceedances of the water quality criterion based tissue value (TV) of 6.6 parts per billion (ppb) for heptachlor epoxide in fish tissue were recorded in two total samples of one fish species (American eel) collected in 2001 and 2004 at DEQ station 1aPIM000.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_PIM01A00 / Pimmit Run / Segment begins at the confluence with Little Pimmit Run and continues downstream until the confluence with the Potomac River.	5A	Heptachlor epoxide in Fish Tissue	2006	L	1.65

Pimmit Run

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Heptachlor epoxide in Fish Tissue - Total Impaired Size by Water Type:			1.65

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A12R-04-BAC** **Little Pimmit Run**

Cause Location: Begins at the headwaters of Little Pimmit Run and continues downstream until its confluence with Pimmit Run.

Cause City/County: Arlington County; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aLIO001.50 at Route 691 (Franklin Park Road).

A new TMDL is not required for this impaired segment of Little Pimmit Run because the downstream Tributaries to the Potomac River bacteria TMDL (Fed ID 53776, 09/26/2013) included modeling, source identification, and reductions that covered the entire Pimmit Run watershed (Eq ID 784).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12R_LIO01A10 / Little Pimmit Run / Segment begins at the headwaters of Little Pimmit Run and continues downstream until its confluence with Pimmit Run.	4A	Escherichia coli (E. coli)	2012	L	2.35

Little Pimmit Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.35

Sources: Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-01-PCB** **Indian Run**

Cause Location: Includes the entire portion of Indian Run, from the headwaters until the confluence with Backlick Run.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 7/27/05, limits consumption of creek chub to no more than two meals per month.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_INA01A06 / Indian Run / Segment begins at the headwaters of Indian Run and continues downstream until the confluence with Backlick Run.	5A	PCBs in Fish Tissue	2006	L	3.18

Indian Run

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.18

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-02-BAC** **Holmes Run**

Cause Location: Begins at the headwaters of Holmes Run and continues downstream until the start of Lake Barcroft. Begins again at the mouth of Lake Barcroft and continues downstream until the confluence with Backlick Run.

Cause City/County: Alexandria; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aHOR001.04 at Pickett Street. E. coli bacteria criterion excursions (7 of 12 samples - 58.3%) at DEQ station 1aHOR005.48 at Route 613.

The Holmes Run watershed (Eq ID POL0760) bacteria TMDL was approved by the EPA on 11/10/2010 (Fed ID 39464). The SWCB approved the TMDL on 08/04/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_HOR01A00 / Holmes Run / Segment begins at the mouth of Lake Barcroft and continues downstream until the confluence with Backlick Run.	4A	Escherichia coli (E. coli)	2004	L	3.59

Holmes Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.59

Sources: Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-03-BAC** **Cameron Run/Hunting Creek**

Cause Location: Begins at the confluence with Backlick Run and continues downstream until the mouth of the embayment, at Jones Point and Belle View.

Cause City/County: Alexandria; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AHUT000.01 at GW Parkway: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ACAM002.92 at Eisenhower Ave.: There were two or more STV exceedances in at least one 90-day period with <10 samples.

Bacteria TMDLs for the Hunting Creek (Eq ID POL0758; Fed ID 39462) and Cameron Run (Eq ID POL0759; Fed ID 39463) watersheds were approved by the EPA on 11/10/2010. The SWCB approved the TMDLs on 08/04/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13E_HUT01A02 / Hunting Creek / Segment includes all tidal waters of Hunting Creek; beginning at the Route 241 (Telegraph Road) bridge crossing and continuing downstream until the mouth of the embayment, at Jones Point and Belle View. Portion of CBP segment POTTFF.	4A	Escherichia coli (E. coli)	1998	L	0.529
VAN-A13R_CAM01A04 / Cameron Run/Hunting Creek / Segment begins at the confluence with Backlick Run and continues downstream until the Route 241 (Telegraph Road) bridge crossing.	4A	Escherichia coli (E. coli)	2006	L	1.910

Cameron Run/Hunting Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.529		1.91

Sources: Combined Sewer Overflows; Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-03-BEN** **Holmes Run**

Cause Location: Begins at the headwaters of Holmes Run and continues downstream until the start of Lake Barcroft.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2017 at DEQ station 1aHOR005.48, upstream of Route 613, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_HOR01B00 / Holmes Run / Segment begins at the headwaters of Holmes Run and continues downstream until the start of Lake Barcroft.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	6.09

Holmes Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.09

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-04-BAC** **Holmes Run**

Cause Location: Begins at the headwaters of Holmes Run and continues downstream until the start of Lake Barcroft.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AHOR005.48 at Route 613 (Sleepy Hollow Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Holmes Run because the downstream Holmes Run bacteria TMDL (Fed ID 39464, 11/10/2010) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0760).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_HOR01B00 / Holmes Run / Segment begins at the headwaters of Holmes Run and continues downstream until the start of Lake Barcroft.	4A	Escherichia coli (E. coli)	2012	L	6.09

Holmes Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.09

Sources: Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A13R-04-BEN** **Tripps Run**

Cause Location: Begins at the headwaters of Tripps Run and continues downstream until the start of Lake Barcroft.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2017 at DEQ station 1aTRI001.50, upstream of Route 613, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_TRI01A00 / Tripps Run / Segment begins at the headwaters of Tripps Run and continues downstream until the start of Lake Barcroft.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	3.7

Tripps Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.7

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-05-BAC** **Backlick Run**

Cause Location: Begins at the headwaters of Backlick Run, upstream from Route 620, and continues downstream until the confluence with Holmes Run.

Cause City/County: Alexandria; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (3 of 11 samples - 27.3%) at DEQ station 1aBAL001.40 at Route 401 (Van Dorn Street).

A new TMDL is not required for this impaired segment of Backlick Run because the downstream bacteria TMDL (Fed ID 39463, 11/10/2010) included modeling, source identification, and reductions that covered the entire Cameron Run watershed (Eq ID POL0759).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_BAL01A00 / Backlick Run / Segment begins at the headwaters of Backlick Run, upstream from Route 620, and continues downstream until the confluence with Holmes Run.	4A	Escherichia coli (E. coli)	2012	L	6.69

Backlick Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.69

Sources: Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A13R-06-BAC** **Tripps Run**

Cause Location: Begins at the headwaters of Tripps Run and continues downstream until the start of Lake Barcroft.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ATRI001.50 at Route 613 (Sleepy Hollow Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ATRI002.25 at Route 649 (Annandale Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ATRI002.75 at Chestnut Ave.: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ATRI003.66 at South Oak St.: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Tripps Run because the downstream Holmes Run bacteria TMDL (Fed ID 39464, 11/10/2010) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0760).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A13R_TRI01A00 / Tripps Run / Segment begins at the headwaters of Tripps Run and continues downstream until the start of Lake Barcroft.	4A	Escherichia coli (E. coli)	2012	L	3.7

Tripps Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.7

Sources: Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A14E-01-BAC** **Little Hunting Creek**

Cause Location: Includes all tidal waters of Little Hunting Creek, extending from approximately rivermile 1.7 downstream until the confluence with the Potomac River.

Portion of CBP segment POTTF.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ALIF000.19 at George Washington Parkway: There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14E_LIF01A00 / Little Hunting Creek / Segment includes all tidal waters of Little Hunting Creek, extending from approximately rivermile 1.7 downstream until the confluence with the Potomac River. Portion of CBP segment POTTF.	5A	Escherichia coli (E. coli)	2006	L	0.25

Little Hunting Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.25		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A14R-01-BAC** **Paul Springs Branch**

Cause Location: Begins at the headwaters of Paul Spring Branch and continues downstream until the confluence with North Branch.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 1aPAU001.17 at Route 626.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14R_PAU01A04 / Paul Springs Branch / Segment begins at the headwaters of Paul Spring Branch and continues downstream until the confluence with North Branch.	5A	Escherichia coli (E. coli)	2010	L	3.39

Paul Springs Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.39

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A14R-01-BEN** **Paul Springs Branch**

Cause Location: Begins at the headwaters of Paul Spring Branch and continues downstream until the confluence with North Branch.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 1aPAU001.17 at Route 626 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14R_PAU01A04 / Paul Springs Branch / Segment begins at the headwaters of Paul Spring Branch and continues downstream until the confluence with North Branch.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.39

Paul Springs Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.39

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A14R-01-PCB** **Little Hunting Creek**

Cause Location: Begins at the confluence with an unnamed tributary, approximately 0.82 rivermile upstream from the Route 1 bridge, and continues downstream until tidal waters.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/4A

Cause Description: 2012 Assessment: Two exceedances of the human health criterion for total polychlorinated biphenyls (PCBs) in the water column were recorded in 2006 at DEQ station 1aLIF002.48 at Route 1.

The Tidal Potomac River PCB TMDL for the Little Hunting Creek watershed (Eq ID POL0474) was approved by the EPA on 10/31/2007 (Fed ID 33955). The SWCB approved the TMDL on 04/11/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14R_LIF01A08 / Little Hunting Creek / Segment begins at the confluence with an unnamed tributary, approximately 0.82 rivermile upstream from the Route 1 bridge, and continues downstream until tidal waters.	4A	Polychlorinated biphenyls (PCBs)	2010	L	1.09

Little Hunting Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.09

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A14R-02-BAC** **Dogue Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Dogue Creek, approximately 0.3 rivermiles upstream from Rt. 622, and continues downstream until the end of the free-flowing waters of Dogue Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aDOU003.17 at Route 622.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14R_DOU01A04 / Dogue Creek / Segment begins at the confluence with an unnamed tributary to Dogue Creek, approximately 0.3 rivermiles upstream from Rt. 622, and continues downstream until the end of the free-flowing waters of Dogue Creek.	5A	Escherichia coli (E. coli)	2014	L	1.41

Dogue Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.41

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A15E-01-PH** Pohick Bay

Cause Location: Segment includes tidal waters of Pohick Creek, from the boundary of watershed A15, and extends until rivermile 1.31 in Gunston Cove. Portion of CBP segment POTTF.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: 2016 Assessment: Sufficient excursions greater than the upper limit of the pH criterion range (36 of 210 observations - 17.1%) at continuous monitoring station 1aPOH002.10 at the end of the dock at Pohick Regional Park.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15E_POH02A00 / Pohick Bay / Segment includes tidal waters of Pohick Creek, from the boundary of watershed A15, and extends until rivermile 1.31 in Gunston Cove. Portion of CBP segment POTTF.	5A	pH	2012	L	0.45

Pohick Bay

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.45		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A15L-01-HG** **Lake Accotink**

Cause Location: Includes all of Lake Accotink.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2014 Assessment: Three exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury in fish tissue were recorded in two species of fish (largemouth bass and bluegill sunfish) collected in 2007 at DEQ station 1aACO012.78.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15L_ACO01A10 / Lake Accotink / Segment includes all of Lake Accotink.	5A	Mercury in Fish Tissue	2010	L	73.94

Lake Accotink

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	73.94	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A15L-01-PCB** **Lake Accotink**

Cause Location: Includes all of Lake Accotink.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: 2014 Assessment: Three exceedances of the water quality criterion based fish tissue value (TV) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in two species of fish (carp and gizzard shad) collected in 2007 at monitoring station 1aACO012.78.

NOTE: During the 2014 assessment cycle, the water quality criterion based fish tissue value (TV) for polychlorinated biphenyls (PCBs) in fish tissue was 20 parts per billion (ppb). In 2022, the PCB TV was updated to 18 ppb; the previous exceedances still apply to this impairment based on the updated TV.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15L_ACO01A10 / Lake Accotink / Segment includes all of Lake Accotink.	5A	PCBs in Fish Tissue	2010	L	73.94

Lake Accotink

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	73.94	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-01-BAC** **Accotink Creek**

Cause Location: Begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AACO004.84 at Route 611 (Telegraph Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1AACO006.10 at Route 790 (Alban Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Lower Accotink Creek bacteria TMDL (Eq ID POL0556) was approved by the EPA on 12/18/2008 (Fed ID 35782). The SWCB approved the TMDL on 04/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO01A00 / Accotink Creek / Segment begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.	4A	Escherichia coli (E. coli)	2004	L	7.48

Accotink Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.48

Sources: Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A15R-01-BEN** **Accotink Creek**

Cause Location: Begins at the outlet of Lake Accotink and continues downstream until the tidal waters of Accotink Bay.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at station 1aACO002.50 at Route 1; two biological monitoring events in 2007 and two biological monitoring events in 2008 at station 1aACO006.10 at Route 790; and two biological monitoring events in 2008 at station 1aACO009.14 at Routes 636 and 286 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

One biological monitoring event in 2016 at DEQ station 1aACO011.27 (one mile upstream of Route 644 (Old Keene Mill Road)) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Accotink Creek Chloride (Eq ID 2120) and Sediment (Eq ID 2161) TMDLs for the Lower Accotink Creek watershed were approved by the EPA on 05/23/2018 (Fed IDs 11403 and 11423). The SWCD approved the TMDLs on 04/16/2018. The Salt Management Strategy (SaMS) has also been developed and is being implemented via the Northern Virginia Regional Commission (<https://www.novaregion.org/1399/Northern-Virginia-Salt-Management-Strate>).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO01A00 / Accotink Creek / Segment begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.48
VAN-A15R_ACO01B10 / Accotink Creek / Segment begins at the outlet of Lake Accotink and continues downstream until the confluence of Calamo Branch.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	2.63

Accotink Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			10.11

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-01-CHLR** **Accotink Creek**

Cause Location: Begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.

Cause City/County: Fairfax County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Chloride/4A

Cause Description: Four exceedances of the acute water quality criterion and two exceedances of the chronic water quality criterion were recorded within a three-year period at DEQ station 1AACO014.57 at Route 620.

The Accotink Creek Chloride TMDL for the Upper Accotink Creek watershed (Eq ID 2139) was approved by the EPA on 05/23/2018 (Fed ID 11403). The SWCD approved the TMDL on 04/16/2018. The Salt Management Strategy (SaMS) has also been developed and is being implemented via the Northern Virginia Regional Commission (<https://www.novaregion.org/1399/Northern-Virginia-Salt-Management-Strate>).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO02A00 / Accotink Creek / Segment begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.	4A	Chloride	2016	L	5.22

Accotink Creek

Aquatic Life

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.22

Accotink Creek

Wildlife

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.22

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-01-PCB** **Accotink Creek**

Cause Location: Segment begins at the outlet of Lake Accotink and continues downstream until the tidal waters of Accotink Bay.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: 2010 Assessment: Exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in three species of fish (American eel, redbreast sunfish, and rainbow trout) collected in 2004 at DEQ station 1aACO004.86.

2014 Assessment: Exceedances of the water quality criterion based fish tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue recorded in 2008 in one species of fish (American eel) sampled at DEQ station 1aACO011.62 and in 2007 in one species of fish (yellow bullhead catfish) sampled at DEQ station 1aACO012.58.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO01A00 / Accotink Creek / Segment begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.	5A	PCBs in Fish Tissue	2010	L	7.48
VAN-A15R_ACO01B10 / Accotink Creek / Segment begins at the outlet of Lake Accotink and continues downstream until the confluence of Calamo Branch.	5A	PCBs in Fish Tissue	2010	L	2.63

Accotink Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.11

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: [A15R-02-BAC](#) **Accotink Creek**

Cause Location: Begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AACO014.57 at Route 620 (Braddock Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

The Accotink Creek watershed bacteria TMDL (Eq ID POL0062) was approved by the EPA on 05/31/2002 (Fed ID 24410). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO02A00 / Accotink Creek / Segment begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.	4A	Escherichia coli (E. coli)	1998	L	5.22

Accotink Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.22

Sources: Illicit Connections/Hook-ups to Storm Sewers; Impervious Surface/Parking Lot Runoff; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-02-CHLR** **Accotink Creek**

Cause Location: Begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.

Cause City/County: Fairfax County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Chloride/4A

Cause Description: Two exceedances of the chloride chronic water quality criterion were recorded within a three-year period at DEQ station 1aACO004.84 at Route 611 (Telegraph Rd).

The Accotink Creek Chloride TMDL for the Lower Accotink Creek watershed (Eq ID 2120) was approved by the EPA on 05/23/2018 (Fed ID 11403). The SWCD approved the TMDL on 04/16/2018. The Salt Management Strategy (SaMS) has also been developed and is being implemented via the Northern Virginia Regional Commission (<https://www.novaregion.org/1399/Northern-Virginia-Salt-Management-Strate>).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO01A00 / Accotink Creek / Segment begins at the confluence with Calamo Branch and continues downstream until the tidal waters of Accotink Bay.	4A	Chloride	2018	L	7.48

Accotink Creek

Aquatic Life

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.48

Accotink Creek

Wildlife

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.48

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-03-BAC** **Accotink Creek**

Cause Location: Begins at the confluence with Daniels Run, in the City of Fairfax, and continues downstream until the confluence with Crook Branch, upstream from Route 846.

Cause City/County: Fairfax; Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AACO021.28 at Route 237 (Pickett Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

A new TMDL is not required for this impaired segment of Accotink Creek because the downstream Accotink Creek bacteria TMDL (Fed ID 24410, 05/31/2002) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0062).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO03A02 / Accotink Creek / Segment begins at the confluence with Long Branch, at Eakin Park, and continues downstream until the confluence with Crook Branch, upstream from Route 846.	4A	Escherichia coli (E. coli)	2022	L	0.99
VAN-A15R_ACO04A02 / Accotink Creek / Segment begins at the confluence with Daniels Run, in the City of Fairfax, and continues downstream until the confluence with Long Branch, at Eakin Park.	4A	Escherichia coli (E. coli)	2002	L	2.05

Accotink Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.04

Sources: Illicit Connections/Hook-ups to Storm Sewers; Impervious Surface/Parking Lot Runoff; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-03-CHLR** **Long Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.

Cause City/County: Fairfax County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Chloride/4A

Cause Description: Two exceedances of the chronic water quality criterion were recorded within a three-year period at DEQ station 1aLOE000.26 at Route 620.

The Accotink Creek Chloride TMDL for the Long Branch watershed (Eq ID 2119) was approved by the EPA on 05/23/2018 (Fed ID 11403). The SWCD approved the TMDL on 04/16/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_LOE01A02 / Long Branch / Segment begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.	4A	Chloride	2018	L	2.38

Long Branch

Aquatic Life

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.38

Long Branch

Wildlife

Chloride - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.38

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-04-BEN** **Accotink Creek**

Cause Location: Begins at the headwaters of Accotink Creek and continues downstream until the start of Lake Accotink.

Cause City/County: Fairfax; Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: One biological monitoring event in 2016 at DEQ station 1aACO014.57 at Route 620 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

2012 Assessment: EPA biological monitoring events in 2005 and 2006 at stations 1aACO-A-EPA, 1aACO-B-EPA, 1aACO-C-EPA, and 1aACO-D-EPA resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Accotink Creek Chloride (Eq ID 2139) and Sediment (Eq ID 2162) TMDLs for the Upper Accotink Creek watershed were approved by the EPA on 05/23/2018 (Fed IDs 11403 and 11423). The SWCD approved the TMDLs on 04/16/2018. The Salt Management Strategy (SaMS) has also been developed and is being implemented via the Northern Virginia Regional Commission (<https://www.novaregion.org/1399/Northern-Virginia-Salt-Management-Strate>).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_ACO02A00 / Accotink Creek / Segment begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	5.22
VAN-A15R_ACO03A02 / Accotink Creek / Segment begins at the confluence with Long Branch, at Eakin Park, and continues downstream until the confluence with Crook Branch, upstream from Route 846.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	0.99
VAN-A15R_ACO04A02 / Accotink Creek / Segment begins at the confluence with Daniels Run, in the City of Fairfax, and continues downstream until the confluence with Long Branch, at Eakin Park.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	2.05
VAN-A15R_ACO05A04 / Accotink Creek / Segment begins at the headwaters of Accotink Creek, and continues downstream until the confluence with Daniels Run.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	3.34

Accotink Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.6

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-05-BEN** Long Branch

Cause Location: Begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2012 Assessment: Two biological monitoring events in 2006 at DEQ station 1aLOE001.99 (downstream from Route 651/Guinea Road) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Accotink Creek Chloride (Eq ID 2119) and Sediment (Eq ID 2160) TMDLs for the Upper Accotink Creek watershed were approved by the EPA on 05/23/2018 (Fed IDs 11403 and 11423). The SWCD approved the TMDLs on 04/16/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_LOE01A02 / Long Branch / Segment begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.38

Long Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.38

Sources: Construction Stormwater Discharge (Permitted); Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial/Commercial Site Stormwater Discharge (Permitted); Streambank Modifications/Destabilization; Unspecified Urban Stormwater

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-06-BAC** **Long Branch**

Cause Location: Begins at the headwaters of Long Branch and continues downstream until the confluence with Accotink Creek, at rivermile 4.41.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 11 samples - 27.3%) at DEQ station 1aLOA000.17 at Route 611.

A new TMDL is not required for this impaired segment of Long Branch because the downstream Lower Accotink Creek bacteria TMDL (Fed ID 35782, 12/18/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0556).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_LOA01A08 / Long Branch / Segment begins at the headwaters of Long Branch and continues downstream until the confluence with Accotink Creek, at rivermile 4.41.	4A	Escherichia coli (E. coli)	2008	L	4.48

Long Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.48

Sources: Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A15R-07-BAC** **Long Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 5 samples 40.0%) at DEQ station 1aLOE000.26 at Route 620 and E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at USGS station 01654500.

A new TMDL is not required for this impaired segment of Long Branch because the downstream Accotink Creek bacteria TMDL (Fed ID 24410, 05/31/2002) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0062).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A15R_LOE01A02 / Long Branch / Segment begins at the confluence with an unnamed tributary to Long Branch, at the Route 651 (Guinea Road) bridge, and continues downstream until the confluence with Accotink Creek, just below Braddock Road.	4A	Escherichia coli (E. coli)	2018	L	2.38

Long Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.38

Sources: Illicit Connections/Hook-ups to Storm Sewers; Impervious Surface/Parking Lot Runoff; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A16L-01-DO** **Burke Lake**

Cause Location: Segment includes all of Burke Lake.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion at pooled lake stations 1ASOH006.66 and 1ASOH007.26 (10 of 83 samples - 12.0%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16L_SOH01A06 / Burke Lake / Segment includes all of Burke Lake.	5A	Dissolved Oxygen	2022	L	208.11

Burke Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	208.11	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A16R-01-BAC** Pohick Creek

Cause Location: Begins at the confluence with South Run, approximately 0.25 rivermile upstream from I-95, and continues downstream until the end of the free-flowing portion of Pohick Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (20 of 41 samples - 48.8%) at DEQ station 1aPOH005.36 at Route 1.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16R_POH01A00 / Pohick Creek / Segment begins at the confluence with South Run, approximately 0.25 rivermile upstream from I-95, and continues downstream until the end of the free-flowing portion of Pohick Creek.	5A	Escherichia coli (E. coli)	2006	L	3.78

Pohick Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.78

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A16R-01-BEN** Pohick Creek

Cause Location: Begins at the confluence with Middle Run and continues downstream to the confluence with South Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2020 at DEQ station 1aPOH007.65 at Route 641 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community. Two biological monitoring events in 2020 at DEQ station 1aPOH013.12 at Route 644 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16R_POH01B14 / Pohick Creek / Segment begins at the confluence with Middle Run and continues downstream to the confluence with South Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.62
VAN-A16R_POH02A02 / Pohick Creek / Segment begins at the confluence of an unnamed tributary to Pohick Creek, at rivermile 14.18, and continues downstream until the confluence with Middle Run.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	5.41

Pohick Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.03

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A16R-02-BAC** Pohick Creek

Cause Location: Begins at the confluence with Sideburn Branch and continues downstream until the confluence with South Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1APOH007.65 at Route 641 (Pohick Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aPOH013.12 at Route 644: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%). DEQ station 1aPOH015.09 at Route 645 (2020 Assessment): E. coli bacteria criterion excursions (6 of 12 samples - 50.0%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16R_POH01B14 / Pohick Creek / Segment begins at the confluence with Middle Run and continues downstream to the confluence with South Run.	5A	Escherichia coli (E. coli)	2016	L	2.62
VAN-A16R_POH02A02 / Pohick Creek / Segment begins at the confluence of an unnamed tributary to Pohick Creek, at rivermile 14.18, and continues downstream until the confluence with Middle Run.	5A	Escherichia coli (E. coli)	2012	L	5.41
VAN-A16R_POH03A04 / Pohick Creek / Segment begins at the confluence with Sideburn Branch and continues downstream until the confluence with an unnamed tributary to Pohick Creek, at rivermile 14.18.	5A	Escherichia coli (E. coli)	2006	L	1.78

Pohick Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.81

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A16R-03-BAC** South Run

Cause Location: Begins at the confluence with an unnamed tributary, at rivermile 3.6, and continues downstream to the confluence with Pohick Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2022 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aSOH001.71 at Route 6070.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16R_SOH01A12 / South Run / Segment begins at the confluence with an unnamed tributary, at rivermile 3.6, and continues downstream to the confluence with Pohick Creek.	5A	Escherichia coli (E. coli)	2016	L	4.16

South Run

Recreation	<table> <tr> <td style="text-align: right;">Estuary (Sq. Miles)</td> <td style="text-align: right;">Reservoir (Acres)</td> <td style="text-align: right;">River (Miles)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">4.16</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)			4.16
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)					
		4.16					

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A16R-04-BAC** Middle Run

Cause Location: Begins at the confluence of Cherry Run and Peyton Run, creating Middle Run, and continues downstream to the confluence with Pohick Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1AMID000.75 at Route 640 (Gambrill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A16R_MID01A16 / Middle Run / Segment begins at the confluence of Cherry Run and Peyton Run, creating Middle Run, and continues downstream to the confluence with Pohick Creek.	5A	Escherichia coli (E. coli)	2016	L	2.85

Middle Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.85

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-01-BAC** Cedar Run

Cause Location: Begins at the confluence with Mill Run, approximately 1.2 rivermiles downstream from Route 672, and continues downstream until the confluence with the Occoquan River/Lake Jackson.

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACER006.00 at Route 646 (Aden Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aCER009.52 at Route 611 (2010 Assessment): E. coli bacteria criterion excursions (3 of 7 samples - 42.9%). DEQ station 1ACER016.46 at Route 806 (Elk Run Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1aCER025.25 at Route 602 (2010 Assessment): E. coli bacteria criterion excursions (7 of 15 samples - 46.7%).

The Cedar Run and Licking Run bacteria TMDL for the Cedar Run watershed (EQ ID POL0012) was approved by the EPA on 07/06/2004 (Fed ID 24411). The SWCB approved the TMDL on 12/02/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_CER01A02 / Cedar Run / Segment begins at the confluence with Walnut Branch and continues downstream until the mouth of waterbody A17R.	4A	Escherichia coli (E. coli)	1996	L	1.65
VAN-A17R_CER02A02 / Cedar Run / Segment begins near the confluence with Owl Run and continues downstream until the confluence with Walnut Branch.	4A	Escherichia coli (E. coli)	1998	L	3.00
VAN-A17R_CER02B20 / Cedar Run / Segment begins at the confluence with Turkey Run, approximately 0.15 rivermile upstream from Route 603, and continues downstream until near the confluence with Owl Run.	4A	Escherichia coli (E. coli)	1998	L	3.46
VAN-A17R_CER03A02 / Cedar Run / Segment begins at the boundary of the PWS designation area, approximately rivermile 25.20, and continues downstream until the confluence with Turkey Run, approximately 0.15 rivermile upstream from Route 603.	4A	Escherichia coli (E. coli)	1998	L	4.22
VAN-A17R_CER03B06 / Cedar Run / Segment begins at the confluence with Mill Run, approximately 1.2 rivermiles downstream from Route 672, and continues downstream until the boundary of the PWS designation area, at approximately rivermile 25.20.	4A	Escherichia coli (E. coli)	1998	L	2.49
VAN-A18R_CER01A02 / Cedar Run / Segment begins at the boundary of the PWS designation area, at rivermile 7.86, and continues downstream until the confluence with the Occoquan River/Lake Jackson.	4A	Escherichia coli (E. coli)	1996	L	7.81
VAN-A18R_CER01B06 / Cedar Run / Segment begins at the confluence with Goslin Run and continues downstream until the boundary of the PWS designation area, at rivermile 7.86.	4A	Escherichia coli (E. coli)	1996	L	1.24

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A18R_CER02A02 / Cedar Run / Segment begins at the boundary of the PWS designation area, at rivermile 12.81, and continues downstream until the confluence with Goslin Run.	4A	Escherichia coli (E. coli)	1996	L	3.64
VAN-A18R_CER02B06 / Cedar Run / Segment begins at the mouth of watershed A17R and continues downstream until the boundary of the PWS designation area, at rivermile 12.81.	4A	Escherichia coli (E. coli)	1996	L	0.78

Cedar Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.29

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-01-BEN** Cedar Run

Cause Location: Begins near the confluence with Owl Run and continues downstream until the confluence with Walnut Branch.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017 and 2018 at DEQ station 1aCER016.46 at Route 806 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_CER02A02 / Cedar Run / Segment begins near the confluence with Owl Run and continues downstream until the confluence with Walnut Branch.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	3

Cedar Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-01-DO** Owl Run

Cause Location: Begins at the headwaters of Owl Run and continues downstream until the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion (3 of 10 samples - 30.0%) at DEQ station 1aOWL001.85 at Route 616 (Casanova Rd).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_OWL01A14 / Owl Run / Segment begins at the headwaters of Owl Run and continues downstream until the confluence with Cedar Run.	5A	Dissolved Oxygen	2020	L	5.86

Owl Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			5.86

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-02-BAC** **Licking Run**

Cause Location: Begins at Route 602, below the mouth of Germantown Lake, and continues downstream until the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 1aLIL001.43 at Route 616.

The Cedar Run and Licking Run bacteria TMDL for the Licking Run watershed (Eq ID POL0013) was approved by the EPA on 07/06/2004 (Fed ID 23321). The SWCB approved the TMDL on 12/02/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_LIL01A00 / Licking Run / Segment begins at the outlet of the Germantown Lake impoundment and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	1998	L	6.53

Licking Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.53

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-03-BAC** **Licking Run**

Cause Location: Begins at the headwaters of Licking Run and continues downstream until the start of Germantown Lake.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (3 of 9 samples - 33.3%) at DEQ station 1aLIL009.92 at Route 674.

A new TMDL is not required for this impaired segment of Licking Run because the downstream bacteria TMDL (Fed ID 23321, 07/06/2004) included modeling, source identification, and reductions that covered the entire Licking Run watershed (Eq ID POL0013).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_LIL02A04 / Licking Run / Segment begins at the boundary of the PWS designation area, at rivermile 11.32, and continues downstream until the start of Germantown Lake.	4A	Escherichia coli (E. coli)	2006	L	3.51
VAN-A17R_LIL02B06 / Licking Run / Segment begins at the headwaters of Licking Run and continues downstream until the boundary of the PWS designation area, at rivermile 11.32.	4A	Escherichia coli (E. coli)	2006	L	3.51

Licking Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.02

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-04-BAC** **Turkey Run**

Cause Location: Begins at the confluence with an unnamed tributary to Turkey Run, approximately 0.25 rivermile upstream from the Route 602 crossing, and continues downstream until the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aTUK003.37 at Route 602.

A new TMDL is not required for this impaired segment of Turkey Run because the downstream Cedar Run and Licking Run bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_TUK01A06 / Turkey Run / Segment begins at the confluence with an unnamed tributary to Turkey Run, approximately 0.25 rivermile upstream from the Route 602 crossing, and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2006	L	3.61

Turkey Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.61

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-05-BAC** Cedar Run

Cause Location: Begins at the outlet of the Warrenton Reservoir and continues downstream to the confluence with Mill Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aCER030.62 at Route 674.

A new TMDL is not required for this impaired segment of Cedar Run because the downstream bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_CER03C12 / Cedar Run / Segment begins at the boundary of the PWS designation area, approximately 0.6 rivermile downstream from the Route 678 crossing, and continues downstream to the confluence with Mill Run.	4A	Escherichia coli (E. coli)	2012	L	2.41
VAN-A17R_CER04A06 / Cedar Run / Segment begins at the outlet of the Warrenton Reservoir and continues downstream until the boundary of the PWS designation area, approximately 0.6 rivermile downstream from the Route 678 crossing.	4A	Escherichia coli (E. coli)	2008	L	2.50

Cedar Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.91

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-06-BAC** **Walnut Branch**

Cause Location: Begins at the confluence with an unnamed tributary, just upstream from the railroad crossing, and continues downstream until the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 9 samples - 44.4%) at DEQ station 1aWAL000.79 at Route 767.

A new TMDL is not required for this impaired segment of Walnut Branch because the downstream Cedar Run and Licking Run bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_WAL01A06 / Walnut Branch / Segment begins at the confluence with an unnamed tributary, just upstream from the railroad crossing, and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2008	L	1.69

Walnut Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.69

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-07-BAC** Owl Run

Cause Location: Begins at the headwaters of Owl Run and continues downstream until the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 10 samples - 30.0%) at DEQ station 1aOWL001.85 at Route 616.

A new TMDL is not required for this impaired segment of Owl Run because the downstream Cedar Run and Licking Run bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_OWL01A14 / Owl Run / Segment begins at the headwaters of Owl Run and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2014	L	5.86

Owl Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.86

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A17R-08-BAC** Mill Run

Cause Location: Begins at the headwaters and continues downstream to the confluence with Cedar Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aMIE002.54 at Route 605.

A new TMDL is not required for this impaired segment of Turkey Run because the downstream Cedar Run and Licking Run bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A17R_MIE01A20 / Mill Run / Segment begins at the headwaters and continues downstream to the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2020	L	5.65

Mill Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.65

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A18R-01-BAC** Elk Run

Cause Location: Begins at the confluence with Furrs Run and continues downstream until the confluence with Town Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 8 samples - 50.0%) at DEQ station 1aELK000.10 at Route 806 (Elk Run Road).

A new TMDL is not required for this impaired segment of Elk Run because the downstream bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A18R_ELK01A08 / Elk Run / Segment begins at the confluence with Furrs Run and continues downstream until the confluence with Town Run.	4A	Escherichia coli (E. coli)	2008	L	2.28

Elk Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.28

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A18R-02-BAC** **Town Run**

Cause Location: Begins at the confluence with Negro Run and continues downstream until the confluence with Elk Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ATON003.77 at Route 611 (Sowego Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Town Run because the downstream bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A18R_TON01A08 / Town Run / Segment begins at the confluence with Negro Run and continues downstream until the confluence with Elk Run.	4A	Escherichia coli (E. coli)	2008	L	2.52

Town Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.52

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A18R-02-BEN** **Lucky Run**

Cause Location: Begins at the headwaters of Lucky Run and continues downstream until the confluence with Cedar Run.

Cause City/County: Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2008 Assessment: Two biological monitoring events in 2001 at DEQ station 1aLUC000.95 off Route 611 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A18R_LUC01A04 / Lucky Run / Segment begins at the headwaters of Lucky Run and continues downstream until the confluence with Cedar Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.49

Lucky Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.49

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A18R-03-BAC** **Slate Run**

Cause Location: Begins at the headwaters of Slate Run and continues downstream until the confluence with Cedar Run.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (2 of 10 samples - 20.0%) at DEQ station 1aSLE000.36 at Route 649 (Old Church Road).

A new TMDL is not required for this impaired segment of Slate Run because the downstream bacteria TMDL (Fed ID 24411, 07/06/2004) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0012).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A18R_SLE01A08 / Slate Run / Segment begins at the headwaters of Slate Run and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2010	L	6.97

Slate Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.97

Sources: Grazing in Riparian or Shoreline Zones; Manure Runoff; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-01-BAC** **Broad Run**

Cause Location: Begins at the confluence with Rocky Branch and continues downstream until the confluence with Cannon Branch.

Cause City/County: Manassas; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 1aBRU011.24 (fka 1aBRU011.48) at Sudley Manor Road.

The Occoquan River bacteria TMDL for the Broad Run (1) watershed (Eq ID POL0404) was approved by the EPA on 11/15/2006 (Fed ID 31993). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_BRU02A00 / Broad Run / Segment begins at the confluence with Rocky Branch and continues downstream until the confluence with Cannon Branch.	4A	Escherichia coli (E. coli)	2002	L	7.6

Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.6

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-02-BAC** **Broad Run**

Cause Location: Begins at the confluence with an unnamed tributary to Broad Run, at approximately rivermile 21.3, and continues downstream until the start, western end, of Lake Manassas.

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2010 Assessment: E. coli bacteria criterion excursions (4 of 14 samples - 41.7%) at DEQ station 1aBRU020.12 at Route 29/15.

The Occoquan River bacteria TMDL for the Broad Run (2) watershed (Eq ID POL0405) was approved by the EPA on 11/15/2006 (Fed ID 31994). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_BRU07A02 / Broad Run / Segment begins 5 miles upstream of the Lake Manassas Dam and continues downstream until the start, western end, of Lake Manassas.	4A	Escherichia coli (E. coli)	2002	L	1.33

Broad Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.33

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-03-BAC** **Kettle Run**

Cause Location: Begins at the confluence with an unnamed tributary to Kettle Run, just upstream from Route 602, and continues downstream until the confluence with Broad Run.

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aKET004.27 at Route 646. 2018 Assessment: E. coli bacteria criterion excursions (4 of 10 samples - 40.0%) at DEQ station 1aKET009.91 at Route 604. 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aKET012.03 at Route 761.

The Occoquan River bacteria TMDL for the Kettle Run watershed (Eq ID POL0408) was approved by the EPA on 11/15/2006 (Fed ID 31996). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_KET01A00 / Kettle Run / Segment begins at the confluence with an unnamed tributary to Kettle Run, just upstream from Route 708, and continues downstream until the confluence with Broad Run.	4A	Escherichia coli (E. coli)	2002	L	7.76
VAN-A19R_KET01B12 / Kettle Run / Segment begins at the confluence with an unnamed tributary to Kettle Run, at approximately rivermile 10.5, and continues downstream until the confluence with an unnamed tributary to Kettle Run, just upstream from Route 708.	4A	Escherichia coli (E. coli)	2014	L	2.46
VAN-A19R_KET02A04 / Kettle Run / Segment begins at the confluence with an unnamed tributary to Kettle Run, just upstream from Route 602, and continues downstream until the confluence with another unnamed tributary to Kettle Run, at approximately rivermile 10.5.	4A	Escherichia coli (E. coli)	2006	L	3.62

Kettle Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.84

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-04-BAC** **South Run**

Cause Location: Begins downstream of Lake Brittle on South Run and continues downstream until the confluence with Lake Manassas (Broad Run).

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (4 of 9 samples - 44.4%) at DEQ station 1aSOT001.44 at Route 215.

The Occoquan River bacteria TMDL for the South Run watershed (Eq ID POL0407) was approved by the EPA on 11/15/2006 (Fed ID 32108). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_SOT01A00 / South Run / Segment begins downstream of Lake Brittle on South Run and continues downstream until the confluence with Lake Manassas (Broad Run).	4A	Escherichia coli (E. coli)	2012	L	2.35

South Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.35

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-04-BEN** **South Run**

Cause Location: Begins downstream of Lake Brittle on South Run and continues downstream until the confluence with Lake Manassas (Broad Run).

Cause City/County: Fauquier County; Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2012 Assessment: Two biological monitoring events in 2005 at DEQ station 1aSOT001.65 at Route 652 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The South Run benthic TMDL (Eq ID POL0374) was approved by the EPA on 08/02/2006 (Fed ID 24412). The SWCB approved the TMDL on 03/09/2007. The primary stressor identified for South Run was determined based on evaluations of candidate stressors that potentially could be impacting the stream. Based on the stressor identification analysis, the most probable stressor for the benthic community of South Run was identified as total phosphorus enrichment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_SOT01A00 / South Run / Segment begins downstream of Lake Brittle on South Run and continues downstream until the confluence with Lake Manassas (Broad Run).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	2.35

South Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.35

Sources: Agriculture; Lake Fertilization; Municipal Point Source Discharges; Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-05-BAC** **Broad Run**

Cause Location: Begins at the confluence with Mill Run and continues downstream until the confluence with Catletts Branch.

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aBRU025.35 at Route 55. 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aBRU026.40 at Route 628.

The Occoquan River bacteria TMDL for the Broad Run watershed was approved by the EPA on 11/15/2006 (Fed IDs 31994 and 31995). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_BRU07B06 / Broad Run / Segment begins at the confluence with Trapp Branch and continues downstream until the confluence with Catletts Branch.	4A	Escherichia coli (E. coli)	2006	L	1.16
VAN-A19R_BRU08A04 / Broad Run / Segment begins at the confluence with Mill Run and continues downstream to the confluence with Trapp Run.	4A	Escherichia coli (E. coli)	2004	L	1.17

Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.33

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-06-BAC** **Broad Run**

Cause Location: Begins at the confluence with Kettle Run and continues downstream until the confluence with Cedar Run, forming the Occoquan River/Lake Jackson.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ABRU001.59 at Route 692 (Lucasville Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Broad Run because the downstream bacteria TMDL (Fed ID 32111, 11/15/2006) included modeling, source identification, and reductions that covered the entire Occoquan River watershed (Eq ID POL0409).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_BRU01A04 / Broad Run / Segment begins at the confluence with Kettle Run and continues downstream until the confluence with Cedar Run, forming the Occoquan River/Lake Jackson.	4A	Escherichia coli (E. coli)	2006	L	2.4

Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.4

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-07-BAC** **Trapp Branch**

Cause Location: Begins at the confluence with an unnamed tributary to Trapp Branch, approximately 0.08 rivermile downstream from the Route 696 crossing, and continues downstream until the confluence with Broad Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 1aTRA000.09 at Route 55.

DEQ station 1ATRA001.02 at Route 674 (Georgetown Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Trapp Branch because the downstream Occoquan River bacteria TMDL (Fed ID 31994, 11/15/2006) included modeling, source identification, and reductions that covered the entire Broad Run (2) watershed (Eq ID POL0405).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_TRA01A06 / Trapp Branch / Segment begins at the confluence with an unnamed tributary to Trapp Branch, approximately 0.08 rivermile downstream from the Route 696 crossing, and continues downstream until the confluence with Broad Run.	4A	Escherichia coli (E. coli)	2006	L	1.78

Trapp Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.78

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-09-BAC** **Broad Run**

Cause Location: Begins at the confluence with an unnamed tributary to Broad Run and continues downstream until the confluence with Mill Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aBRU029.80 at Route 55 (upstream).

A new TMDL is not required for this impaired segment of Broad Run because the downstream Occoquan River bacteria TMDL (Fed ID 31995, 11/15/2006) included modeling, source identification, and reductions that covered the entire Broad Run (3) watershed (Eq ID POL0406).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_BRU08B10 / Broad Run / Segment begins at the confluence with an unnamed tributary to Broad Run and continues downstream until the confluence with Mill Run.	4A	Escherichia coli (E. coli)	2010	L	4.17

Broad Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.17

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A19R-10-BAC** North Fork Broad Run

Cause Location: Begins at the confluence with an unnamed tributary to North Fork and continues downstream until the confluence with Lake Manassas (Broad Run).

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aNOF002.14 at Route 29/211.

A new TMDL is not required for this impaired segment of North Fork Broad Run because the downstream Occoquan River bacteria TMDL (Fed ID 31993, 11/15/2006) included modeling, source identification, and reductions that covered the entire Broad Run (1) watershed (Eq ID POL0404).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A19R_NOF01A10 / North Fork Broad Run / Segment begins at the confluence with an unnamed tributary to North Fork and continues downstream until the confluence with Lake Manassas (Broad Run).	4A	Escherichia coli (E. coli)	2016	L	3.67

North Fork Broad Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.67

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A20R-01-BAC** **Occoquan River**

Cause Location: Begins at the confluence with Purcell Branch and continues downstream until the start of the Occoquan Reservoir.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 16 samples - 18.8%) at DEQ station 1aOCC021.35 at Route 3000.

The Occoquan River bacteria TMDL (Eq ID POL0409) was approved by the EPA on 11/15/2006 (Fed ID 32111). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A20R_OCC01A04 / Occoquan River / Segment begins at the confluence with Purcell Branch and continues downstream until the start of the Occoquan Reservoir.	4A	Escherichia coli (E. coli)	2006	L	3.36

Occoquan River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.36

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A20R-02-BAC** **Purcell Branch**

Cause Location: Begins at the headwaters of Purcell Branch, near Woodbine School, and continues downstream until the confluence with the Occoquan River.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ station 1aPUR001.20 at Route 643.

A new TMDL is not required for this impaired segment of Purcell Branch because the downstream bacteria TMDL (Fed ID 32111, 11/15/2006) included modeling, source identification, and reductions that covered the entire Occoquan River watershed (Eq ID POL0409).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A20R_PUR01A06 / Purcell Branch / Segment begins at the headwaters of Purcell Branch, near Woodbine School, and continues downstream until the confluence with the Occoquan River.	4A	Escherichia coli (E. coli)	2006	L	3.86

Purcell Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.86

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-01-BEN** **Catharpin Creek**

Cause Location: Begins at the Route 601 crossing and continues downstream until the confluence with Little Bull Run.

Cause City/County: Fauquier County; Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four monitoring events in 2019 and 2020 at DEQ station 1aCAA001.18 at Route 676 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community. Four monitoring events in 2019 and 2020 at DEQ station 1aCAA007.34 at Route 600 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_CAA01A02 / Catharpin Creek / Segment begins at the Route 601 crossing and continues downstream until the confluence with Little Bull Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	6.81
VAN-A21R_CAA02A08 / Catharpin Creek / Segment begins at the headwaters of Catharpin Creek and continues downstream until the Route 601 crossing.	5A	Benthic Macroinvertebrates Bioassessments	2022	H	3.46

Catharpin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.27

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-01-PCB Bull Run**

Cause Location: Includes Bull Run near Manassas Park from the I-66 bridge downstream approximately fourteen miles to the Route 612 (Yates Ford Road) bridge.

Cause City/County: Fairfax County; Manassas Park; Prince William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04 and modified 07/27/05, limits consumption of carp and channel catfish to no more than two meals per month.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_BUL01A06 / Bull Run / Segment begins at the confluence with Flat Branch and continues downstream until the confluence with Cub Run.	5A	PCBs in Fish Tissue	2006	L	0.20
VAN-A21R_BUL01B06 / Bull Run / Segment begins at the I-66 crossing and continues downstream until the confluence with Flat Branch.	5A	PCBs in Fish Tissue	2006	L	2.63
VAN-A23R_BUL01A06 / Bull Run / Segment begins at the Route 612 crossing, at rivermile 5.8, and continues downstream until the beginning of the Occoquan Reservoir.	5A	PCBs in Fish Tissue	2006	L	2.91
VAN-A23R_BUL01C04 / Bull Run / Segment begins at the confluence of Popes Head Creek with Bull Run and continues downstream until rivermile 5.8.	5A	PCBs in Fish Tissue	2004	L	0.96
VAN-A23R_BUL02A02 / Bull Run / Segment begins at the confluence with Cub Run, at the start of watershed A23R, and continues downstream until the confluence with Popes Head Creek.	5A	PCBs in Fish Tissue	2004	L	4.87

Bull Run

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.57

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-02-BAC** **Bull Run**

Cause Location: Begins at the confluence with Chestnut Lick, approximately 0.7 rivermile upstream from Route 705, and continues downstream until the confluence with an unnamed tributary to Bull Run, at rivermile 22.34.

Cause City/County: Loudoun County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ABUL025.94 at Route 705 (Lurette Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

A new TMDL is not required for this impaired segment of Bull Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_BUL02A00 / Bull Run / Segment begins at the confluence with Chestnut Lick, approximately 0.7 rivermile upstream from Route 705, and continues downstream until the confluence with an unnamed tributary to Bull Run, at rivermile 22.34.	4A	Escherichia coli (E. coli)	2006	L	4.66

Bull Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.66

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-02-BEN** **Bull Run**

Cause Location: Begins at the confluence with Chestnut Lick, approximately 0.7 rivermile upstream from Route 705, and continues downstream until the confluence with an unnamed tributary to Bull Run, at rivermile 22.34.

Cause City/County: Loudoun County; Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2015 at DEQ station 1aBUL025.94 at Route 705 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_BUL02A00 / Bull Run / Segment begins at the confluence with Chestnut Lick, approximately 0.7 rivermile upstream from Route 705, and continues downstream until the confluence with an unnamed tributary to Bull Run, at rivermile 22.34.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.66

Bull Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.66

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-03-BAC** **Catharpin Creek**

Cause Location: Begins at the Route 601 crossing and continues downstream until the confluence with Little Bull Run.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACAA001.18 at Route 676 (Catharpin Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Catharpin Creek because the downstream Occoquan River bacteria TMDL (Fed ID 32109, 11/15/2006) included modeling, source identification, and reductions that covered the entire Little Bull Run watershed (Eq ID POL0410).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_CAA01A02 / Catharpin Creek / Segment begins at the Route 601 crossing and continues downstream until the confluence with Little Bull Run.	4A	Escherichia coli (E. coli)	2008	L	6.81

Catharpin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.81

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-03-BEN** **Unnamed Tributary to Bull Run**

Cause Location: Begins below the downstream pond near the headwaters and continues downstream to the confluence with Bull Run.

Cause City/County: Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2016 at DEQ station 1aXOB000.17 at 0.1 mile downstream from Route 677 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_XOB01A18 / Unnamed Tributary to Bull Run / Segment begins below the downstream pond near the headwaters and continues downstream to the confluence with Bull Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.73

Unnamed Tributary to Bull Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.73

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-04-BAC** **Youngs Branch**

Cause Location: Begins at the headwaters of Youngs Branch and continues downstream until the confluence with Bull Run.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aYOU001.50 at Route 29.

A new TMDL is not required for this impaired segment of Youngs Branch because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_YOU01A02 / Youngs Branch / Segment begins at the headwaters of Youngs Branch and continues downstream until the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2012	L	6.05

Youngs Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.05

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-04-BEN** **Little Bull Run**

Cause Location: Begins at the confluence with Catharpin Creek and continues downstream until the confluence with Bull Run.

Cause City/County: Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Three biological monitoring events in 2015 and 2016 at DEQ station 1aLII001.07 at Robin Drive resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_LII01A02 / Little Bull Run / Segment begins at the confluence with Lick Branch and continues downstream until the confluence with Bull Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	1.95
VAN-A21R_LII02A02 / Little Bull Run / Segment begins at the confluence with Catharpin Creek and continues downstream until the confluence with Lick Branch.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.18

Little Bull Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.13

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-05-BAC** **Bull Run**

Cause Location: Begins at the confluence with Little Bull Run and continues downstream until the confluence with Youngs Branch.

Cause City/County: Fairfax; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aBUL016.31 at Route 29/211.

A new TMDL is not required for this impaired segment of Bull Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_BUL01D08 / Bull Run / Segment begins at the confluence with Little Bull Run and continues downstream until the confluence with Youngs Branch.	4A	Escherichia coli (E. coli)	2016	L	4.02

Bull Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.02

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-06-BAC** **Unnamed Tributary to Bull Run**

Cause Location: Begins below the downstream pond near the headwaters and continues downstream to the confluence with Bull Run.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AXOB000.23 at Route 677: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of an unnamed tributary to Bull Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_XOB01A18 / Unnamed Tributary to Bull Run / Segment begins below the downstream pond near the headwaters and continues downstream to the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2018	L	3.73

Unnamed Tributary to Bull Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.73

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A21R-07-BAC** **Little Bull Run**

Cause Location: Begins at the headwaters of Little Bull Run and continues downstream until the confluence with Catharpin Creek.

Cause City/County: Fauquier County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ALII006.75 at Route 676 (Catharpin Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Little Bull Run because the downstream Occoquan River bacteria TMDL (Fed ID 32109, 11/15/2006) included modeling, source identification, and reductions that covered the entire Little Bull Run watershed (Eq ID POL0410).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A21R_LII03A06 / Little Bull Run / Segment begins at the headwaters of Little Bull Run and continues downstream until the confluence with Catharpin Creek.	4A	Escherichia coli (E. coli)	2018	L	9.94

Little Bull Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.94

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A22R-01-BAC** **Cub Run**

Cause Location: Begins at the confluence with Elklick Run and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ACUB002.61 at Route 658 (Compton Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ACUB011.25 at Route 50 (John Mosby Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Cub Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_CUB01A00 / Cub Run / Segment begins at the confluence with Elklick Run and continues downstream until the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2006	L	6.90
VAN-A22R_CUB02A02 / Cub Run / Segment begins at the confluence with an unnamed tributary to Cub Run at rivermile 13.23 (perennial headwaters) and continues downstream until the confluence with Elklick Run.	4A	Escherichia coli (E. coli)	2020	L	6.34

Cub Run

Recreation	<table> <tr> <td style="text-align: center;">Estuary (Sq. Miles)</td> <td style="text-align: center;">Reservoir (Acres)</td> <td style="text-align: center;">River (Miles)</td> </tr> <tr> <td colspan="3" style="text-align: right;">Escherichia coli (E. coli) - Total Impaired Size by Water Type:</td> </tr> <tr> <td colspan="2"></td> <td style="text-align: right;">13.24</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)	Escherichia coli (E. coli) - Total Impaired Size by Water Type:					13.24
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)								
Escherichia coli (E. coli) - Total Impaired Size by Water Type:										
		13.24								

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-01-BEN** Flatlick Branch

Cause Location: Begins at the confluence with Frog Branch and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four biological monitoring events in 2018 and 2019 at DEQ station 1aFLL000.88 at Route 620 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_FLL01A04 / Flatlick Branch / Segment begins at the confluence with Frog Branch and continues downstream until the confluence with Cub Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.23

Flatlick Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.23

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-01-PCB** **Cub Run**

Cause Location: Begins at the confluence with Ellick Run and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Two exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in one species of fish (American eel) in samples collected during two sampling events in 2015 at DEQ station 1aCUB002.61.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_CUB01A00 / Cub Run / Segment begins at the confluence with Ellick Run and continues downstream until the confluence with Bull Run.	5A	PCBs in Fish Tissue	2018	L	6.9

Cub Run

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			6.9

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A22R-02-BAC** **Elklick Run**

Cause Location: Begins at the confluence with an unnamed tributary to Elklick Run, approximately 0.65 rivermile downstream from the Route 620 crossing, and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 13 samples - 15.4%) at DEQ station 1aELC001.39 at Route 609.

A new TMDL is not required for this impaired segment of Elklick Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_ELC01A04 / Elklick Run / Segment begins at the confluence with an unnamed tributary to Elklick Run at the Fairfax County boundary, and continues downstream until the confluence with Cub Run.	4A	Escherichia coli (E. coli)	2006	L	2.53

Elklick Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.53

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-02-BEN** **Big Rocky Run**

Cause Location: Begins at the confluence with an unnamed tributary to Big Rocky Run, at approximately rivermile 4.03, and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four monitoring events in 2018 and 2019 at DEQ station 1aBIR000.76 at Route 29/211 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_BIR01A02 / Big Rocky Run / Segment begins at the confluence with an unnamed tributary to Big Rocky Run, at approximately rivermile 4.03, and continues downstream until the confluence with Cub Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	4.35

Big Rocky Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.35

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A22R-03-BAC** Flatlick Branch

Cause Location: Begins at the confluence with Frog Branch and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 13 samples - 23.1%) at DEQ station 1aFLL000.88 at Route 620. 2020 Assessment: E. coli bacteria criterion excursions (3 of 11 samples - 27.3%) at USGS station 01656903.

A new TMDL is not required for this impaired segment of Flatlick Branch because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_FLL01A04 / Flatlick Branch / Segment begins at the confluence with Frog Branch and continues downstream until the confluence with Cub Run.	4A	Escherichia coli (E. coli)	2014	L	3.23
VAN-A22R_FLL02A14 / Flatlick Branch / Segment begins at the headwaters of Flatlick Run and continues downstream until the confluence with Frog Branch.	4A	Escherichia coli (E. coli)	2020	L	3.39

Flatlick Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.62

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-03-BEN** **Cub Run**

Cause Location: Begins at the confluence with an unnamed tributary to Cub Run at rivermile 13.23 and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017 and 2018 at DEQ station 1aCUB002.61 at Route 658, a total of four biological monitoring events in 2017 and 2018 at DEQ station 1aCUB003.74 at Route 29/211, a total of four biological monitoring events in 2017 and 2018 at DEQ station 1aCUB008.60 at Route 661, a total of four biological monitoring events in 2015 and 2016 at DEQ station 1aCUB011.25 at Route 50, and a total of two biological monitoring events in 2016 at DEQ station 1aCUB011.78, above the confluence with Sand Branch, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_CUB01A00 / Cub Run / Segment begins at the confluence with Elklick Run and continues downstream until the confluence with Bull Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	6.90
VAN-A22R_CUB02A02 / Cub Run / Segment begins at the confluence with an unnamed tributary to Cub Run at rivermile 13.23 (perennial headwaters) and continues downstream until the confluence with Elklick Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	6.34

Cub Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.24

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-04-BAC** **Big Rocky Run**

Cause Location: Begins at the confluence with an unnamed tributary to Big Rocky Run, at approximately rivermile 4.03, and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ABIR000.76 at Route 29/211 (Lee Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Big Rocky Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_BIR01A02 / Big Rocky Run / Segment begins at the confluence with an unnamed tributary to Big Rocky Run, at approximately rivermile 4.03, and continues downstream until the confluence with Cub Run.	4A	Escherichia coli (E. coli)	2014	L	4.35

Big Rocky Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.35

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-04-BEN** **Elklick Run**

Cause Location: Begins at the confluence with an unnamed tributary to Elklick Run, approximately 0.65 rivermile downstream from the Route 620 crossing, and continues downstream until the confluence with Cub Run.

Cause City/County: Fairfax County; Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four monitoring events in 2018 and 2019 at DEQ station 1aELC001.39 at Route 609 and two biological monitoring events in 2017 at DEQ station 1aELC004.49, 0.76 mile upstream from Route 620, resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_ELC01A04 / Elklick Run / Segment begins at the confluence with an unnamed tributary to Elklick Run at the Fairfax County boundary, and continues downstream until the confluence with Cub Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.53
VAN-A22R_ELC02A20 / Elklick Run / Segment begins at the headwaters and continues downstream to the confluence with an unnamed tributary to Elklick Run at the Fairfax County boundary.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.34

Elklick Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.87

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-05-BAC** Sand Branch

Cause Location: Begins at the intermittent headwaters and continues downstream to the confluence with Cub Run.

Cause City/County: Fairfax County; Loudoun County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ASAN000.34 at Route 609 (Pleasant Valley Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 1ASAN001.45 at Route 639 (Willard Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Sand Branch because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_SAN01A18 / Sand Branch / Segment begins at the headwaters and continues downstream to the confluence with Cub Run.	4A	Escherichia coli (E. coli)	2018	L	1.55

Sand Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.55

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A22R-05-BEN** Sand Branch

Cause Location: Begins at the intermittent headwaters and continues downstream to the confluence with Cub Run.

Cause City/County: Fairfax County; Loudoun County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four monitoring events in 2016 and 2020 at DEQ station 1aSAN000.34 at Route 609 and two biological monitoring events in 2016 at DEQ station 1aSAN001.45 at Route 639 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A22R_SAN01A18 / Sand Branch / Segment begins at the headwaters and continues downstream to the confluence with Cub Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	H	1.55

Sand Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			1.55

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-01-BAC** Johnny Moore Creek

Cause Location: Begins at the confluence with an unnamed tributary to Johnny Moore Creek, approximately 0.13 rivermile downstream from Route 3546, and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AJOH002.42 at Route 658 (Compton Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Johnny Moore Creek because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_JOH01A02 / Johnny Moore Creek / Segment begins at the confluence with an unnamed tributary to Johnny Moore Creek, approximately 0.13 rivermile downstream from Route 3546, and continues downstream until the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2020	L	4.35

Johnny Moore Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.35

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-01-BEN** **Bull Run**

Cause Location: Begins at the confluence with Cub Run, at the start of watershed A23R, and continues downstream until the confluence with Popes Head Creek.

Cause City/County: Fairfax County; Manassas Park; Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2012 Assessment: Two biological monitoring events in 2005 at DEQ station 1aBUL009.61 (downstream of Route 28), one biological monitoring event in 2005 at DEQ station 1aBUL010.28 (at Route 28), and two biological monitoring events in 2005 at DEQ station 1aBUL011.12 (upstream of Route 616) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Bull Run sediment TMDL (Eq ID POL0402) was approved by the EPA on 09/26/2006 (Fed ID 30362). The SWCB approved the TMDL on 06/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_BUL02A02 / Bull Run / Segment begins at the confluence with Cub Run, at the start of watershed A23R, and continues downstream until the confluence with Popes Head Creek.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	4.87

Bull Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.87

Sources: Post-development Erosion and Sedimentation; Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-02-BAC** **Popes Head Creek**

Cause Location: Begins at the confluence with Piney Branch and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (7 of 35 samples - 20.0%) at DEQ station 1aPOE002.00 at Route 645.

The Occoquan River bacteria TMDL for the Popes Head Creek watershed (Eq ID POL0412) was approved by the EPA on 11/15/2006 (Fed ID 32107). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_POE01A00 / Popes Head Creek / Segment begins at the confluence with Piney Branch and continues downstream until the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2004	L	5.64

Popes Head Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.64

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-02-BEN** **Popes Head Creek**

Cause Location: Begins at the confluence with Piney Branch and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: 2012 Assessment: Two biological monitoring events in 2005 at DEQ station 1aPOE002.00 at Route 645 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

The Popes Head Creek sediment TMDL (Eq ID POL0403) was approved by the EPA on 09/26/2006 (Fed ID 30363). The SWCB approved the TMDL on 06/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_POE01A00 / Popes Head Creek / Segment begins at the confluence with Piney Branch and continues downstream until the confluence with Bull Run.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	5.64

Popes Head Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.64

Sources: Post-development Erosion and Sedimentation; Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-03-BAC** **Little Rocky Run**

Cause Location: Begins at the confluence with Willow Springs and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 7 samples - 28.6%) at DEQ station 1aLIP001.00 at Route 658 (Compton Road).

A new TMDL is not required for this impaired segment of Little Rocky Run because the downstream Occoquan River bacteria TMDL (Fed ID 32110, 11/15/2006) included modeling, source identification, and reductions that covered the entire Bull Run watershed (Eq ID POL0411).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_LIP01A06 / Little Rocky Run / Segment begins at the confluence with Willow Springs and continues downstream until the confluence with Bull Run.	4A	Escherichia coli (E. coli)	2008	L	5.23

Little Rocky Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.23

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-03-BEN** **Little Rocky Run**

Cause Location: Begins at the confluence with Willow Springs and continues downstream until the confluence with Bull Run.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2018 at DEQ station 1aLIP001.00 at Route 658 (Compton Road) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_LIP01A06 / Little Rocky Run / Segment begins at the confluence with Willow Springs and continues downstream until the confluence with Bull Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	5.23

Little Rocky Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.23

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-04-BAC** **Piney Branch**

Cause Location: Begins at the perennial headwaters and continues downstream until the confluence with Popes Head Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aPIY000.05 at Route 660.

A new TMDL is not required for this impaired segment of Piney Branch because the downstream Occoquan River bacteria TMDL (Fed ID 32107, 11/15/2006) included modeling, source identification, and reductions that covered the entire Popes Head Creek watershed (Eq ID POL0412).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_P1Y01A02 / Piney Branch / Segment begins at the perennial headwaters and continues downstream until the confluence with Popes Head Creek.	4A	Escherichia coli (E. coli)	2020	L	3.54

Piney Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.54

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A23R-05-BAC** **Bull Run**

Cause Location: Begins at the confluence with Cub Run (at the start of watershed A23R) and continues downstream until the confluence with Popes Head Creek.

Cause City/County: Fairfax County; Manassas Park; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1ABUL010.28 at Route 28 (Centreville Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and no geomean exceedances. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples.

The Occoquan River bacteria TMDL for the Bull Run watershed was approved by the EPA on 11/15/2006 (Fed ID 32110). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A23R_BUL02A02 / Bull Run / Segment begins at the confluence with Cub Run, at the start of watershed A23R, and continues downstream until the confluence with Popes Head Creek.	4A	Escherichia coli (E. coli)	2022	L	4.87

Bull Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.87

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A24L-01-PCB** **Occoquan Reservoir**

Cause Location: Segment includes the upper Bull Run arm of the Occoquan Reservoir; extending from rivermile 2.89 on Bull Run downstream until the crossing of the Route 612 (Yates Ford Road) bridge.

Cause City/County: Fairfax County; Prince William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04 and modified 07/27/05, limits consumption of carp and channel catfish to no more than two meals per month. The affected area includes Bull Run near Manassas Park from the I-66 bridge downstream approximately fourteen miles to the Route 612 (Yates Ford Road) bridge.

Six exceedances of the water quality criterion based fish tissue value (TV) of 18 ppb for PCBs were recorded in two species of fish (channel catfish and carp) sampled in 2015 at DEQ fish tissue monitoring station 1ABUL001.57.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24L_OCC02A06 / Occoquan Reservoir / Segment includes the upper Bull Run arm of the Occoquan Reservoir; extending from rivermile 2.89 on Bull Run downstream until the crossing of the Route 612 (Yates Ford Road) bridge.	5A	PCBs in Fish Tissue	2006	L	63.12

Occoquan Reservoir

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	63.12	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A24L-02-PCB** **Occoquan Reservoir**

Cause Location: Segment includes most of the Occoquan Reservoir; extending from rivermile 19.83 on the Occoquan River and rivermile 1.57 on Bull Run, at the crossing of the Route 612 bridge, downstream until the water supply dam of the Fairfax County Water Authority.

Cause City/County: Fairfax County; Prince William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Five exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for PCBs in fish tissue were recorded in two species of fish (channel catfish and American eel) sampled in 2015 at DEQ fish tissue/sediment monitoring station 1AOCC008.80.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24L_OCC01A02 / Occoquan Reservoir / Segment includes most of the Occoquan Reservoir; extending from rivermile 19.83 on the Occoquan River and rivermile 1.57 on Bull Run, at the crossing of the Route 612 bridge, downstream until the water supply dam of the Fairfax County Water Authority.	5A	PCBs in Fish Tissue	2018	L	1250.04

Occoquan Reservoir

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1250.04	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A24R-01-BAC** **Wolf Run**

Cause Location: Begins at the confluence with Maple Branch and continues downstream until the end of the free-flowing waters at the inundated waters of the Occoquan Reservoir.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aWOL001.26 at Route 643.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24R_WOL01A06 / Wolf Run / Segment begins at the confluence with Maple Branch and continues downstream until the end of the free-flowing waters at the inundated waters of the Occoquan Reservoir.	5A	Escherichia coli (E. coli)	2006	L	2.5

Wolf Run

Recreation	Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				2.5

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A24R-02-BAC** **Sandy Run**

Cause Location: Begins at the headwaters of Sandy Run and continues downstream until the end of the free-flowing waters at the inundated waters of the Occoquan Reservoir.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aSAD001.76 at Cathedral Forest Drive.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24R_SAD01A04 / Sandy Run / Segment begins at the boundary of the PWS designation, at rivermile 3.1 and continues downstream until the end of the free-flowing waters at the inundated waters of the Occoquan Reservoir.	5A	Escherichia coli (E. coli)	2008	L	2.11
VAN-A24R_SAD01A10 / Sandy Run / Segment begins at the headwaters of Sandy Run and continues downstream until the boundary of the PWS designation, at rivermile 3.1.	5A	Escherichia coli (E. coli)	2008	L	3.99

Sandy Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.1

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A24R-02-BEN** **Hooes Run**

Cause Location: Begins at the outlet from Lake Omiscol and continues downstream until the beginning of the inundated waters of the Occoquan Reservoir.

Cause City/County: Prince William County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2017 at DEQ station 1aHOO001.13 at Castile Court resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24R_HOO01A02 / Hooes Run / Segment begins at the outlet from Lake Omiscol and continues downstream until the beginning of the inundated waters of the Occoquan Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	0.99

Hooes Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.99

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A24R-03-BAC** **Hooes Run**

Cause Location: Begins at the outlet from Lake Omiscol and continues downstream until the beginning of the inundated waters of the Occoquan Reservoir.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 10 samples - 20.0%) at DEQ station 1aHOO000.34 at Route 641 (Old Bridge Road).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A24R_HOO01A02 / Hooes Run / Segment begins at the outlet from Lake Omiscol and continues downstream until the beginning of the inundated waters of the Occoquan Reservoir.	5A	Escherichia coli (E. coli)	2012	L	0.99

Hooes Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.99

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25E-02-BAC** Neabsco Creek

Cause Location: Segment includes the tidal waters of Neabsco Bay, beginning at rivermile 1.37, downstream until the confluence with Occoquan Bay.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ANEA000.57 at Rail Road Bridge: There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_NEA01A00 / Neabsco Bay / Segment includes the tidal waters of Neabsco Bay, beginning at rivermile 1.37, downstream until the confluence with Occoquan Bay. Portion of CBP segment POTTF.	5A	Escherichia coli (E. coli)	2004	L	0.545

Neabsco Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.545		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25E-03-BAC** **Occoquan River**

Cause Location: Extends from the end of the free-flowing waters to 0.5 rivermile downstream of monitoring station 1aOCC006.64.

Cause City/County: Fairfax County; Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 18 samples - 16.7%) pooled from DEQ stations 1aOCC006.47, upstream of the Occoquan Regional Park boat ramp, and 1aOCC006.71 at Route 123 (Gordon Boulevard).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_OCC05A02 / Occoquan River / Segment extends from the end of the free-flowing waters to 0.5 rivermile upstream of monitoring station 1aOCC005.16. Portion of CBP segment POTTF.	5A	Escherichia coli (E. coli)	2014	L	0.086

Occoquan River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.086		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25E-04-BAC** Marumsco Creek

Cause Location: Includes all the tidal waters of Marumsco Creek from the end of the free-flowing stream to the open Occoquan Bay.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aMAU001.16 at Featherstone Drive.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_MAU01A12 / Marumsco Creek / Segment includes all the tidal waters of Marumsco Creek from the end of the free-flowing stream to the open Occoquan Bay. Portion of CBP segment POTTF.	5A	Escherichia coli (E. coli)	2012	L	0.025

Marumsco Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	0.025		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: [A25E-04-EBEN](#) **Occoquan River**

Cause Location: Extends 0.5 mile around Coastal 2000 monitoring station 1aOCC002.62.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: 2008 Assessment: Coastal 2000 weight of evidence analysis for DEQ station 1aOCC002.62 (sampled in 2002), utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions, resulted in an impaired determination for the aquatic life use. Results from the estuarine bioassessment were the primary factor for this determination.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_OCC03A04 / Belmont Bay (Occoquan River) / Segment extends 0.5 mile around Coastal 2000 monitoring station 1aOCC002.62 (coordinates 38.6382, -77.208). Portion of CBP segment POTTF.	5A	Estuarine Bioassessments	2006	L	0.286

Occoquan River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.286		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-01-BEN** **Giles Run**

Cause Location: Begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.

Cause City/County: Fairfax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Two biological monitoring events in 2010 at DEQ station 1aGIL003.10 at Route 642 (Lorton Road) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_GIL01A04 / Giles Run / Segment begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	6.48

Giles Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.48

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-01-PCB** **Giles Run**

Cause Location: Begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/4A

Cause Description: 2012 Assessment: Three exceedances of the human health criteria for total polychlorinated biphenyls (PCBs) in the water column were recorded in 2005 and 2006 at DEQ station 1aGIL000.70 at Route 611.

The Tidal Potomac River PCB TMDL for the Occoquan River watershed (Eq ID POL0476) was approved by the EPA on 10/31/2007 (Fed ID 35565). The SWCB approved the TMDL on 04/11/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_GIL01A04 / Giles Run / Segment begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.	4A	Polychlorinated biphenyls (PCBs)	2010	L	6.48

Giles Run

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.48

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-02-BAC** Mills Branch

Cause Location: Begins at the headwaters of Mills Branch and continues downstream until the confluence with the Occoquan River.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aWLB000.06 at Occoquan Regional Park.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_WLB01A02 / Mills Branch / Segment begins at the headwaters of Mills Branch and continues downstream until the confluence with the Occoquan River. Mills Branch, a channeled flow under the Lorton landfill, is an unnamed tributary on the Occoquan/Ft. Belvoir quads.	5A	Escherichia coli (E. coli)	2014	L	1.72

Mills Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.72

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-02-PCB** Mills Branch

Cause Location: Begins at the headwaters of Mills Branch and continues downstream until the confluence with the Occoquan River.

Cause City/County: Fairfax County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/4A

Cause Description: 2012 Assessment: Two exceedances of the human health criteria for total polychlorinated biphenyls (PCBs) in the water column were recorded in 2006 at DEQ station 1aWLB000.06 at Occoquan Regional Park.

The Tidal Potomac River PCB TMDL for the Occoquan River watershed (Eq ID POL0476) was approved by the EPA on 10/31/2007 (Fed ID 35565). The SWCB approved the TMDL on 04/11/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_WLB01A02 / Mills Branch / Segment begins at the headwaters of Mills Branch and continues downstream until the confluence with the Occoquan River. Mills Branch, a channeled flow under the Lorton landfill, is an unnamed tributary on the Occoquan/Ft. Belvoir quads.	4A	Polychlorinated biphenyls (PCBs)	2010	L	1.72

Mills Branch

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.72

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-03-BAC** **Giles Run**

Cause Location: Begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.

Cause City/County: Fairfax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aGIL000.85 at Route 1.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_GIL01A04 / Giles Run / Segment begins at the headwaters of Giles Run and continues downstream until the end of the free-flowing waters of Giles Run, at Massey Creek.	5A	Escherichia coli (E. coli)	2014	L	6.48

Giles Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.48

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-04-BAC** Marumsco Creek

Cause Location: Begins at the confluence with an unnamed tributary to Marumsco Creek, just upstream from Easy Street, and continues downstream until the end of the free-flowing waters.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (5 of 11 samples - 45.5%) at DEQ station 1aMAU001.67 at Route 1 (Jefferson Davis Highway).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_MAU01A04 / Marumsco Creek / Segment begins at the confluence with an unnamed tributary to Marumsco Creek, just upstream from Easy Street, and continues downstream until the end of the free-flowing waters.	5A	Escherichia coli (E. coli)	2014	L	0.54

Marumsco Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.54

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-05-BAC** **Unnamed Tributary to Occoquan River**

Cause Location: Begins at the headwaters of an unnamed tributary and continues downstream until the confluence with the Occoquan River.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aXMK000.37 at Route 2100.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_XMK01A16 / Unnamed Tributary to Occoquan River / Segment begins at the headwaters of an unnamed tributary and continues downstream until the confluence with the Occoquan River.	5A	Escherichia coli (E. coli)	2016	L	1.11

Unnamed Tributary to Occoquan River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.11

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A25R-06-BAC** **Cow Branch**

Cause Location: Begins at the headwaters of Cow Branch, and continues downstream to the confluence with the estuarine portion of Neabsco Bay.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 1ACWB000.56 at Route 638 (Blackburn Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25R_CWB01A12 / Cow Branch / Segment begins at the headwaters of Cow Branch, and continues downstream to the confluence with the estuarine portion of Neabsco Bay.	5A	Escherichia coli (E. coli)	2020	L	3.99

Cow Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.99

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A26L-01-HG** **Lake Montclair**

Cause Location: Includes all of Lake Montclair.

Cause City/County: Prince William County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2012 Assessment: Nine exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury in fish tissue were recorded in three species of fish (largemouth bass, channel catfish, and black crappie) collected in 2006 at station 1aPOW009.08.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26L_POW01A06 / Lake Montclair / Segment includes all of Lake Montclair.	5A	Mercury in Fish Tissue	2010	L	103.54

Lake Montclair

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	103.54	

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A26L-01-PCB** **Lake Montclair**

Cause Location: Includes all of Lake Montclair.

Cause City/County: Prince William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: 2010 Assessment: Exceedances of the water quality criterion based fish tissue value (TV) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in 2004 and 2006 in three species of fish (carp (2004), brown bullhead catfish (2004), and channel catfish (2004, 2006)) collected at station 1APOW009.08.

The Tidal Potomac River PCB TMDL for the Powells Creek watershed (Eq ID POL0481) was approved by the EPA on 10/31/2007 (Fed ID 34374). The SWCB approved the TMDL on 04/11/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26L_POW01A06 / Lake Montclair / Segment includes all of Lake Montclair.	4A	PCBs in Fish Tissue	2010	L	103.54

Lake Montclair

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		103.54	

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Source Unknown; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-01-CU** **Quantico Creek**

Cause Location: Begins at the confluence with South Fork Quantico Creek, approximately 0.75 rivermile upstream from I-95, and continues downstream until the start of the tidal waters of Quantico Bay.

Cause City/County: Prince William County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Copper/5A

Cause Description: Two exceedances of the freshwater chronic criterion and three exceedances of the freshwater acute criterion were recorded within a three year period (2015-2018) at DEQ stations 1aQUA004.20 at Route 1 and 1aQUA004.88 at Van Buren Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_QUA01A00 / Quantico Creek / Segment begins at the confluence with South Fork Quantico Creek, approximately 0.75 rivermile upstream from I-95, and continues downstream until the start of the tidal waters of Quantico Bay.	5A	Copper	2020	L	1.47

Quantico Creek

Aquatic Life

Copper - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.47

Quantico Creek

Wildlife

Copper - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.47

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-02-BAC** **Powells Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Powells Creek, at rivermile 12.77 and continues downstream until the end of the free-flowing waters of Powells Creek, however does not include Lake Montclair and the first 0.2 rivermiles below the lake.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions at DEQ station 1aPOW003.11 at Route 1 (3 of 13 samples - 23.1%) and at DEQ station 1aPOW009.99 at Route 643 (4 of 11 samples - 36.4%).

The Potomac River Tributaries bacteria TMDL for the Powells Creek watershed (Eq ID 766) was approved by the EPA on 09/26/2013 (Fed ID 53801). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_POW01A00 / Powells Creek / Segment begins approximately 0.2 rivermiles below Lake Montclair and continues downstream until the end of the free-flowing waters of Powells Creek.	4A	Escherichia coli (E. coli)	2006	L	5.37
VAN-A26R_POW02A02 / Powells Creek / Segment begins at the confluence with an unnamed tributary to Powells Creek, at rivermile 12.77, and continues downstream until the beginning of Lake Montclair.	4A	Escherichia coli (E. coli)	2014	L	3.91

Powells Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.28

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-02-PH** **Unnamed tributary to Potomac River**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream until its confluence with the Potomac River

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: 2018 Assessment: Excursions less than the lower limit of the pH criterion range (4 of 12 samples - 33.3%) at DEQ station 1aXLF000.13 at Route 633 (Arkendale Road).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_XLF01A10 / Unnamed tributary to Potomac River / Segment begins at the headwaters of the unnamed tributary and continues downstream until its confluence with the Potomac River.	5A	pH	2014	L	3.68

Unnamed tributary to Potomac River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.68

Sources: Source Unknown

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Cause Group Code: **A26R-03-BAC** **Quantico Creek**

Cause Location: Begins at the confluence with South Fork Quantico Creek, approximately 0.75 rivermile upstream from I-95, and continues downstream until the start of the tidal waters of Quantico Bay.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (11 of 35 samples - 31.4%) at DEQ station 1aQUA004.46 at Route 1 Business.

The Potomac River Tributaries bacteria TMDL for the Powells Creek watershed (Eq ID 768) was approved by the EPA on 09/26/2013 (Fed ID 53797). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_QUA01A00 / Quantico Creek / Segment begins at the confluence with South Fork Quantico Creek, approximately 0.75 rivermile upstream from I-95, and continues downstream until the start of the tidal waters of Quantico Bay.	4A	Escherichia coli (E. coli)	2004	L	1.47

Quantico Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.47

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-04-BAC** North Branch Chopawamsic Creek

Cause Location: Begins at the headwaters of North Branch Chopawamsic Creek and continues downstream until the confluence with Middle Branch.

Cause City/County: Prince William County; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aNOR009.87 at the MCB-1 bridge crossing.

The Potomac River Tributaries bacteria TMDL for the North Branch Chopawamsic Creek watershed (Eq ID 769) was approved by the EPA on 09/26/2013 (Fed ID 53788). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_NOR01A02 / North Branch Chopawamsic Creek / Segment begins at the headwaters of North Branch Chopawamsic Creek and continues downstream until the confluence with Middle Branch.	4A	Escherichia coli (E. coli)	2004	L	7.26

North Branch Chopawamsic Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.26

Sources: Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-05-BAC** **South Fork Quantico Creek**

Cause Location: Begins at the headwaters of the South Fork Quantico Creek and continues downstream until the start of the impounded waters, adjacent to what is labeled as Mawavi Camp No 2 on the Joplin quad.

Cause City/County: Prince William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 assessment: E. coli bacteria criterion excursions (2 of 13 samples - 15.4%) at DEQ station 1aSOQ006.73 at Route 619.

The Potomac River tributaries bacteria TMDL for the South Fork Quantico Creek watershed (Eq ID 767) was approved by the EPA on 09/26/2013 (Fed ID 53796). The SWCB approved the TMDL on 04/04/2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_SOQ01B02 / South Fork Quantico Creek / Segment begins at the headwaters of the South Fork Quantico Creek and continues downstream until the start of the impounded waters, adjacent to what is labeled as Mawavi Camp No 2 on the Joplin quad.	4A	Escherichia coli (E. coli)	2004	L	4.82

South Fork Quantico Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.82

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-07-BAC** **Unnamed tributary to Potomac River**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream until its confluence with the Potomac River

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 1aXLF000.13 at Route 633 (Arkendale Road).

The Potomac River tributaries bacteria TMDL for the Unnamed Tributary (XLF) watershed (Eq ID 770) was approved by the EPA on 09/26/2013 (Fed ID 53790). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_XLF01A10 / Unnamed tributary to Potomac River / Segment begins at the headwaters of the unnamed tributary and continues downstream until its confluence with the Potomac River.	4A	Escherichia coli (E. coli)	2010	L	3.68

Unnamed tributary to Potomac River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.68

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A26R-08-BAC** **South Branch Chopawamsic Creek**

Cause Location: Begins at the headwaters of the South Branch Chopawamsic Creek, and continues downstream to the inundated waters of the Breckenridge Reservoir.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aSOB001.80 at MCB-1.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A26R_SOB01A12 / South Branch Chopawamsic Creek / Segment begins at the headwaters of the South Branch Chopawamsic Creek, and continues downstream to the inundated waters of the Breckenridge Reservoir.	5A	Escherichia coli (E. coli)	2018	L	4.66

South Branch Chopawamsic Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.66

Sources: Source Unknown

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Cause Group Code: **A27R-01-BAC** **Aquia Creek**

Cause Location: Begins at the confluence with Cannon Creek, approximately 0.1 rivermile downstream from Route 610, and continues downstream until Smith Lake (Aquia Reservoir).

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (6 of 34 samples - 17.6%) at DEQ station 1aAUA014.51 at Route 641.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A27R_AUA01A00 / Aquia Creek / Segment begins at the confluence with Cannon Creek, approximately 0.1 rivermile downstream from Route 610, and continues downstream until Smith Lake (Aquia Reservoir).	5A	Escherichia coli (E. coli)	2006	L	6.36

Aquia Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.36

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A27R-01-DO** **Unnamed tributary to Aquia Creek**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream until its confluence with Aquia Creek.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: 2014 Assessment: Excursions less than the minimum dissolved oxygen criterion (4 of 16 samples - 25.0%) at citizen station 1aXLN-SCVDOT-ALL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A27R_XLN01A10 / Unnamed tributary to Aquia Creek / Segment begins at the headwaters of the unnamed tributary and continues downstream until its confluence with Aquia Creek.	5A	Dissolved Oxygen	2010	L	2.26

Unnamed tributary to Aquia Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.26

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A27R-02-BAC** **Aquia Creek**

Cause Location: Begins at the headwaters of Aquia Creek and continues downstream until the confluence with Cannon Creek, approximately 0.1 rivermile downstream from Route 610.

Cause City/County: Fauquier County; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 10 samples - 20.0%) at DEQ station 1aAUA023.09 at Route 644.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A27R_AUA02A02 / Aquia Creek / Segment begins at the headwaters of Aquia Creek and continues downstream until the confluence with Cannon Creek, approximately 0.1 rivermile downstream from Route 610.	5A	Escherichia coli (E. coli)	2012	L	8.82

Aquia Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.82

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A28E-01-HAB** **Aquia Creek**

Cause Location: Shoreline of Aquia Creek at Widewater State Park and location of VDH HAB station 1aAUA-WSPHAB-VDH.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: The recreation use is assessed as impaired based on a 2020 Virginia Department of Health harmful algae bloom (HAB) swim advisory for the entire shoreline of Aquia Creek at Widewater State Park that lasted at least 30 days.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A28E_AUA01B22 / Aquia Creek / Segment includes shoreline of Aquia Creek at Widewater State Park and location of VDH HAB station 1aAUA-WSPHAB-VDH. Portion of CBP segment POTOH.	5A	Harmful Algal Blooms	2022	L	0.041

Aquia Creek

Recreation

Harmful Algal Blooms - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.041		

Sources: Source Unknown

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Cause Group Code: **A28R-01-BAC** **Austin Run**

Cause Location: Begins at the confluence with an unnamed tributary to Austin Run, just upstream of the Route 1 crossing, and continues downstream until the confluence with Aquia Creek.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 1aAUS000.49 at the end of Aquia Drive. 2018 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aAUS001.60 at Route 1.

The Potomac River tributaries bacteria TMDL for the Austin Run watershed (Eq ID 771) was approved by the EPA on 09/26/2013 (Fed ID 53793). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A28R_AUS01A04 / Austin Run / Segment begins at the confluence with an unnamed tributary to Austin Run (streamcode XGQ) and continues downstream until the confluence with Aquia Creek.	4A	Escherichia coli (E. coli)	2004	L	0.85
VAN-A28R_AUS02A06 / Austin Run / Segment begins at the confluence with an unnamed tributary to Austin Run, just upstream of the Route 1 crossing, and continues downstream until the confluence with another unnamed tributary to Austin Run (streamcode XGQ).	4A	Escherichia coli (E. coli)	2014	L	0.70

Austin Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.55

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A29E-01-PH** Potomac Creek

Cause Location: Segment extends from rivermile 1.91 until rivermile 1.09 along Potomac Creek and includes the lower portion of the Accokeek Creek arm of Potomac Creek, approximately 0.35 rivermile upstream.

Cause City/County: King George County; Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: 2014 Assessment: Sufficient excursions greater than the upper limit of the pH criterion range were recorded at continuous monitoring station 1aPOM-000.97-VIMS (69 of 606 observations, 11.4%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29E_POM01B06 / Potomac Creek / Segment extends from rivermile 1.91 until rivermile 1.09 along Potomac Creek. Portion of CBP segment POTOH.	5A	pH	2014	L	0.587

Potomac Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.587		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A29E-02-BAC** **Fairview Beach (Potomac River)**

Cause Location: Includes all of Fairview Beach on the Potomac River.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5R

Cause Description: Virginia Department of Health bacteria beach monitoring program station VA351214 at Fairview Beach: The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were 49 small datasets with at least one exceedance. There were also 10 VDH beach advisories with duration greater than one week.

The Fairview Beach bacteria Watershed Plan has been completed and approved; Category 5R was approved by the EPA on 03/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29E_POT01A06 / Fairview Beach/Potomac River / Segment includes all of Fairview Beach on the Potomac River. Portion of CBP segment POTOH.	5R	Enterococcus	2006	L	0.005

Fairview Beach (Potomac River)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.005		

Sources: Sediment Resuspension (Contaminated Sediment); Unspecified Domestic Waste; Unspecified Urban Stormwater; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: [A29E-03-BAC](#) **Chotank Creek**

Cause Location: Includes the tidal portion of Chotank Creek, from its headwaters until the fire road crossing inside of Caledon State Park.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: 2016 Assessment: Enterococci bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 1aCHN002.97 at the fire road in Caledon State Park.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29E_CHN02A10 / Chotank Creek / Segment includes the tidal portion of Chotank Creek, from its headwaters until the fire road crossing inside of Caledon State Park. Portion of CBP segment POTOH.	5A	Enterococcus	2012	L	0.054

Chotank Creek

Recreation

Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	0.054		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A29L-01-PH** **Curtis Lake**

Cause Location: Includes all of Curtis Lake.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Exceedances of the upper limit of the pH criterion range (5 of 36 samples - 13.9%) at DEQ lake monitoring station 1ALOH007.93 (lacustrine), one hundred feet from the dam.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29L_LOH02A02 / Curtis Lake / Segment includes all of Curtis Lake.	5C	pH	2022	L	86.14

Curtis Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		86.14	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A29R-01-BAC** **Accokeek Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Accokeek Creek, approximately 0.33 rivermile downstream from Route 1 at rivermile 8.62, and continues downstream until the end of the free-flowing waters.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1AACC006.13 at Route 608 (Brooke Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Potomac River tributaries bacteria TMDL for the Accokeek Creek watershed (Eq ID 772) was developed and approved by the EPA on 09/26/2013 (Fed ID 53785). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_ACC01A00 / Accokeek Creek / Segment begins at the confluence with an unnamed tributary to Accokeek Creek (rivermile 8.62), approximately 0.33 rivermile downstream from Route 1, and continues downstream until the end of the free-flowing waters.	4A	Escherichia coli (E. coli)	2002	L	4.48

Accokeek Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.48

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A29R-01-BEN** **Unnamed tributary to Long Branch**

Cause Location: Begins at the headwaters of an unnamed tributary to Long Branch and continues downstream until the confluence with Long Branch, at rivermile 3.58.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2020 Assessment: Two biological monitoring events in 2014 at DEQ station 1aXLB000.05 (0.05 mile upstream of confluence with Long Branch) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_XLB01A08 / Unnamed tributary to Long Branch / Segment begins at the headwaters of an unnamed tributary to Long Branch and continues downstream until the confluence with Long Branch, at rivermile 3.58.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.31

Unnamed tributary to Long Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.31

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A29R-02-BAC** Potomac Creek

Cause Location: Begins at the confluence with an unnamed tributary to Potomac Creek, at rivermile 9.12, and continues downstream until the east end of swamp.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (2 of 8 samples - 25.0%) at DEQ station 1aPOM006.72 at Route 608.

2018 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ station 1aPOM008.24 at Route 626.

The Potomac River tributaries bacteria TMDL for the Potomac Creek watershed (Eq ID 774) was approved by the EPA on 09/26/2013 (Fed ID 53786). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_POM01A00 / Potomac Creek / Segment begins at the railroad crossing at the west end of swamp, upstream from Route 608, and continues downstream until the east end of swamp.	4A	Escherichia coli (E. coli)	2004	L	2.18
VAN-A29R_POM02A06 / Potomac Creek / Segment begins at the confluence with an unnamed tributary to Potomac Creek, at rivermile 9.12, and continues downstream until the railroad crossing at the west end of swamp, upstream from Route 608.	4A	Escherichia coli (E. coli)	2014	L	1.92

Potomac Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A29R-02-BEN** **Potomac Run**

Cause Location: Begins at the headwaters of Potomac Run and continues downstream until the confluence with Long Branch.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2018 at DEQ station 1aPOR000.52 at approximately 0.1 mile upstream from Route 648 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_POR01A06 / Potomac Run / Segment begins at the headwaters of Potomac Run and continues downstream until the confluence with Long Branch.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	6.6

Potomac Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.6

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A29R-03-BAC** **Potomac Run**

Cause Location: Begins at the headwaters of Potomac Run and continues downstream until the confluence with Long Branch.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 1APOR000.40 at Route 648 (Stefaniga Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Potomac River tributaries bacteria TMDL for the Potomac Run watershed (Eq ID 773) was approved by the EPA on 09/26/2013 (Fed ID 53792). The SWCB approved the TMDL on 04/04/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_POR01A06 / Potomac Run / Segment begins at the headwaters of Potomac Run and continues downstream until the confluence with Long Branch.	4A	Escherichia coli (E. coli)	2006	L	6.6

Potomac Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.6

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A29R-05-BAC** **Dirt Bridge Run**

Cause Location: Begins at the confluence of two unnamed tributaries and continues downstream until the confluence with Passapatanzy Creek.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli bacteria criterion excursions (2 of 10 samples 20.0%) at DEQ station 1aDBR001.37 at Route 218.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A29R_DBR01A10 / Dirt Bridge Run / Segment begins at the confluence of two unnamed tributaries and continues downstream until the confluence with Passapatanzy Creek.	5A	Escherichia coli (E. coli)	2018	L	1.82

Dirt Bridge Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.82

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A30E-01-BAC** Williams Creek

Cause Location: Begins at the head of tide of Williams Creek and continues downstream until the extent of the Section C area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, effective May 15, 2012.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: 2014 Assessment: Enterococcus bacteria criterion excursions (3 of 11 samples - 27.3%) at DEQ station 1aWLL001.30 at Route 206 and excursions (4 of 6 samples - 66.7%) at DEQ station 1aWLL002.21 at Route 301.

A new TMDL is not required for this impaired segment of Williams Creek because the Upper Machodoc Creek Watershed bacteria TMDL (Fed ID 36032, 12/18/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0443).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_WLL01B10 / Williams Creek / The downstream portion of the boundary of the admin condemnation area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section C, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Enterococcus	2010	L	0.113
VAN-A30E_WLL02A02 / Williams Creek / The upstream portion of the boundary of the admin condemnation area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section C, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Enterococcus	2010	L	0.022

Williams Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.134		

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **A30E-01-EBEN** **Upper Machodoc Creek**

Cause Location: Upstream portion of Upper Machodoc Creek described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019, wherein the administrative condemnation applies.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Coastal 2000 weight of evidence analysis at station 1aUMC003.09 (sampled 2019), utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions, resulted in an impaired determination for the aquatic life use; there was strong evidence for pollution-induced degradation.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC05A02 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	5A	Estuarine Bioassessments	2022	L	0.053
VAN-A30E_UMC05B20 / Upper Machodoc Creek / Segment includes the upstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	5A	Estuarine Bioassessments	2022	L	0.465

Upper Machodoc Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.518		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **A30E-01-PCB** Coan River, Monroe Creek, Upper Machodoc Creek

Cause Location: Includes the tidal portions of the following tributaries from the Potomac River Bridge at Route 301 to the mouth of the Potomac River near Smith Point: Upper Machodoc Creek, Monroe Creek, and Coan River.

Cause City/County: King George County; Northumberland County; Westmoreland County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/2004, limits consumption of channel catfish, gizzard shad, and white perch to no more than two meals per month.

Ten exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in six species of fish (channel catfish, gizzard shad, white perch, mummichog, spot, and croaker) sampled in 2004 and three exceedances in three species of fish (blue catfish, white perch, and gizzard shad) sampled in 2018 at DEQ station 1aUMC001.36. Five exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in four species of fish (channel catfish, gizzard shad, spot, and bluefish) sampled in 2004 and in one species of fish (gizzard shad) sampled in 2018 at DEQ station 1aUMC004.43.

The Tidal Potomac River PCB TMDL for the Upper Machodoc Creek watershed (Eq ID POL0483) was approved by the EPA on 10/31/2007 (Fed ID 35068). The SWCB approved the TMDL on 04/11/2008.

Monroe Creek was assessed as not supporting of the Fish Consumption Use in the 2004 cycle based on exceedances of the tissue screening level for PCBs in white perch and gizzard shad in 2001 at 1AMON002.49. Additional sampling at 1AMON002.60 in 2008 indicated PCBs in white perch, channel catfish, blue crab and gizzard shad. VDH issued a Fish Consumption Advisory for Monroe Creek on 12/13/2004 due to PCB contamination in gizzard shad, white perch, and channel catfish. The “Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia” report was approved on 10/30/2007 and by the SWCB on 4/11/2007. The segment is considered a Category 4A water. Additional monitoring in the 2018 cycle at station 1AMON002.49 indicated PCBs in blue catfish, blue crab, gizzard shad, and striped bass.

The Coan River was assessed as impaired of the Fish Consumption Use in the 2006 cycle due to a VDH Fish Consumption Advisory (12/13/2004) for PCBs in gizzard shad, white perch, and channel catfish. This was influenced by an exceedance of the fish tissue value in one sp. in 2004 at 1ACOA04.24. The impairment was confirmed with exceedances of the Human Health criteria in SPMD samples in 2005. The TMDL was completed as a part of the Potomac River Basin PCB TMDL, which was approved by the EPA on 10/30/2007 and by the SWCB on 4/11/2008. The segment is considered a Category 4A water. Additional monitoring indicated exceedance of the fish tissue value in gizzard shad in 2018 at 1ACOA004.24.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC01A02 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section F, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.027

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC01B06 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section A, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.058
VAN-A30E_UMC02A04 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section B, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.028
VAN-A30E_UMC03A04 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek (near Williams Creek) within the administrative condemnation boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.043
VAN-A30E_UMC03B10 / Upper Machodoc Creek / Segment includes the area of UMC described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section M1, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.049
VAN-A30E_UMC04A10 / Upper Machodoc Creek / Segment includes main body of tidal Upper Machodoc Creek not included in the Sections described in VDH Shellfish Area Condemnation Number 001A-36, dated June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2004	L	0.765
VAN-A30E_UMC04C06 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019, and continuing until the open embayment of Upper Machodoc Creek. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2006	L	0.495
VAN-A30E_UMC05A02 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2004	L	0.053

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC05B20 / Upper Machodoc Creek / Segment includes the upstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	PCBs in Fish Tissue	2004	L	0.465
VAP-A31E_MON01A00 / Monroe Creek/Monroe Bay / Prohibited area around STP outfall as described in VDH shellfish condemnation 002-001D, 6/15/2019	4A	PCBs in Fish Tissue	2004	L	0.176
VAP-A31E_MON02A98 / Monroe Bay / Administratively condemned portion of VDH condemnation notice 002-001A, 6/15/2019 POTMH	4A	PCBs in Fish Tissue	2004	L	0.355
VAP-A31E_MON03A98 / Monroe Bay / Portion of VDH condemnation notice 002-001A, 6/15/2019 not administratively condemned AU expanded in the 2022 cycle. POTMH	4A	PCBs in Fish Tissue	2004	L	0.172
VAP-A31E_MON03B16 / Monroe Bay / Described in VDH condemnation notice 002-001M2, 6/15/2019 POTMH	4A	PCBs in Fish Tissue	2004	L	0.063
VAP-A31E_MON04A00 / Monroe Bay / Downstream of VDH-DSS condemnation area 002-001M2, 6/15/2019. POTMH	4A	PCBs in Fish Tissue	2004	L	0.221
VAP-A31E_MON05A04 / Monroe Bay / Described in VDH Condemnation 002-001C, 6/15/2019 POTMH	4A	PCBs in Fish Tissue	2004	L	0.002
VAP-A34E_COA01A02 / Coan River / Portion of VDH-DSS Condemnation Notice 008-214S6, 4/15/2020 not included on SFC 145, 2/23/1997. Shortened in the 2022 cycle. POTMH	4A	PCBs in Fish Tissue	2006	L	0.022
VAP-A34E_COA01A98 / Coan River / Described in the VDH-DSS Condemnation Notice 008-214A, 4/15/2020. Size reduced in the 2022 cycle. POTMH	4A	PCBs in Fish Tissue	2006	L	0.271
VAP-A34E_COA01B16 / Coan River / Portion of VDH-DSS Condemnation Notice 145I, 2/25/1997 not condemned in 008-214, 4/15/2020. Expanded in the 2022 cycle. POTMH	4A	PCBs in Fish Tissue	2006	L	0.078
VAP-A34E_COA02A02 / Coan River / Tidal Coan River from rivermile 2.37 to its mouth at the Potomac. POTMH	4A	PCBs in Fish Tissue	2006	L	2.173

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COA02B20 / Coan River / From SFC 008-214S6, 4/15/2020 to rivermile 2.37. Expanded slightly in the 2022 cycle. POTMH	4A	PCBs in Fish Tissue	2006	L	0.532

Coan River, Monroe Creek, Upper Machodoc Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	6.048		

Sources: Atmospheric Deposition - Toxics; Combined Sewer Overflows; Contaminated Sediments; Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; Upstream Source

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Potomac and Shenandoah River Basins

Cause Group Code: **A30E-03-SF** **Upper Machodoc Creek**

Cause Location: The downstream portion of UMC within the boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019, and continuing until the open embayment of Upper Machodoc Creek.

Cause City/County: King George County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The shellfishing use is categorized as impaired due to Section D of the Virginia Department of Health Notice and Description of Shellfish Area Condemnation Number 001A-036, Upper Machodoc Creek, dated June 15, 2019: "It shall be unlawful for any person, firm, or corporation to take shellfish from these areas for any purpose, except by permit granted by the Marine Resources Commission, as provided in §28.2-810 of the Code of Virginia."

The Upper Machodoc Creek Watershed (Eq ID POL0444) shellfish bacteria TMDL was approved by the EPA on 12/18/2008 (Fed ID 36028). The SWCB approved the TMDL on 07/27/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC04C06 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019, and continuing until the open embayment of Upper Machodoc Creek. Portion of CBP segment POTMH.	4A	Fecal Coliform	2012	L	0.495

Upper Machodoc Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.495		

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **A30R-01-DO** **Pepper Mill Creek**

Cause Location: Begins at the headwaters of Pepper Mill Creek and continues downstream until its confluence with Upper Machodoc Creek.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: 2014 Assessment: Excursions less than the minimum dissolved oxygen criterion (2 of 14 samples - 14.3%) at DEQ station 1aPEP001.58 at Route 206.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30R_PEP01A10 / Pepper Mill Creek / Segment begins at the headwaters of Pepper Mill Creek and continues downstream until the confluence with Upper Machodoc Creek.	5C	Dissolved Oxygen	2010	L	8.67

Pepper Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			8.67

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A30R-01-PH** **Pepper Mill Creek**

Cause Location: Begins at the headwaters of Pepper Mill Creek and continues downstream until its confluence with Upper Machodoc Creek.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2014 Assessment: Excursions less than the lower limit of the pH criterion range (3 of 14 samples - 21.4%) at DEQ station 1aPEP001.58 at Route 206.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30R_PEP01A10 / Pepper Mill Creek / Segment begins at the headwaters of Pepper Mill Creek and continues downstream until the confluence with Upper Machodoc Creek.	5C	pH	2010	L	8.67

Pepper Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			8.67

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A30R-02-BAC** **Upper Machodoc Creek**

Cause Location: Includes the upstream portion of UMC within the boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective May 07, 2013. Portion of CBP segment POTMH.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: DEQ station 1aUMC004.43: There were 2 or more Enterococcus STV exceedances in at least one 90-day period with <10 samples.

A new bacteria TMDL is not required for this impaired segment because the Upper Machodoc Creek Watershed shellfish TMDL (Fed ID 36028, 12/18/2008) included modeling, source identification, and reductions for bacteria that covered the entire Upper Machodoc Creek watershed (Eq ID POL0444).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC05A02 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Enterococcus	2006	L	0.053
VAN-A30E_UMC05B20 / Upper Machodoc Creek / Segment includes the upstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Enterococcus	2006	L	0.465

Upper Machodoc Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.518		

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Cause Group Code: **A30R-02-DO** **Gambo Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Gambo Creek, approximately 0.35 rivermile upstream from Route 645, and continues downstream until the ponded waters on Gambo Creek.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Excursions less than the minimum dissolved oxygen criterion at DEQ station 1aGAM003.50 at Route 301 (2 of 7 samples - 28.6%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30R_GAM01A04 / Gambo Creek / Segment begins at the confluence with an unnamed tributary to Gambo Creek, approximately 0.35 rivermile upstream from Route 645, and continues downstream until estuarine Gambo Creek.	5C	Dissolved Oxygen	2016	L	0.95

Gambo Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.95

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A30R-02-PH** **Gambo Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Gambo Creek, approximately 0.35 rivermile upstream from Route 645, and continues downstream until estuarine Gambo Creek.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range at DEQ station 1aGAM003.50 at Route 301 (2 of 6 samples - 33.3%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30R_GAM01A04 / Gambo Creek / Segment begins at the confluence with an unnamed tributary to Gambo Creek, approximately 0.35 rivermile upstream from Route 645, and continues downstream until estuarine Gambo Creek.	5C	pH	2016	L	0.95

Gambo Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.95

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A31E-01-SF** **Rosier Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 001-008A, 6/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: In the 1998 cycle, a portion of Rosier Creek was impaired due to shellfish condemnation 088A, 7/1/1998. The Shellfish TMDL for that portion was developed during the 2008 cycle. The TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009.

In the 2020 cycle, the condemnation shrank considerably and was now smaller than the TMDL area (VDH-DSS Shellfish Condemnation 001-088A, 5/30/2018). The expansion was delisted and the lower portion of the TMDL are was partially delisted (Portion of condemnation 001-008S8, 5/30/2018). It is seasonally condemned so was Category 2C/2B.

In the 2022 cycle, the condemnation expanded again and the downstream portion was relisted. It is larger than the TMDL area. The expansion will be considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_ROS01A08 / Rosier Creek / Portion of VDH condemnation notice 001-088A, 6/15/2019 not included in the 2006 TMDL. POTMH	4A	Fecal Coliform	2022	L	0.280
VAP-A31E_ROS01A98 / Rosier Creek / Described in VDH condemnation notice 088A, 7/1/1998. Expanded in the 2022 cycle.	4A	Fecal Coliform	1998	L	0.206

Rosier Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.485		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A31E-03-SF** **Monroe Creek**

Cause Location: The portion of VDH Shellfish Condemnation 002-001A, 6/17/2016 which is not included in the administrative condemnation.

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 002-001A, 6/15/2019 that is not administratively condemned

The area was seasonally condemned in the 2010 cycle, however condemnation A expanded in the 2014 cycle. The Shellfish TMDL for Monroe Creek was approved by the EPA on 6/8/2006 and by the SWCB on 7/27/2009. The area was addressed by the TMDL; therefore, it was considered Category 4A.

Condemnation A shrank slightly in the 2016 cycle and section M2 was split off; it was considered partially delisted (Cat. 2C.)

The lower portion of the condemnation converted to seasonally condemned in the 2020 cycle (002-001S9, 5/30/2018) and was partially delisted (Category 2C/2B).

It expanded again in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_MON03A98 / Monroe Bay / Portion of VDH condemnation notice 002-001A, 6/15/2019 not administratively condemned AU expanded in the 2022 cycle. POTMH	4A	Fecal Coliform	2014	L	0.172

Monroe Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.172		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A31E-04-PH** **Monroe Creek**

Cause Location: As described in VDH condemnation 002-001D, 5/30/2018

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: During the 2012 cycle, the upper portion of Monroe Creek was impaired of the Aquatic Life Use due to a pH violation rate of 10/16 at 1AMRC002.81, which is located at Rt. 658.

A Swampwaters Determination Report was completed during the 2014 cycle. The report attributed the pH exceedances to natural conditions and the impairment is considered Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_MON01A00 / Monroe Creek/Monroe Bay / Prohibited area around STP outfall as described in VDH shellfish condemnation 002-001D, 6/15/2019	4C	pH	NA	NA	0.176

Monroe Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.176		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Naturally Occurring Organic Acids; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Cause Group Code: **A31E-06-BAC** **Mattox Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations 002-001B, 6/15/2019

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The segment was initially listed in 1996 based on excessive fecal coliform standards at the Route 205 bridge (1AMAO004.08). The segment was adjusted during the 2006 cycle to be coincident with VDH-DSS Shellfish Condemnation 001B (11/15/2004) and the Recreation Use impairment switched to Enterococci due to exceedances at 1AMAO004.08.

During the 2008 and 2010 cycles, the segment remained impaired due to Enterococci exceedance at 1AMAO001.36 and at 1AMAO004.08. The exceedance rate was 5/12 during the 2014 cycle at 1AMAO004.08.

The bacterial TMDL for the Mattox Creek Watershed was approved by the EPA on 12/4/2006 and by the SWCB on 7/31/2008; therefore, the segment is considered Category 4A for the Recreation Use.

The impairment length has been adjusted to remain coincident with Mattox Creek shellfish condemnations.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_MAO01A98 / Mattox Creek / Portion of the condemnation notice 002-001B, 6/15/2019 that was not administratively condemned on 5/30/2018. Segment expanded and merged in the 2022 cycle. POTMH	4A	Enterococcus	2006	L	0.360
VAP-A31E_MAO01B10 / Mattox Creek / Upper mainstem portion of the condemnation notice 002-001B, 6/15/2019 which was administratively condemned on 5/30/2018. POTMH	4A	Enterococcus	2006	L	0.366

Mattox Creek

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.726		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A31E-06-SF** **Mattox Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 002-001B, 6/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 002-001B, 6/15/2019

The segment has been considered impaired of the Shellfish Consumption Use since 1996. The Shellfish TMDL for the Mattox Creek Watershed was developed during the 2008 cycle and was approved by the EPA on 12/4/2006 and the water was considered Category 4A for the Shellfish Use.

However, during the 2010 cycle it was determined that the upper portion of the section is administratively closed as a buffer for the Outdoor World Harborview STP. Therefore the use was considered removed for the upper portion and it was partially delisted.

The advisory was shortened during the 2012 cycle and split into 002-001B and 002-001C, 8/30/2010. It expanded and re-merged in the 2014 cycle. It slightly shrunk and expanded in 2016 and 2018. It shrank further and the condemnation split in the 2020 cycle (portion of VDH-DSS condemnation 002-001B, 5/30/2018 & 002-001C, 5/30/2018).

In the 2022 cycle, the prohibition zone and administrative condemnation zone were removed. The areas are now part of the impaired restricted zone. They will be considered nested. In addition, the condemnation expanded downstream and merged.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_MAO01A98 / Mattox Creek / Portion of the condemnation notice 002-001B, 6/15/2019 that was not administratively condemned on 5/30/2018. Segment expanded and merged in the 2022 cycle. POTMH	4A	Fecal Coliform	1996	L	0.360
VAP-A31E_MAO01B10 / Mattox Creek / Upper mainstem portion of the condemnation notice 002-001B, 6/15/2019 which was administratively condemned on 5/30/2018. POTMH	4A	Fecal Coliform	2022	L	0.366
VAP-A31E_XFF01A04 / XFF - Mattox Creek, UT / As described in VDH Condemnation 002-001E, 5/30/2018. POTMH	4A	Fecal Coliform	2022	L	0.010
VAP-A31E_ZZZ01A14 / Unsegmented estuaries in A31 / Unsegmented portion of watershed PL66. POTMH	4A	Fecal Coliform	2022	L	0.006

Mattox Creek

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.742		

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Cause Group Code: **A31E-07-BAC** **Popes Creek**

Cause Location: From the extent of tide to the mouth of Popes Creek

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Popes Creek was initially assessed as impaired of the Recreation Use in 2002 based on fecal coliform standard exceedances at 1APOP000.38, which is located off of the George Washington National Monument picnic area. During the 2006 cycle, the fecal coliform rate remained impaired (2/7) and enterococci was added as an impairment (2/6).

During the 2010 cycle, the enterococci exceedance rate was 4/11; the impairment was considered nested because it is contained within the shellfish TMDL study area, which was approved on 6/8/2006.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_POP01A98 / Popes Creek / Described in VDH-DSS condemnation notice 003-146A, 9/23/2008.	4A	Enterococcus	2006	L	0.576

Popes Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.576		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: A31E-07-SF Popes Creek

Cause Location: From the extent of tide to the mouth of Popes Creek

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Popes Creek was previously assessed as not supporting the Shellfish Consumption Use based on VDH-DSS Shellfish Condemnation 146, 4/27/1989; this condemnation was later replaced by 003-146A, 9/23/2008.

The Popes Creek Shellfish TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. The segment is considered Category 4A for the Shellfish Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_POP01A98 / Popes Creek / Described in VDH-DSS condemnation notice 003-146A, 9/23/2008.	4A	Fecal Coliform	1998	L	0.576

Popes Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.576		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A31E-11-BAC** **Bridges Creek**

Cause Location: The tidal portion of Bridges Creek

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: Bridges Creek was assessed as not supporting of the Recreation Use support goal during the 2004 cycle based on a fecal coliform violation rate of 2/2 at 01660860, a USGS station located near the mouth of Bridges Creek.

The impairment converted to enterococci during the 2012 cycle based on violations at 1ABRG000.15.

The enterococci exceedance rate was 26/35 during the 2016 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_BRG01A04 / Bridges Creek / Tidal limit to mouth POTMH	5A	Enterococcus	2012	L	0.182

Bridges Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.182		

Sources: Source Unknown

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Cause Group Code: **A31R-01-BAC** **Pine Hill Creek Watershed**

Cause Location: Pine Hill Creek watershed from its headwaters to tidal limit at Rosier Creek.

Cause City/County: King George County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2014 cycle, the Pine Hill Creek watershed was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 1APIN007.24, which is located at Route 301.

Note: monitoring at station 1APIN000.57 is acceptable (1/12).

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31R_PIN01A00 / Pine Hill Creek Watershed / Pine Hill Creek and its tributaries from the confluence with Rosier Creek to their headwaters.	5A	Escherichia coli (E. coli)	2014	L	34.92

Pine Hill Creek Watershed

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		34.92

Sources: Non-Point Source

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Cause Group Code: **A31R-02-BAC** **Mattox Creek Watershed**

Cause Location: Mattox Creek from its headwaters to the limit of tide and all nontidal tributaries of Mattox Creek.

Cause City/County: King George County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, the nontidal Mattox Creek watershed was impaired of the Recreation Use due to an E. coli exceedance rate of 4/11 at 1AMAO007.46.

However, the TMDL was completed and was adopted by the EPA on 12/4/2006 and by the SWCB on 7/31/2008; therefore, the water is considered Category 4A for the Recreation Use.

New bacteria criteria were implemented in the 2022 cycle. No additional data was collected; however, re-analysis confirmed the impairment due to two or more STV exceedances in the same 90-day period with <10 samples.

In the 2022 cycle, it was determined that the TMDL only addressed the tributaries above the tidal limit, which is also where the listing station is. The tributaries below the tidal limit have been removed from the impaired segment (partially delisted.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31R_MAO01A98 / Mattox Creek / Mainstem Mattox Creek above head of tide and all free-flowing tributaries to Mattox Creek. Split in the 2022 cycle.	4A	Escherichia coli (E. coli)	2020	L	59.11

Mattox Creek Watershed

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			59.11

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A31R-03-BAC** **Popes Creek Watershed**

Cause Location: The Popes Creek watershed above the tidal limit.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The nontidal Popes Creek watershed was impaired of the Recreation Use during the 2014 cycle due to an E. coli exceedance rate of 2/11 at 1APOP003.92, which is located at the Route 3 bridge.

The impairment is considered nested in the Popes Creek Watershed Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. It will be considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31R_POP01A00 / Popes Creek / Watershed above tidal limit.	4A	Escherichia coli (E. coli)	2014	L	29.88

Popes Creek Watershed

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		29.88

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-01-SF** Cold Harbor Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 004-184A, 3/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 004-184A, 3/15/2019

Cold Harbor Creek was mistakenly assessed as impaired in the 1998 cycle due to VDH-DSS Shellfish Condemnation 184A, 6/21/1996. The area had been reopened on 2/10/1997; therefore, it should have been assessed as fully supporting.

The segment was first listed appropriately in the 2004 cycle. The impairment was addressed in the “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” report, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. Allocations were given to nonpoint sources. The segment is considered Category 4A for the shellfish use.

Note - The condemnation expanded in the 2020 cycle. The expansion was outside the TMDL area; it was considered nested and is addressed in fact sheet A32E-03-SF.

In the 2022 cycle, the condemnation shrank back to this TMDL extent and the expansion will be delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_CHB01A98 / Cold Harbor Bay / Described in the condemnation notice 004-184A, 3/15/2019 POTMH	4A	Fecal Coliform	2004	L	0.083

Cold Harbor Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.083		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-02-SF** Currioman Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 184, 2/10/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 184, 2/10/1997 - Impaired in 1998

Portion of current condemnation 004-184B, 3/15/2022

The upstream portion was included in the “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” report, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. This portion is considered Category 4A.

The downstream portion of the current condemnation is addressed in A32E-13-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_CUR01A98 / Currioman Creek / Described in the condemnation notice 004-184, 2/10/1997 POTMH	4A	Fecal Coliform	1998	L	0.052

Currioman Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.052		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-04-SF** **Nomini Creek, Pierce Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations 082A and 082B, 7/3/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portions of VDH Shellfish Condemnation 004-082D, 4/15/2020

Portions of Nomini Creek (0.5404 sq. mi.) and Pierce Creek (0.14 sq. mi.) were assessed as impaired in 1998. During the 2004 cycle, the condemnation was expanded and combined. The Nomini Creek Watershed TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008, addressed the 1998 portions of the impairment (004-082B and 004-082A, 7/3/1997). The residual of the impaired area is addressed in A32E-04-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOM01A98 / Nomini Creek / As described in VDH Shellfish Condemnation 082B, 7/3/1997. POTMH	4A	Fecal Coliform	1998	L	0.540
VAP-A32E_PEI01A98 / Pierce Creek / As described in VDH Shellfish Condemnation 082A, 7/3/1997. POTMH	4A	Fecal Coliform	1998	L	0.142

Nomini Creek, Pierce Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.682		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-04-SF2** **Nomini Creek, Peirce Creek**

Cause Location: The portions of VDH Notice and Description of Shellfish Condemnation 004-082D, 4/15/2020 that were not included in the 2007 Nomini Creek watershed TMDL.

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portions of VDH Condemnation 004-082D, 4/15/2020

Portions of Nomini Creek (0.5404 sq. mi.) and Pierce Creek (0.14 sq. mi.) were assessed as impaired in 1998. During the 2004 cycle, the condemnation expanded. The TMDL was approved by the EPA on 8/22/2007, but only addressed the 1998 portion of the impairment. As the condemnation first expanded on the 2004 list, the TMDL for the downstream portion was due in 2016.

The impairment is considered nested within the Nomini Creek Shellfish TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

The condemnation shrank slightly in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOM01A04 / Nomini Creek, Pierce Creek / Portion of VDH Shellfish Condemnation 004-082D, 4/15/2020 downstream of 082B, 7/3/1997 and portion upstream of 082A, 7/3/1997. Size reduced in the 2022 cycle. POTMH	4A	Fecal Coliform	2004	L	0.315

Nomini Creek, Peirce Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.315		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-05-SF** **Buckner Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 082D, 2/10/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 004-082B, 4/15/2020

The upper portion of Buckner Creek was assessed as impaired of the Shellfish Use during the 1998 cycle due to VDH shellfish advisory 082D, 2/10/1997. Although the closure was expanded during the 2008 cycle (004-082B 1/27/2006), the 2007 TMDL “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” only addressed the original upstream impaired area, which is classified as Category 4A.

In the 2016 cycle, the condemnation shrank (004-082B, 1/22/2014); the condemned area remained Category 4A and the lower portion was partially delisted (Category 2C.)

The condemnation expanded past the 1997 advisory boundary again in the 2018 cycle. See A32E-07-SF

In the 2020 cycle, it was a portion of VDH Shellfish Condemnation 004-082B, 2/13/2018. The condemned area shrank significantly in the 2022 cycle and became smaller than the TMDL area. The expansion will be delisted; the re-opened part of the TMDL area will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_BUB01B16 / Buckner Creek / Described in VDH Condemnation 004-082D, 2/10/1997 POTMH	4A	Fecal Coliform	1998	L	0.121

Buckner Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.121		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-06-SF** North Prong Buckner Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 004-082E, 2/10/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 004-082A, 4/15/2020

The upper portion of North Prong Buckner Creek was assessed as impaired of the Shellfish Use during the 1998 cycle due to a VDH shellfish advisory (082E, 2/10/1997). Although the closure was expanded during the 2008 cycle (004-082A, 1/27/2006), the 2007 TMDL “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” only addressed the original upstream impaired area. This upstream portion of the condemnation is classified as Category 4A; the lower portion is considered nested and is addressed in A32E-21-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOP01A02 / North Prong Buckner Creek / Described in the condemnation notice 082E, 2/10/1997. POTMH	4A	Fecal Coliform	1998	L	0.023

North Prong Buckner Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.023		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A32E-08-SF** Lower Machodoc Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 005-083A, 2/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 005-083A, 2/15/2019

0.36 sq. mile of Lower Machodoc Creek was assessed in 1998 as impaired of the Shellfish Use due to VDH shellfish condemnation 83B, 5/16/1997.

A TMDL was developed based on the 005-083B, 12/28/2007 extent and was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

The segment has expanded and contracted several times. The condemnation shrank considerably in the 2020 cycle and converted to seasonally condemned. The extension was delisted (Category 2B); the open portion of the TMDL was partially delisted (Category 2C/2B.)

The condemnation shrank again in the 2022 cycle and the impairment was adjusted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_LOW01A04 / Lower Machodoc Creek / As described in VDH condemnation notice 005-083A, 2/15/2019 Size decreased slightly in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.37

Lower Machodoc Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.37		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-09-EBEN** Lower Machodoc Creek

Cause Location: One-half mile upstream and downstream of monitoring station 1ALOW002.18

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2016 cycle, a portion of Lower Machodoc Creek was assessed as impaired of the Aquatic Life Use. Estuarine probabilistic monitoring at station 1ALOW002.18 in 2013 indicated a high potential for chronic benthic alteration due to PAHs in sediment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_LOW02B16 / Lower Machodoc Creek / One-half mile upstream and downstream of station 1ALOW002.18. POTMH	5A	Estuarine Bioassessments	2016	L	0.687

Lower Machodoc Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.687		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Cause Group Code: **A32E-10-SF** Weatherall Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 005-083F, 2/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 005-083F, 2/15/2019

Weatherall Creek was first listed for the Shellfish Use during the 2004 cycle. The Shellfish Use impairment was addressed in the Lower Machodoc Shellfish TMDL which was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

That condemnation shrank during the 2014 cycle and Weatherall Creek is now open for harvest (005-083, 9/12/2012) and was delisted (Category 2C.)

The area was re-condemned in the 2016 cycle. Weatherall Creek was considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_WEA02A04 / Weatherall Creek / As described in VDH condemnation 005-083F, 1/19/2018 POTMH	4A	Fecal Coliform	2016	L	0.055

Weatherall Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.055		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-12-SF** Glebe Creek and Aimes Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 005-083D and -083E, 2/15/2019

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 005-083D and -083E, 2/15/2019

The Shellfish Use impairment was addressed in the Lower Machodoc Shellfish TMDL which was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009. The TMDL was based on the extent in condemnation 005-083A, 12/28/2007.

In the 2018 cycle, the condemnation shrank and the open portion was partially delisted (Category 2C.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_GLB02A08 / Aimes and Glebe Creeks / As described in VDH Shellfish Condemnation 005-083D and -083E, 2/15/2019. POTMH	4A	Fecal Coliform	2008	L	0.12

Glebe Creek and Aimes Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.12		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-13-SF** Currioman Creek

Cause Location: The portion of VDH Notice and Description of Shellfish Condemnation 004-184B, 3/15/2019 that was not included in the 8/23/2004 condemnation

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish condemnation 004-184B, 3/15/2019

The upstream portion of Currioman Creek has been listed for shellfish condemnations since 1998. The condemnation expanded on 1/27/2006, however the 2007 TMDL did not address the expanded portion. The expansion is first listed in 2008; therefore, the TMDL is due in 2020.

The impairment is considered nested in the upstream Currioman Creek Shellfish TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_CUR01B08 / Currioman Creek / From the limit of VDH condemnation 004-184, 2/10/1997 downstream to the limit of 004-184B, 3/15/2019. POTMH	4A	Fecal Coliform	2008	L	0.02

Currioman Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-15-SF** **Davis Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 004-082F, 4/15/2020

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Condemnation Notice 004-082F, 4/15/2020

Davis Creek was initially listed in the 2008 cycle as impaired of the Shellfish Consumption Use due to VDH condemnation 004-082D, 1/27/2006. During the 2012 cycle, the condemnation expanded and merged with the Nomini Creek impairment; therefore the segment was a portion of VDH Shellfish Condemnation 004-082D, 1/23/2012. The Nomini Creek condemnation shrank and split in the 2016 cycle; Davis Creek remains condemned.

The impairment is considered nested within the Nomini Creek Shellfish TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

In the 2022 cycle, a portion of the condemned area was considered administratively closed. The impairment will be partially delisted because the use is considered removed in administratively condemned areas. The restricted area remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_DAV01A08 / Davis Creek / Portion of VDH condemnation 004-082F, 4/15/2020 that is restricted. The segment split in the 2022 cycle. POTMH	4A	Fecal Coliform	2008	L	0.042

Davis Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.042		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A32E-19-SF** Barnes Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 082C, 2/10/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 004-082E, 4/15/2020

Barnes Creek is assessed as impaired of the Shellfish Use. This area was impaired in the 1998 cycle and was addressed in the TMDL “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination”. This condemnation is classified as Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_BAN02A08 / Barnes Creek / Described in VDH Shellfish Condemnation 082C, 2/10/1997 POTMH	4A	Fecal Coliform	2008	L	0.057

Barnes Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.057		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32E-20-PCB** **Nomini Creek**

Cause Location: Nomini Creek mainstem downstream of the shellfish condemnations.

Cause City/County: Westmoreland County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2020 cycle, lower Nomini Creek was impaired of the Fish Consumption Use. Monitoring in 2018 at station 1ANOM002.91 indicated PCBs above the allowable fish tissue level in blue catfish, croaker, and gizzard shad.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOM02A00 / Nomini Creek / Downstream condemnation boundary to the mouth. POTMH	5A	PCBs in Fish Tissue	2020	L	4.648

Nomini Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption			
PCBs in Fish Tissue - Total Impaired Size by Water Type:	4.648		

Sources: Source Unknown

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Cause Group Code: **A32E-21-SF** North Prong Buckner Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 004-082A, 4/15/2020 not included in 004-082E, 2/10/1997

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 004-082A, 4/15/2020

The upper portion of North Prong Buckner Creek was assessed as impaired of the Shellfish Use during the 1998 cycle due to a VDH shellfish advisory (082E, 2/10/1997). Although the closure was expanded during the 2008 cycle (004-082A, 1/27/2006), the 2007 TMDL “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” only addressed the original upstream impaired area. The upstream portion of the condemnation was classified as Category 4A, however this lower portion was considered Category 5B; the TMDL was due in 2020.

The impairment was later nested in the North Prong Buckner Creek TMDL and is considered Category 4A.

The condemnation has varied in size. It shrank slightly in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOP02A08 / North Prong Buckner Creek / Portion of VDH condemnation 004-082A, 4/15/2020 that was not included in 082E, 2/10/1997. Size reduced in the 2022 cycle. POTMH	4A	Fecal Coliform	2008	L	0.032

North Prong Buckner Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.032		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: [A32E-25-EBTOX](#) **Currioman Bay**

Cause Location: Currioman Bay between the Potomac River and Currioman Creek

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Sediment Bioassay/5A

Cause Description: During the 2022 cycle, a portion of Currioman Bay was impaired of the Aquatic Life Use based on monitoring at 2020 estuarine probabilistic monitoring station 1ACRB001.52. DEQ-Central Office assigned it to Weight-of-Evidence Scenario 1 (Category 5A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_CRB03A14 / Currioman Bay / Upstream of Currioman Creek POTMH	5A	Sediment Bioassay	2022	L	0.923

Currioman Bay

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life Sediment Bioassay - Total Impaired Size by Water Type:	0.923		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A32E-26-BAC** Lower Machodoc Creek

Cause Location: Described in VDH condemnation notice 005-083B, 12/28/2007

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2022 cycle, lower Machodoc Creek was impaired of the Recreation Use due to enterococci exceedances at 1ALOW004.77, which is located off Route 618. There were two or more STV exceedances in the same 90-day period with <10 samples.

The impairment is located within the study area for the Lower Machodoc Watershed Shellfish TMDL, which was approved by the EPA on 12/29/2008 and by the EPA on 4/28/2009. As the shellfish TMDL requires the reduction of fecal coliform bacteria in the watershed, the Recreation Use is proposed for nesting (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_LOW01A04 / Lower Machodoc Creek / As described in VDH condemnation notice 005-083A, 2/15/2019 Size decreased slightly in the 2022 cycle. POTMH	4A	Enterococcus	2022	L	0.370
VAP-A32E_LOW01C20 / Lower Machodoc Creek / Portion of VDH condemnation notice 005-083B, 12/28/2007 within 005-083S4, 2/15/2019. Size increased slightly in the 2022 cycle. POTMH	4A	Enterococcus	2022	L	0.165

Lower Machodoc Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.535		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32R-01-DO** **Thompson Branch**

Cause Location: Thompson Branch from its headwaters to the tidal limit.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Thompson Branch was initially assessed as not supporting the Aquatic Life Use during the 2006 cycle based on dissolved oxygen exceedances at Route 626 (1ATHP001.15), as well as DO exceedances at special study stations in the creek (1/1).

During the 2014 cycle, the segment remained impaired with a DO violation rate of 2/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_THP01A06 / Thompson Branch / Headwaters to tidal limit.	5C	Dissolved Oxygen	2006	L	1.6

Thompson Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.6

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-01-PH** **Thompson Branch**

Cause Location: Thompson Branch from its headwaters to the tidal limit.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Thompson Branch was initially assessed as not supporting the Aquatic Life Use during the 2006 cycle based on pH exceedances at Route 626 (1ATHP001.15), as well as pH exceedances at special study stations in the creek (1/1).

During the 2014 cycle, the segment remained impaired with a pH violation rate of 10/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_THP01A06 / Thompson Branch / Headwaters to tidal limit.	5C	pH	2006	L	1.6

Thompson Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.6

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A32R-02-BAC** Lee Creek

Cause Location: Lee Creek from its headwaters to the tidal limit.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Lee Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/13 at 1ALEC001.18, which is located at the Route 675 bridge.

The stream is located within the Lower Machodoc Creek watershed. A bacterial TMDL was developed for the watershed to address the shellfish consumption use. The TMDL was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009. It requires a 93% reduction in fecal coliform bacteria into the Lower Machodoc tidal area. These reductions are expected to be sufficient to address the E. coli impairment in Lee Creek; therefore, the impairment is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_LEC01A10 / Lee Creek / Headwaters to tidal limit.	4A	Escherichia coli (E. coli)	2012	L	1.36

Lee Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.36

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A32R-03-PH** **XLK - Nomini Creek, UT**

Cause Location: The unnamed tributary in its entirety.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2010 cycle, the stream was assessed as not supporting the Aquatic Life Use due to a pH exceedance rate of 2/2 at probabilistic monitoring station 1AXLK000.04.

The impairment was confirmed during the 2016 cycle with an exceedance rate of 2/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_XLK01A10 / XLK - Nomini Creek, UT / Headwaters to mouth at Nomini Creek.	5C	pH	2010	L	1.45

XLK - Nomini Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.45

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-04-BAC** **XCJ - Jones Branch, UT**

Cause Location: Tributary XCJ from its headwaters to its mouth at Jones Branch

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributary was impaired of the Recreation Use due to an E. coli violation rate of 4/13 at 1AXCJ000.54, which is located at the Route 618 bridge.

The stream is located within the Lower Machodoc Creek watershed. A bacterial TMDL was developed for the watershed to address the shellfish consumption use. The TMDL was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009. It requires a 93% reduction in fecal coliform bacteria into the Lower Machodoc tidal area. These reductions are expected to be sufficient to address the E. coli impairment in the tributary; therefore, the impairment is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_XCJ01A10 / XCJ - Jones Branch, UT / Headwaters to mouth at Jones Branch.	4A	Escherichia coli (E. coli)	2012	L	1.02

XCJ - Jones Branch, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.02

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32R-05-BAC** **Tavern Run**

Cause Location: Tavern Run from its headwaters to the confluence with Newtons Mill Run.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Tavern Run was impaired of the Recreation Use due to E. coli violations at 1ATAE002.50, which is located at the Route 615 bridge.

Additional monitoring occurred in the 2014 cycle; the impairment was confirmed with exceedance rates of 8/24 at 1ATAE002.50 and 2/12 at 1ATAE003.85.

A bacterial TMDL was developed for the watershed to address the shellfish consumption use. The TMDL was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. It requires a 68% reduction in fecal coliform bacteria into the upper Nomini Creek tidal area. These reductions are expected to be sufficient to address the E. coli impairment in the stream; therefore, the impairment is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_TAE01A12 / Tavern Run / Headwaters to Newtons Mill Run	4A	Escherichia coli (E. coli)	2012	L	3.28

Tavern Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.28

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32R-05-PH** **Tavern Run**

Cause Location: Tavern Run from its headwaters to the confluence with Newtons Mill Run.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Tavern Run was impaired of the Aquatic Life Use due to pH violations at 1ATAE002.50, which is located at the Route 615 bridge.

Additional monitoring occurred in the 2014 cycle; the impairment was confirmed with exceedance rates of 3/24 at 1ATAE002.50 and 3/12 at 1ATAE003.85.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_TAE01A12 / Tavern Run / Headwaters to Newtons Mill Run	5C	pH	2012	L	3.28

Tavern Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.28

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-06-BAC** Nontidal Nomini Creek Tributaries

Cause Location: Marshall Creek, Buena Vista Branch and Templeman Run.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, monitoring occurred throughout the upper Nomini Creek watershed. Multiple tributaries indicated E. coli exceedances.

3/12 at 1ABUV000.15 4/12 at 1AMAR000.62 3/12 at 1ATEM003.54

Note: Tavern Run is already listed for bacteria (see A32R-05-BAC).

The streams are located within the Nomini Creek watershed. A bacterial TMDL was developed for the watershed to address the shellfish consumption use. The TMDL was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. It requires a 68% reduction in fecal coliform bacteria into the upper Nomini Creek tidal area. These reductions are expected to be sufficient to address the E. coli impairment in the stream; therefore, the impairment is considered nested in the Nomini Creek Shellfish TMDL (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_BUV01A14 / Buena Vista Branch / Headwaters to mouth	4A	Escherichia coli (E. coli)	2014	L	2.27
VAP-A32R_MAR01A14 / Marshall Creek / Headwaters to mouth at Templeman Run	4A	Escherichia coli (E. coli)	2014	L	2.88
VAP-A32R_TEM01A14 / Templeman Run / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2014	L	4.00

Nontidal Nomini Creek Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.15

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32R-06-PH** Nontidal Nomini Creek Tributaries

Cause Location: Multiple tributaries throughout the upper Nomini Creek watershed - including Marshall Creek, Buena Vista Branch, Oldham Creek, Newtons Mill Run, Antioch Branch, Templeman Run.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, monitoring occurred throughout the upper Nomini Creek watershed. Multiple tributaries indicated low pH - including Nomini Creek, Marshall Creek, Buena Vista Branch, Oldham Creek, Newtons Mill Run, Antioch Branch, and Templeman Run.

4/5 at 1AANT001.31

3/12 at 1ABUV000.15

2/12 at 1AMAR000.62

2/12 at 1ANET001.77

2/12 at 1AOLD000.70

3/12 at 1ATEM003.54

2/12 at 1ANOM012.38

Note: Nomini Creek, UT (XLK) and Tavern Run were already listed for pH (see A32R-03-PH and A32R-05-PH).

Additional monitoring was conducted during the 2016 cycle at 1ANOM0012.38. The pH exceedance rate was acceptable 2/23 and Nomini Creek was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_ANT01A14 / Antioch Branch / Headwaters to mouth at Nomini Creek.	5C	pH	2014	L	2.06
VAP-A32R_BUV01A14 / Buena Vista Branch / Headwaters to mouth	5C	pH	2014	L	2.27
VAP-A32R_MAR01A14 / Marshall Creek / Headwaters to mouth at Templeman Run	5C	pH	2014	L	2.88
VAP-A32R_NET01A14 / Newtons Mill Run / Headwaters to mouth at Tavern Run.	5C	pH	2014	L	3.18
VAP-A32R_OLD01A14 / Oldham Creek / Headwaters to mouth at Tavern Run.	5C	pH	2014	L	2.00
VAP-A32R_TEM01A14 / Templeman Run / Headwaters to tidal limit	5C	pH	2014	L	4.00

Nontidal Nomini Creek Tributaries

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			16.39

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-07-DO** Marshall Creek

Cause Location: Marshall Creek from its headwaters to its mouth at Templeman Run.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Marshall Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/12 at 1AMAR000.62, which is located at the Route 600 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_MAR01A14 / Marshall Creek / Headwaters to mouth at Templeman Run	5C	Dissolved Oxygen	2014	L	2.88

Marshall Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.88

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-08-BAC** Barnes Creek

Cause Location: The nontidal portion of Barnes Creek.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Barnes Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 1ABAN001.34, which is located at Route 649.

It is considered nested within the Barnes Creek TMDL, which was addressed in the report “Chesapeake Bay: Potomac River: Nomini Creek Watershed Total Maximum Daily Load (TMDL) Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination.” The TMDL was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_BAN01A14 / Barnes Creek / Headwaters to tidal limit.	4A	Escherichia coli (E. coli)	2014	L	1.95

Barnes Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.95

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A32R-08-DO** Barnes Creek

Cause Location: The nontidal portion of Barnes Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Barnes Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/12 at 1ABAN001.34, which is located at Route 649.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_BAN01A14 / Barnes Creek / Headwaters to tidal limit.	5C	Dissolved Oxygen	2014	L	1.95

Barnes Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 1.95

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-08-PH** Barnes Creek

Cause Location: The nontidal portion of Barnes Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, Barnes Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 5/12 at 1ABAN001.34, which is located at Route 649.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_BAN01A14 / Barnes Creek / Headwaters to tidal limit.	5C	pH	2014	L	1.95

Barnes Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.95

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-09-DO** **Mount Pleasant Creek**

Cause Location: The nontidal portion of Mount Pleasant Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Mount Pleasant Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/11 at 1AMPB001.00, which is located at Route 612.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_MPB01A14 / Mount Pleasant Branch / Headwaters to tidal limit.	5C	Dissolved Oxygen	2014	L	2.27

Mount Pleasant Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.27

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A32R-09-PH** Mount Pleasant Creek

Cause Location: The nontidal portion of Mount Pleasant Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, Mount Pleasant Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 3/11 at 1AMBP001.00, which is located at Route 612.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32R_MPB01A14 / Mount Pleasant Branch / Headwaters to tidal limit.	5C	pH	2014	L	2.27

Mount Pleasant Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.27

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A33E-01-SF** Gardner Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 006-143A and -E, 6/19/2018

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Number 006-143A, 7/15/2020 VDH-DSS Condemnation Number 006-143S1, 7/15/2020 - seasonally condemned

Gardner Creek was included on the 1998 303(d) list due to VDH condemnation 143, 6/26/1996. The Shellfish Bacterial TMDL for Gardner Creek was developed during the 2010 cycle. The TMDL addressed the maximum extent of the condemnation, which occurred in condemnation 006-143A, 5/5/2005.

The condemnation has expanded and contracted several times. During the 2014 cycle, the condemnation shrank again. The open area was partially delisted (0.0522 mi²) and is considered Category 2C.

Condemnation shrank further in the 2018 cycle.

In the 2022 cycle, the UT which was previously addressed in VDH-DSS Condemnation Number 006-143E, 6/19/2018 converted to seasonally condemned and will be partially delisted. In addition, two portions of condemnation A converted to administratively condemned. The shellfish use is considered removed in those areas and the AU will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_GAD01A98 / Gardner Creek / Restricted portion of VDH-DSS condemnation 006-143A, 7/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.009

Gardner Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.009		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-02-BAC** Jackson Creek

Cause Location: Tidal portion of Jackson Creek

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, the segment was impaired of the Recreation Use due to an enterococci violation rate of 2/12 at 1AXDW000.08, which is located at the end of Rt. 661.

The area is within the study area for the Jackson Creek Shellfish TMDL, which was approved by the EPA on 7/15/2009 and by the SWCB on 11/14/2009; therefore, the segment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_JCK01A98 / Jackson Creek / Described in VDH condemnation notice 006-143B and -D, 7/15/2020. POTMH	4A	Enterococcus	2012	L	0.096
VAP-A33E_JCK01B18 / Jackson Creek / Described in VDH condemnation notice 006-143S2, 7/15/2020. POTMH	4A	Enterococcus	2012	L	0.033
VAP-A33E_JCK01C20 / Jackson Creek / Portion of VDH condemnation notice 006-143B, 5/5/2005 open in 006-143, 7/15/2020. POTMH	4A	Enterococcus	2012	L	0.008

Jackson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.137		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-02-SF** Jackson Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 006-143B and -D, 7/15/2020

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 006-143B and -D, 7/15/2020

The Shellfish Bacterial TMDL for Jackson Creek was approved by the EPA on 7/15/2009 and by the SWCB on 11/14/2009. The TMDL addressed the maximum extent of the condemnation, which occurred in condemnation 006-143B, 5/5/2005.

The condemnation has expanded and contracted several times.

The condemnation shrank in the 2018 cycle and the downstream portion was partially delisted (Category 2C).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_JCK01A98 / Jackson Creek / Described in VDH condemnation notice 006-143B and -D, 7/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.096

Jackson Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.096		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-03-BAC** **Bonum Creek**

Cause Location: The tidal portion of Bonum Creek.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Bonum Creek was impaired of the Recreation Use due to an enterococci violation rate of 4/12 at 1ABOM000.46, which is located at the end of Rt. 763.

The Bonum Creek Shellfish TMDL was approved by the EPA on 7/15/2009 and by the EPA on 11/14/2009. The TMDL addressed Bonum Creek to its mouth. As this bacterial impairment is located within the study area for the completed TMDL, the Recreation Use is considered nested (Category 4A.)

The impairment was adjusted slightly in the 2018 cycle to remain coincident with the shellfish condemnation. The exceedance rate was 4/11 in the 2018 cycle.

During the 2020 cycle, the shellfish condemnation shrank and the listing station was now outside of the condemnation. The Recreation Use impairment was adjusted to end at the mouth of Bonum Creek.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; however, re-analysis of the 2018 data confirms impairment due to two or more STV exceedances within the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_BOM01A98 / Bonum Creek / Described in the condemnation notice 006-143C, 7/15/2020. POTMH	4A	Enterococcus	2012	L	0.149
VAP-A33E_BOM01B10 / Bonum Creek / Portion of condemnation notice 143C, 5/5/2005 in 006-143S3, 7/15/2020. POTMH	4A	Enterococcus	2020	L	0.061

Bonum Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.21		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-03-SF** **Bonum Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 006-143C, 7/15/2020

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 006-143C, 7/15/2020

Bonum Creek was included on the 1998 303(d) list due to VDH Condemnation 159, 4/27/1989. The Shellfish Bacterial TMDL for Bonum Creek was approved by the EPA on 7/15/2009 and by the SWCB on 11/14/2009. The TMDL addressed the maximum extent of the condemnation, which occurred in condemnation 006-143C, 5/5/2005. The upstream portion of this area remained impaired in the 2010 condemnation (006-143C, 5/19/2008); however, the downstream portion was opened for harvest and was partially delisted and considered Category 2C.

The condemnation shrank further in the 2018 and 2020 cycles.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_BOM01A98 / Bonum Creek / Described in the condemnation notice 006-143C, 7/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.149

Bonum Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.149		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-04-BAC** Lodge Creek

Cause Location: Lodge Creek from its tidal limit to the downstream extent of VDH-DSS condemnation 007-028F, 5/12/1997

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: Lodge Creek from its tidal limit downstream to the end of VDH-DSS condemnation 007-028F, 7/21/2004 has been assessed as not supporting the Recreation Use due to enterococci exceedances at 1ALOG001.20, which is located at the end of Route 712. The segment was expanded during the 2008 cycle to align the boundary with the 5/12/1997 impairment.

During the 2020 cycle, the violation rate was 6/36.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Note: The bacteria TMDL for shellfish impairments in the Yeocomico River watershed was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. Section 028F was addressed in the report. However, the Recreation Use impairment cannot be nested because the Callao WWTP was not addressed in the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_LOG01A98 / Lodge Creek / Described in the condemnation notice 007-225D, 10/15/2020. POTMH	5A	Enterococcus	2006	L	0.030
VAP-A33E_LOG02A98 / Lodge Creek / Portion of condemnation notice 007-225A, 10/15/2020 that is not administratively condemned. POTMH	5A	Enterococcus	2006	L	0.138
VAP-A33E_LOG02B10 / Lodge Creek / Portion of condemnation notice 007-225A, 10/15/2020 that is administratively condemned. POTMH	5A	Enterococcus	2006	L	0.074
VAP-A33E_LOG02C12 / Lodge Creek / Portion of condemnation notice 007-028F, 5/12/1997 that is within 007-225S41, 10/15/2020. POTMH	5A	Enterococcus	2006	L	0.058

Lodge Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.301		

Sources: Non-Point Source; Source Unknown

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Cause Group Code: **A33E-05-SF** **White Point Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 007-028C, 10/15/2020

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 007-028C, 10/15/2020

White Point Creek was listed as impaired of the Shellfish Consumption Use in the 1998 cycle due to condemnation 007-028B, 5/12/1997 (A33E-05-SF). The condemnation grew during the 2008 cycle (007-028B, 12/12/2006); however, only the original 1998 portion was included in the Yeocomico River Watershed TMDL Report, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009.

However, during the 2012 cycle, the entire segment was open for harvest on the 11/1/2010 condemnation; therefore the segment was delisted.

A portion of the area closed again in the 2018 cycle. The open portion remains Category 2C.

Condemnation shortened again in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_WHP01A98 / White Point Creek / Described in the condemnation notice 007-028C, 10/15/2020. POTMH	4A	Fecal Coliform	2018	L	0.021

White Point Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.021		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-06-SF** **West Yeocomico River, UT**

Cause Location: As described in VDH-DSS condemnation 007-028D, 10/15/2020

Cause City/County: Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 007-028D, 10/15/2020

The impairment is nested within the West Yeocomico River Watershed TMDL report, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. It is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_WES01A06 / West Yeocomico River, UT / Described in VDH-DSS condemnation 007-028D, 10/15/2020. POTMH	4A	Fecal Coliform	2020	L	0.03

West Yeocomico River, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.03		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-07-BAC** **Hampton Hall Branch**

Cause Location: Tidal Hampton Hall Branch

Cause City/County: Northumberland County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Hampton Hall Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 3/11 at 1AHAM001.92, which is located at Route 202.

The area is within the study area for the Yeocomico River Watershed TMDL report, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009; therefore, the segment is considered nested (Category 4A).

The exceedance rate was 2/11 in the 2018 cycle.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the 2018 data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_HAM01A02 / Hampton Hall Branch / Tidal Hampton Hall Branch within 007-028B, 10/2/2018. Expanded slightly in the 2022 cycle. POTMH	4A	Enterococcus	2012	L	0.231
VAP-A33E_HAM01B20 / Hampton Hall Branch / Mainstem Hampton Hall Branch below 007-028A, 10/15/2020. Segment shrank slightly in the 2022 cycle. POTMH	4A	Enterococcus	2012	L	0.020
VAP-A33E_HAM01C20 / Hampton Hall Branch / Tidal Hampton Hall Branch within 007-028E, 10/2/2018. POTMH	4A	Enterococcus	2012	L	0.022

Hampton Hall Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.273		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-07-SF** **Hampton Hall Branch, Kinsale Branch**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations VDH-DSS Shellfish Condemnation 007-028A and -028B, 10/15/2020 and -028E, 10/2/2018

Cause City/County: Northumberland County; Westmoreland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 007-028A and -028B, 10/15/2020

The West Yeocomico River (including Hampton Hall Branch and Kinsale Branch) was listed as impaired of the Shellfish Consumption Use in the 1998 cycle due to condemnation 007-028C, 5/12/1997. The original 1998 portion was included in the Yeocomico River Watershed TMDL Report, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. This portion was considered as Category 4A.

The segment shortened dramatically during the 2012 cycle and split into two separate condemnations - Kinsale Branch and Hampton Hall Creek. These areas remained Category 4A. The remainder of the 1998 extent was partially delisted (Category 2C).

The condemnation extended to the TMDL extent in the 2016 cycle.

It shrank and split in the 2020 cycle based on 007-028, 10/2/2018. Condemnations B and D remain closed (Category 4A.) The portion within 007-028S39 is seasonally condemned and was partially delisted (Category 2C/2B.) Condemnation E is now administratively condemned and was partially delisted; the use is considered removed.

In the 2022 cycle, 007-028B expanded slightly. 007-028E 10/2/2018 converted to seasonally condemned (a portion of 007-028S39, 10/15/2020) and will be partially delisted (Category 2C/2B.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_HAM01A02 / Hampton Hall Branch / Tidal Hampton Hall Branch within 007-028B, 10/2/2018. Expanded slightly in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.231
VAP-A33E_KIN01A12 / Kinsale Branch / Tidal limit to mouth POTMH	4A	Fecal Coliform	1998	L	0.108

Hampton Hall Branch, Kinsale Branch

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.34		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33E-08-EBEN** **West Yeocomico River**

Cause Location: Mainstem West Yeocomico River

Cause City/County: Northumberland County; Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The lower West Yeocomico River was impaired of the Aquatic Life Use in the 2018 cycle due to an altered benthic community at Coastal 2000 station 1AWES000.78 in 2015.

During the 2020 cycle, the impairment was expanded upstream to the start of the West Yeocomico River due to additional monitoring at 2017 Coastal 2000 station 1AWES001.28.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_WES01B12 / West Yeocomico River / Portion of the West Yeocomico River mainstem within condemnation notice 007-028C, 5/12/1997 POTMH	5A	Estuarine Bioassessments	2020	L	0.052
VAP-A33E_WES02A06 / West Yeocomico River / Downstream of condemnations Segment split in the 2022 cycle. POTMH	5A	Estuarine Bioassessments	2018	L	0.273
VAP-A33E_WES02B22 / West Yeocomico River / Portion of VDH-DSS condemnation 007-028S39, 10/15/2020 downstream of condemnation 28C, 5/12/1997 Segment split in the 2022 cycle. POTMH	5A	Estuarine Bioassessments	2018	L	0.068

West Yeocomico River

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.393		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-09-SF** Mill Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations 007-225B, 10/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 007-225B, 10/15/2020

The upper part of Mill Creek was listed as impaired of the Shellfish Consumption Use in the 1998 cycle due to condemnation 007-028E, 5/12/1997. The impairment was included in the Yeocomico River Watershed TMDL Report, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. This original segment is considered Category 4A.

The Mill Creek condemnation is now smaller than the 1998 area. The upstream portion remains impaired (Category 4A); the lower portion was considered a partial delist (Category 2C.)

The condemnation has vacillated in size over numerous cycles.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_MIA01A98 / Mill Creek / Described in the condemnation notice 007-225B, 10/15/2020 Size increased in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.12

Mill Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.12		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-10-SF** **Lodge Creek**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 007-028A 10/15/2020 which is not administratively condemned

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 007-225A, 10/15/2020

A portion of Lodge Creek was assessed as impaired of the Shellfish Use in 1998 due to VDH condemnation 028F, 5/12/1997. It was subsequently addressed in the bacteria TMDL for shellfish impairments in the Yeocomico River Watershed, which was approved by the EPA on 6/8/2006.

However, during the 2010 cycle, it was determined that the upper portion of the condemnation (007-028E, 11/10/2008) is an administrative closure. Therefore the use was considered removed and the upper portion was partially delisted. The downstream portion remains impaired and is considered Category 4A.

During the 2012 cycle, the condemnation shrank and the downstream-most portion was converted to seasonally condemned; therefore, it was partially delisted.

The condemnation shrank again during the 2018 cycle (Category 4A/2C).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_LOG02A98 / Lodge Creek / Portion of condemnation notice 007-225A, 10/15/2020 that is not administratively condemned. POTMH	4A	Fecal Coliform	1998	L	0.138

Lodge Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.138		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-11-PCB** **Yeocomico River**

Cause Location: The mainstem of the Yeocomico River.

Cause City/County: Northumberland County; Westmoreland County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2020 cycle, the Yeocomico River was impaired of the Fish Consumption Use due to exceedances of the fish tissue value in gizzard shad and Atlantic menhaden during 2018 monitoring at station 1AYEO001.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_YEO01A02 / Yeocomico River and Tributaries / Yeocomico River mainstem POTMH	5A	PCBs in Fish Tissue	2020	L	1.878

Yeocomico River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	1.878		

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **A33E-13-SF** **Dungan Cove**

Cause Location: Described in VDH-DSS condemnation 007-225C, 10/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 007-225C, 10/15/2020

A portion of Dungan Cove was assessed as impaired of the Shellfish Use in 1998 due to VDH condemnation 028G, 5/12/1997 (A33E-11-SF). The area was addressed in the bacteria TMDL for shellfish impairments in the Yeocomico River Watershed, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009. The condemnation was rescinded during the 2014 cycle; therefore, the impairment was delisted (Category 2C).

A portion was relisted in the 2022 cycle (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_DUA01A04 / Dungan Cove / As described in VDH Shellfish Condemnation 007-225C, 10/15/2020 POTMH	4A	Fecal Coliform	2022	L	0.021

Dungan Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.021		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33L-01-DO** **Hampton Hall, Gardy Millpond**

Cause Location: Hampton Hall, Gardy Millpond entire lake

Cause City/County: Northumberland County; Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle an error was discovered from the 2014 cycle. The temperature impairment from 2014 cycle was actually a DO impairment. the violation rate for the DO impairment was 13/69 at station 1AHAM003.08. No new data has been collected since the 2014 cycle.

No new data was collected during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33L_HAM01A12 / Hampton Hall, Gardy Millpond / From the confluence of Hampton Hall Branch to Rt. 617	5C	Dissolved Oxygen	2016	L	45.86

Hampton Hall, Gardy Millpond

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		45.86	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A33R-01-BAC** Mill Creek

Cause Location: From its headwaters to the tidal limit.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2002 cycle, Mill Creek was assessed not supporting of the Recreation Use goal based on fecal coliform exceedances at Route 202 (1AMIA004.12).

During the 2010 cycle, the E. coli violation rate at 1AMIA004.12 was 1/6 (insufficient information for assessment). However, there was additional monitoring downstream at 1AMIA002.34 which showed impairment (2/6). The segment remained listed and was extended downstream to the tidal limit; the impairment converted to E. coli.

In the 2018 cycle, the E. coli exceedance rates were 3/12 at 1AMIA002.34 and 6/24 at 1AMIA004.12.

The Bacteria TMDL for (non-tidal) Mill Creek was approved by the EPA on 7/30/2010 and by the SWCB on 12/13/2010.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; however, the data within the 2022 data window were re-analyzed using the new criteria. The impairment is confirmed at 1AMIA004.12 due to two or more STV exceedances within the same 90-day period with <10 samples. There is insufficient data to assess station 1AMIA002.34; therefore, the impairment is carried over at that station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_MIA01A00 / Mill Creek / From its headwaters to the tidal limit	4A	Escherichia coli (E. coli)	2010	L	5

Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A33R-02-BAC** Lodge Creek

Cause Location: The free flowing portion of Lodge Creek.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2014 cycle, Lodge Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/21 at 1ALOG003.30, which is located at the Route 360 bridge. Monitoring at station 1ALOG003.45 was acceptable (0/3).

Additional monitoring was conducted in the 2018 cycle at 1ALOG003.30; the exceedance rate was 5/21.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_LOG01A04 / Lodge Creek / Headwaters to tidal limit	5A	Escherichia coli (E. coli)	2014	L	3.45

Lodge Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.45

Sources: Source Unknown

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Cause Group Code: **A33R-02-DO** **Lodge Creek**

Cause Location: The free flowing portion of Lodge Creek.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Lodge Creek was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 1ALOG003.30, which is located at the Route 360 bridge. The exceedance rate was 6/21 during the 2018 cycle. Monitoring at station 1ALOG003.45 was acceptable (0/3).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_LOG01A04 / Lodge Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2010	L	3.45

Lodge Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.45

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A33R-03-BAC** Gardner Creek

Cause Location: The free flowing portion of Gardner Creek.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the segment was considered impaired of the Recreation Use due to an E. coli violation rate of 2/11 at 1AGAD001.73. Note: the violation rate was 0/8 at 1GAD002.54; therefore, additional sampling may be warranted.

The bacterial TMDL for the shellfish impairment on tidal Gardner Creek was approved by the EPA on 7/15/2009 and by the SWCB on 11/14/2009. Because the riverine bacterial impairment is located within the TMDL study watershed, the impairment is considered Nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_GAD01A10 / Gardner Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2012	L	1.4

Gardner Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.4

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33R-03-DO** **Gardner Creek**

Cause Location: The free flowing portion of Gardner Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Gardner Creek was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 1AGAD001.73, which is located at 3352 Coles Point Road. During the 2012 cycle, the violation rate was 4/11 at 1AGAD001.73.

Additional monitoring was conducted in the 2016 cycle at 1AGAD002.54; the dissolved oxygen exceedance rate was 3/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_GAD01A10 / Gardner Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2010	L	1.4

Gardner Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.4

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A33R-03-PH** Gardner Creek

Cause Location: The free flowing portion of Gardner Creek.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2010 cycle, Gardner Creek was assessed as not supporting of the Aquatic Life Use due to a pH violation rate of 5/5 at 1AGAD001.73, which is located at 3352 Coles Point Road as well as a pH violation rate of 1/1 at 1AGAD002.54, which is located at the Route 612 bridge.

During the 2012 cycle, the violation rates increased to 11/11 and 7/7, respectively.

Additional monitoring was conducted in the 2016 cycle at 1AGAD002.54; the pH exceedance rate was 11/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_GAD01A10 / Gardner Creek / Headwaters to tidal limit	5C	pH	2010	L	1.4

Gardner Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.4

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A33R-04-PH** XMB - Hampton Hall Creek, UT

Cause Location: Headwaters to the backwater of Gardys Millpond.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, UT XMB was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 1AXMB000.88, which is located at Route 618.

The exceedance rate decreased to 3/24 in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_XMB01A14 / XMB - Hampton Hall Branch, UT / Headwaters to backwater of Gardys Millpond	5C	pH	2014	L	3.48

XMB - Hampton Hall Creek, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.48

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A33R-05-DO** **XLZ - Hampton Hall Creek, UT**

Cause Location: Headwaters to the backwater of Gardys Millpond.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2018 cycle, UT XLZ was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/24 at 1AXLZ002.04, which is located at Route 601.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_XLZ01A14 / XLZ - Hampton Hall Branch, UT / Headwaters to backwater of Gardys Millpond.	5C	Dissolved Oxygen	2018	L	3.14

XLZ - Hampton Hall Creek, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.14

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A33R-05-PH** **XLZ - Hampton Hall Creek, UT**

Cause Location: Headwaters to the backwater of Gardys Millpond.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, UT XLZ was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 1AXLZ002.04, which is located at Route 601.

The exceedance rate decreased to 3/24 in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_XLZ01A14 / XLZ - Hampton Hall Branch, UT / Headwaters to backwater of Gardys Millpond.	5C	pH	2014	L	3.14

XLZ - Hampton Hall Creek, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.14

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **A33R-06-BAC** XMA - Hampton Hall Creek, UT

Cause Location: Headwaters to the mouth at XLZ.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, UT XMA was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 1AXMA000.12, which is located at Route 601.

The impairment is considered nested within the Hampton Hall Branch Shellfish TMDL, which was developed as part of the Yeocomico River Watershed TMDL report. The report was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_XMA01A14 / XMA - Hampton Hall Branch, UT / Headwaters to mouth at XLZ.	4A	Escherichia coli (E. coli)	2014	L	2.07

XMA - Hampton Hall Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.07

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A33R-07-BAC** XMC - Lodge Creek, UT

Cause Location: Headwaters to mouth at Lodge Creek.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, UT XMC was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/12 at 1AXMC000.92, which is located at the Route 768 bridge.

The impairment is nested in the downstream Yeocomico River Watershed Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 4/28/2009.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33R_XMC01A14 / XMC - Lodge Creek, UT / Headwaters to mouth at Lodge Creek.	4A	Escherichia coli (E. coli)	2014	L	1.69

XMC - Lodge Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.69

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-01-SF** **The Glebe**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 145D, 2/25/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 008-213A, 4/15/2020

A 0.13 portion of Glebe Creek was initially assessed as impaired of the Shellfish Use due to VDH-DSS Condemnation Notice 145D, 2/25/1997.

In the 2004 cycle, the segment was extended; however, the 12/18/2003 TMDL was only performed on the 1998 portion. The original impairment is classified as Cat. 4A (TMDL completed). The expansion is addressed in fact sheet A34E-01-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_GLE01A98 / The Glebe / Described in the condemnation notice 145D, 2/25/1997. POTMH	4A	Fecal Coliform	1998	L	0.132

The Glebe

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.132		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-01-SF2** **The Glebe**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 008-213A, 4/15/2020 not included in the 1997 impairment

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Condemnation 008-213A, 4/15/2020

A 0.13 portion of Glebe Creek was assessed as impaired of the Shellfish Use during the 1998 cycle due to VDH-DSS Condemnation Notice 145D, 2/25/1997. In the 2004 cycle, the segment was extended to match condemnation 145C, 11/27/2002. However, the TMDL was only performed on the 1998 portion.

The impairment is nested within the Glebe Creek Shellfish TMDL, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_GLE01A04 / The Glebe / Portion of VDH-DSS notice 008-213A, 4/15/2020 open on 145D, 2/25/1997 POTMH	4A	Fecal Coliform	2004	L	0.045

The Glebe

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.045		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-04-SF** **XFJ - Coan River, UT (aka Cellars Cove)**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 008-214C, 4/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 008-214C, 4/15/2020

A portion of the tributary was listed in the 1998 cycle due to condemnation 145G, 2/25/1997. The shellfish condemnation for this segment was included in “Coan River Watershed Total Maximum Daily Load (TMDL) Report for Six Shellfish Areas”, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/02/2004. The condemnation size has been adjusted through several cycles; however, during the 2012 cycle the condemnation shrunk and it currently matches the 1998 impairment. It is considered Category 4A.

Note: Although the 1998 portion of the tributary is shown on the TMDL map, the TMDL used station 8-33 which is near the mouth of the creek instead of station 8-34, which was located within the 1998 impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_XFJ01A98 / XFJ - Coan River, UT (aka Cellars Cove) / Described in the condemnation notice 008-214C, 4/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.032

XFJ - Coan River, UT (aka Cellars Cove)

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.032		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-05-BAC** **Coan River**

Cause Location: Coan River mainstem within VDH Shellfish Condemnation Number 145I, 2/25/1997

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, the uppermost portion of the Coan River was assessed as impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 1ACOA004.12, which is located at a private dock at the end of Route 629. As the impairment is located within the study area for the Shellfish bacterial TMDL for the Coan River which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004, the impairment is considered nested (Category 4A).

A portion of nontidal Coan Mill Stream was impaired of the Recreation Use since the 2002 cycle based on E. coli exceedances at 1ACON000.96 (old fact sheet A34R-01-BAC). In the 2014 cycle, it was determined that this station is actually tidally influenced. The impairment is now a part of A34E-05-BAC. The enterococci exceedance rate was 12/24 during the 2014 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COA01A98 / Coan River / Described in the VDH-DSS Condemnation Notice 008-214A, 4/15/2020. Size reduced in the 2022 cycle. POTMH	4A	Enterococcus	2012	L	0.271
VAP-A34E_COA01B16 / Coan River / Portion of VDH-DSS Condemnation Notice 145I, 2/25/1997 not condemned in 008-214, 4/15/2020. Expanded in the 2022 cycle. POTMH	4A	Enterococcus	2012	L	0.078

Coan River

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.349	Reservoir (Acres)	River (Miles)
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Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-05-SF** **Headly Cove**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 145H, 2/25/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 008-214B, 4/15/2020

Headly Cove was assessed as impaired of the Shellfish Use in 1998 because of VDH SFC 145I, 2/25/1997. The impairment was included in “Coan River Watershed Total Maximum Daily Load (TMDL) Report for Six Shellfish Areas”, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/02/2004. The segment is classified as Category 4A for shellfish consumption.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_HEA01A98 / Headly Cove / Described in the VDH-DSS Condemnation Notice 008-214B, 4/15/2020 POTMH	4A	Fecal Coliform	1998	L	0.026

Headly Cove

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.026		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-05-SF2** **Mill Creek and the Coan River**

Cause Location: Described in VDH-DSS Notice 145I, 2/25/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 008-214A, 4/15/2020 VDH-DSS Condemnation 008-214D, 4/15/2020
 Portion of VDH-DSS Condemnation 008-214S6, 4/15/2020

Mill Creek and the upstream most portion of the Coan River were assessed as impaired of the Shellfish Use in 1998 because of VDH SFC 145I, 2/25/1997. The impairment expanded in several assessment cycles. However only the original segment was included in “Coan River Watershed Total Maximum Daily Load (TMDL) Report for Six Shellfish Areas”, which was completed during the 2006 cycle and approved by the EPA on 12/18/2003 and by the SWCB on 12/02/2004.

During the 2016 cycle, the condemnation shrank significantly and is now smaller than the TMDL extent. The condemned segment is classified as Category 4A; the newly opened portion was partially delisted (Cat 2C).

The condemnation shrank further in the 2020 cycle. It shrank again and split in the 2022 cycle. A portion of Mill Creek was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COA01A98 / Coan River / Described in the VDH-DSS Condemnation Notice 008-214A, 4/15/2020. Size reduced in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.271
VAP-A34E_MII01A06 / Mill Creek / Tidal limit to limit of VDH-DSS condemnation 008-214D, 4/15/2020 Split in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.096

Mill Creek and the Coan River

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.367	

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-06-EBEN** **Coan River**

Cause Location: Coan River mainstem downstream of the VDH-DSS condemnations to rivermile 1ACOA002.37

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2020 cycle, the Coan River was impaired of the Aquatic Life Use around 2017 Coastal 2000 station 1ACOA002.87 due to an altered benthic community (potential chronic effects of cumulative PAHs and metals in sediment).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COA02B20 / Coan River / From SFC 008-214S6, 4/15/2020 to rivermile 2.37. Expanded slightly in the 2022 cycle. POTMH	5A	Estuarine Bioassessments	2020	L	0.532

Coan River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.532		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-07-SF** **Cod Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 009-141A, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 009-141A, 6/15/2020

Cod Creek was included on the 1998 303(d) list due to VDH Condemnation 141A, 1/31/1997. The Shellfish TMDL for Cod Creek was developed based on the maximum extent of the impairment (1/31/1997). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, Cod Creek is considered Category 4A.

The condemnation shrank slightly during the 2014 cycle and the lower portion was partially delisted (Category 2C).

The condemnation extent has varied slightly but remains smaller than the 1997 extent.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COC01A98 / Cod Creek / Described in the condemnation notice 009-141A, 6/15/2020. Size increased slightly in the 2022 cycle. POTMH	4A	Fecal Coliform	1998	L	0.049

Cod Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.049		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-08-SF** **Cod Creek, UT**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 009-141B, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 009-141B, 6/15/2020

Cod Creek was included on the 1998 303(d) list due to VDH condemnation 141B, 1/31/1997. The Shellfish TMDL for Cod Creek was developed based on the maximum extent of the impairment (1/31/1997). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, Cod Creek is considered Category 4A.

The condemnation shrank slightly during the 2014 cycle and the lower portion was partially delisted (Category 2C).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COC01B02 / Cod Creek, UT / Described in the condemnation notice 009-141B, 6/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.054

Cod Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.054		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-09-BAC** Presley Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 009-141C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Presley Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 1APRE001.58, which is located off Rt. 629.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The area is within the study area for the Presley Creek Shellfish TMDL, which was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010. It is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_PRE01A98 / Presley Creek / Described in the condemnation notice 009-141C, 6/15/2020. POTMH	4A	Enterococcus	2012	L	0.332

Presley Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.332		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-09-SF** Presley Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 009-141C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 009-141C, 6/15/2020

Presley Creek was included on the 1998 303(d) list due to VDH condemnation 140, 4/27/1989. The Shellfish TMDL for Presley Creek was developed based on the maximum extent of the impairment (009-141C, 3/30/2009). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, Presley Creek is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_PRE01A98 / Presley Creek / Described in the condemnation notice 009-141C, 6/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.332

Presley Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.332		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-12-SF** **Hull Creek and Spring Cove**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 009-142A, -B, and -E, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnations 009-142A, -B, and -E, 6/15/2020

A portion of Hull Creek was listed as impaired of the Shellfish Use in the 1998 cycle because of VDH-DSS Shellfish Condemnation 142A, 1/31/1997.

The Shellfish TMDL for Hull Creek was developed based on the maximum extent of the impairment (8/21/2000). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, Hull Creek is considered Category 4A.

The condemnation subsequently shrank and split segments. Closed segments remain Category 4A; the remainder (including Spring Cove) was partially delisted (Category 2C).

The condemnation grew slightly in the 2018 cycle and Spring Cove was relisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_HUL01A02 / Hull Creek and Floyd Cove / Described in VDH condemnations 009-142A and -E, 6/15/2020, excluding Spring Cove. POTMH	4A	Fecal Coliform	1998	L	0.252
VAP-A34E_HUL01C12 / Fleets Cove (Hull Creek, UT) / Described in VDH condemnation 009-142B, 6/15/2020 POTMH	4A	Fecal Coliform	1998	L	0.024
VAP-A34E_SPN01A04 / Spring Cove / Tidal limit to mouth at Hull Creek POTMH	4A	Fecal Coliform	2018	L	0.010

Hull Creek and Spring Cove

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.285	

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-13-SF** **Rogers Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 142C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 009-142C, 6/15/2020

Rogers Creek was included on the 1998 303(d) list due to VDH condemnation 142B, 1/31/1997. The Shellfish TMDL for Rogers Creek was developed based on the maximum extent of the impairment (3/17/2008). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010.

During the 2016 cycle, the Rogers Creek condemnation shrank. The upstream portion remains impaired (Category 4A); the downstream portion was partially delisted (Category 2C.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_ROG01A98 / Rogers Creek / Described in the condemnation notice 009-142C, 6/15/2020. POTMH	4A	Fecal Coliform	1998	L	0.035

Rogers Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.035		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-14-SF** **Cubitt Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 009-161A, 4/27/2018

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 009-161A, 4/27/2018

Cubitt Creek was impaired during the 1998 cycle due to VDH-DSS Shellfish Condemnation 168, 4/27/1989. The Shellfish TMDL for Cubitt Creek was developed during the 2010 cycle based on the maximum extent of the impairment (5/30/1986). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, the creek is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_CUT01A98 / Cubitt Creek / Described in the condemnation notice 009-161A, 4/27/2018 POTMH	4A	Fecal Coliform	1998	L	0.225

Cubitt Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.225		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **A34E-15-SF** **Cod Creek, Tributary to Little Wicomico River**

Cause Location: Described in VDH condemnation 105A, 6/10/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 010-105G, 7/15/2020 VDH Shellfish Condemnation 010-105S86, 7/15/2020 - seasonally condemned

Cod Creek was assessed as impaired during the 1998 cycle because of VDH-DSS Shellfish Condemnation 105B, 6/10/1997. The TMDL was adopted by the EPA on 12/18/2003 and the SWCB on 12/2/2004. The impairment shortened during the 2012 cycle and a portion of the impairment was partially delisted.

The impairment expanded in the 2014 and 2016 cycles (see fact sheet A34E-11-SF). It shrunk back to the TMDL extent in the 2018 cycle.

The condemnation shrank further in the 2020 cycle and the lower portion is seasonally condemned and was partially delisted (Category 2C/2B.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COO01A98 / Cod Creek / Described in VDH condemnation notice 010-105G, 7/15/2020. CB5MH	4A	Fecal Coliform	1998	L	0.037

Cod Creek, Tributary to Little Wicomico River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.037		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-16-SF** **Little Wicomico River**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 105B, 6/10/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 010-105A, 7/15/2020

This segment of the Little Wicomico River was assessed as impaired in 1998 based on VDH SFC 105B 6/10/1997.

The Little Wicomico River Shellfish TMDL was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004.

The condemnation extent has expanded and contracted in multiple cycles. It is currently smaller than the 1997 / TMDL extent. The impaired portion is Category 4A; the opened/seasonally condemned areas are Category 2C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS01A98 / Little Wicomico River / Described in the VDH-DSS Condemnation Notice 010-105A, 7/15/2020 CB5MH	4A	Fecal Coliform	1998	L	0.128

Little Wicomico River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.128		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-16-SF2** **Little Wicomico River**

Cause Location: VDH-DSS Condemnation 010-105E, 010-105F, and -010-105H, 7/15/2020 not listed in 1998

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 010-105E, 010-105F, and -010-105H, 7/15/2020

A segment of the Little Wicomico River was assessed as impaired in 1998 based on VDH SFC 105B 6/10/1997. During the 2004 cycle, the segment expanded and has subsequently expanded and contracted during various assessment cycles. However, the 2003 TMDL only covered the original 1998 impaired section, which is classified as Cat. 4A. The TMDL for the expansion was due in 2016.

During the 2016 cycle, condemnation 010-105A, 6/9/2014 expanded considerably and several impairments were merged (A34E-16-SF2 and A34E-30-SF). The impairment is considered nested within the upstream Little Wicomico River Shellfish TMDL, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004.

The condemnation shortened and split in the 2018 cycle; in addition, a seasonally condemned portion (010-105M4) was split off and partially delisted.

In the 2020 cycle, the condemnation shrank further and the mainstem Little Wicomico River condemnation (010-105A, 6/26/2018) is now smaller than the TMDL extent. The tributaries remain listed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS01A02 / Little Wicomico River / VDH-DSS Condemnation 010-105E, 010-105F, and -010-105H, 7/15/2020. CB5MH	4A	Fecal Coliform	2004	L	0.085

Little Wicomico River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.085		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-17-SF** **Bridge Creek**

Cause Location: Described in VDH condemnation 010-105B and 010-105L, 6/26/2018 (open in the 1998 cycle)

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 010-105B, 7/15/2020

A small portion of the segment was listed in the 2006 cycle due to condemnation 010-105C, 9/15/2004. The segment expanded and merged with another condemnation during the 2008 cycle. Although the other condemnation was listed in 1998 and was later addressed in the Shellfish TMDL approved by the EPA on 12/18/03, this AU represented the portion of the condemnation which was not included in the 2003 TMDL.

The condemnations shrank during the 2020 cycle. In addition, a portion was converted to seasonally condemned and was partially delisted.

The condemned area shrank further in the 2022 cycle and is now limited to one condemnation.

The impairment is considered nested within the Bridge Creek Shellfish TMDL, which was approved by the EPA on 12/18/2003.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_BRI01C98 / Bridge Creek / Described in VDH condemnation 010-105B, 7/15/2020. Shrank in the 2022 cycle. CB5MH	4A	Fecal Coliform	2006	L	0.087

Bridge Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.087		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-18-SF** **Bridge Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 180, 6/10/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 010-105D, -105J, and -105K, 7/15/2020 VDH-DSS Condemnation 010-105S13, 7/15/2020 - seasonally condemned

Bridge Creek was impaired of the Shellfish Consumption Use during the 1998 cycle due to VDH-DSS condemnation 180, 6/10/1997. The segment was delisted in 2004 because the area was reopened for harvest, but was closed again in the 2006 cycle.

The segment received a fecal coliform allocation in the “Little Wicomico River Watershed TMDL for Three Shellfish Areas Listed Due to Bacteria Contamination” report which was approved by the EPA on 12/18/2003; therefore, it is considered Cat. 4A for shellfish consumption.

The condemned areas have expanded and contracted over several cycles. The restricted areas are currently smaller than the TMDL area are considered Category 4A. Re-opened and seasonally condemned areas are considered Category 2C and Category 2C/2B, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_BRI02C98 / Bridge Creek / Described in the condemnation notice 010-105D, -105J, and -105K, 7/15/2020 CB5MH	4A	Fecal Coliform	2006	L	0.042

Bridge Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.042		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-24-BAC** **Spring Cove**

Cause Location: Tidal Spring Cove

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2010 cycle, Spring Cove was assessed as not supporting of the Recreation Use due to enterococci exceedances at 1ASPN000.08, which is located at the boat ramp off of Route 629.

Because the area is within the study area for the Hull Creek Shellfish TMDL which was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010, the Recreation impairment is considered nested (Category 4A.) The exceedance rate was 6/26 during the 2012 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_SPN01A04 / Spring Cove / Tidal limit to mouth at Hull Creek POTMH	4A	Enterococcus	2010	L	0.01

Spring Cove

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.01		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-31-BAC** Little Wicomico River

Cause Location: Tidal extent to mouth

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: In the 2006 cycle, the upper tidal portion of the Little Wicomico River was considered impaired of the Recreation Use due to enterococci exceedances at 1ALIS004.20, which is located off the mouth of Spences Creek. The enterococci violation rate was 4/26 during the 2012 cycle.

It was shortened in the 2018 cycle to remain coincident with the shellfish closure since that limit is more stringent.

In the 2020 cycle, monitoring at 1ALIS002.00 was unacceptable (4/36); therefore, the impairment was extended to include the mainstem of the Little Wicomico River.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired at 1ALIS002.00 due to two or more STV exceedances in the same 90-day period with <10 samples. No additional data has been collected at 1ALIS004.20.

The impairment is considered nested because it is located within the tidal excursion of the upstream Little Wicomico River Shellfish TMDL. The TMDL was approved on 12/18/2003 and by the SWCB on 12/2/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS01A02 / Little Wicomico River / VDH-DSS Condemnation 010-105E, 010-105F, and -010-105H, 7/15/2020. CB5MH	4A	Enterococcus	2006	L	0.085
VAP-A34E_LIS01A98 / Little Wicomico River / Described in the VDH-DSS Condemnation Notice 010-105A, 7/15/2020 CB5MH	4A	Enterococcus	2006	L	0.128
VAP-A34E_LIS01B12 / Little Wicomico River / Described in VDH-DSS condemnation 010-105M3, 7/15/2020. CB5MH	4A	Enterococcus	2020	L	0.021
VAP-A34E_LIS01D20 / Little Wicomico River / Portion of VDH-DSS Condemnation 010-105S11, 7/15/2020 within 105B, 6/10/1997 CB5MH	4A	Enterococcus	2006	L	0.075
VAP-A34E_LIS02A00 / Little Wicomico River / Boundary of VDH-DSS Condemnation Notice 010-105, 7/15/2020 downstream to Sunnybank Ferry. Segment shortened slightly in the 2022 cycle. CB5MH	4A	Enterococcus	2020	L	0.565
VAP-A34E_LIS02B08 / Little Wicomico River / Described in VDH condemnation 010-105M2, 7/15/2020 CB5MH	4A	Enterococcus	2020	L	0.006

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS02C20 / Little Wicomico River / Portion of VDH-DSS Condemnation 010-105S11, 7/15/2020 not condemned in 1997. Segment split in the 2022 cycle. CB5MH	4A	Enterococcus	2006	L	0.091
VAP-A34E_LIS02D22 / Sloop Creek / Described in VDH-DSS Condemnation 010-105SI, 7/15/2020. CB5MH	4A	Enterococcus	2006	L	0.018
VAP-A34E_LIS03A98 / Little Wicomico River / Confined to approximately the Sunnybank Ferry Route. CB5MH	4A	Enterococcus	2020	L	0.025
VAP-A34E_LIS04A00 / Little Wicomico River / Mainstem Little Wicomico River downstream of the Sunnybank Ferry Route, except as otherwise segmented. CB5MH	4A	Enterococcus	2020	L	0.511

Little Wicomico River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.524		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-36-BAC** **Hack Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 009-161B, 4/27/2018

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Hack Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 2/11 at 1AHAC000.96, which is located off of Route 644.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Shellfish TMDL for Hack Creek was developed based on the maximum extent of the impairment (009-161B, 3/14/2007) and was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010. Because the impairment is within the TMDL study area, the Recreation Use is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_HAC01A00 / Hack Creek / Tidal limit to mouth at Potomac River. POTMH	4A	Enterococcus	2012	L	0.224

Hack Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.224		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-36-SF** **Hack Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 009-161B, 4/27/2018

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 009-161B, 4/27/2018

Hack Creek was designated as a non-productive shellfish growing area by VDH-DSS in previous summaries, so the use had been considered removed. However, during the 2008 cycle, it was determined that VDH considers the water condemned; therefore, Hack Creek was assessed as impaired (161, 4/27/1989.)

The Shellfish TMDL for Hack Creek was developed based on the maximum extent of the impairment (009-161B, 3/14/2007). The TMDL was approved by the EPA on 11/16/2009 and by the SWCB on 9/30/2010; therefore, the creek is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_HAC01A00 / Hack Creek / Tidal limit to mouth at Potomac River. POTMH	4A	Fecal Coliform	2008	L	0.224

Hack Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.224		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-37-SF** **Sloop Creek**

Cause Location: Described in VDH-DSS condemnation 010-105I, 7/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 010-105I, 7/15/2020

Sloop Creek re-closed in the 2022 cycle. The impairment is proposed for nesting within the upstream Little Wicomico River Shellfish TMDL, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS02D22 / Sloop Creek / Described in VDH-DSS Condemnation 010-105SI, 7/15/2020. CB5MH	4A	Fecal Coliform	2022	L	0.018

Sloop Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.018		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34E-38-EBTOX** **Bridge Creek**

Cause Location: The lower portion of Bridge Creek below the shellfish condemnation zones.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Sediment Bioassay/5A

Cause Description: During the 2022 cycle, lower Bridge Creek was impaired of the Aquatic Life Use due to 2019 monitoring at estuarine probabilistic station 1ABRI000.43. DEQ-CO assigned the results to Weight of Evidence scenario 1.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_BRI03A22 / Bridge Creek / The lower portion of Bridge Creek below the shellfish condemnation zones. CB5MH	5A	Sediment Bioassay	2022	L	0.095

Bridge Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Sediment Bioassay - Total Impaired Size by Water Type:	0.095		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **A34R-02-BAC** **Little Wicomico River**

Cause Location: The nontidal portion of Little Wicomico River.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The nontidal portion of the Little Wicomico River was impaired of the Recreation Use in the 2018 cycle due to an E. coli exceedance rate of 4/13 at 1ALIS007.20.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The segment is within the TMDL study area for the Little Wicomico River Watershed Shellfish TMDL, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004. It is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34R_LIS01A06 / Little Wicomico River / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2018	L	2.34

Little Wicomico River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.34

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **A34R-02-PH** **Little Wicomico River**

Cause Location: The nontidal portion of Little Wicomico River.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The nontidal portion of Little Wicomico River was initially considered not supporting the Aquatic Life Use during the 2006 cycle due to a pH exceedance rate of 2/11 at 1ALIS007.20, located at the Route 646 bridge.

During the 2008 cycle, the exceedance rate increased to 3/13.

The exceedance rate was 3/10 in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34R_LIS01A06 / Little Wicomico River / Headwaters to tidal limit	5C	pH	2006	L	2.34

Little Wicomico River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A34R-03-DO** **XLL - Coan Mill Stream, UT**

Cause Location: The unnamed tributary in its entirety.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, the tributary was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 1AXLL000.92, which is located west of Route 301.

The exceedance rate was 2/12 during the 2012 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34R_XLL01A10 / XLL - Coan Mill Stream, UT / Headwaters to mouth at Coan Mill Stream	5C	Dissolved Oxygen	2010	L	2.1

XLL - Coan Mill Stream, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.1

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Potomac and Shenandoah River Basins

Cause Group Code: **A34R-04-BAC** **Coan Mill Stream**

Cause Location: From the headwaters to the confluence with the unnamed tributary at river mile 1.53

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2012 cycle, Coan Mill Stream was assessed not supporting of the Recreation use goal based on an E. coli exceedance rate of 2/12 at Route 638 (1ACON002.88).

The stream is considered nested within the Shellfish TMDL for the Coan River Watershed, which was approved by the EPA on 12/18/2003 and by the SWCB on 12/2/2004.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34R_CON01B10 / Coan Mill Stream / Headwaters to the confluence with the unnamed tributary at rivermile 1.53.	4A	Escherichia coli (E. coli)	2012	L	2.93

Coan Mill Stream

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.93

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **B02R-01-BAC** **West Strait Creek**

Cause Location: West Strait Creek from the headwaters downstream to the Monterey STP discharge. (Start Mile: 4.84 End Mile: 3.97 Total Impaired Size: .87 miles)

Cause City/County: Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1AWSC003.79 (3 exceedances of 9 samples for e-coli ion 2014, no new data in 2020). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B02R_WSC03A00 / West Strait Creek / West Strait Creek from the headwaters downstream to the Monterey STP.	5A	Escherichia coli (E. coli)	2010	L	0.88

West Strait Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.88

Sources: Agriculture; Non-Point Source; Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Cause Group Code: **B02R-01-BEN** **West Strait Creek**

Cause Location: West Strait Creek from the headwaters downstream to its confluence with Burner's Run. (Start Mile: 4.84 End Mile: 3.61 Total Impaired Size: 1.23 Miles)

Cause City/County: Highland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station 1AWSC003.54 and 1AWSC003.79 (Impaired for VSCI). Initial Listing Date: 1996. This impairment is included in the EPA approved West Strait Creek/Strait Creek Benthic TMDL. Federal TMDL ID # 36924.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B02R_WSC02A00 / West Strait Creek / West Strait Creek from the Monterey STP downstream to its confluence with Burner's Run.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.37
VAV-B02R_WSC03A00 / West Strait Creek / West Strait Creek from the headwaters downstream to the Monterey STP.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	0.88

West Strait Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.25

Sources: Municipal Point Source Discharges; Non-Point Source

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B02R-01-DO West Strait Creek

Cause Location: West Strait Creek from the Monterey STP discharge downstream to its confluence with Burner's Run. (Start Mile: 3.97 End Mile: 3.61 Total Impaired Size: .36 Miles)

Cause City/County: Highland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: This segment is impaired due to exceedances of the daily average dissolved oxygen WQS at station: 1AWSC003.54 (no new data impairment carries over) Initial Listing Date: 2010. This impairment is included in the EPA approved West Strait Creek/Strait Creek Benthic TMDL. Federal TMDL ID # 36926

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B02R_WSC02A00 / West Strait Creek / West Strait Creek from the Monterey STP downstream to its confluence with Burner's Run.	4A	Dissolved Oxygen	2010	L	0.37

West Strait Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 0.37

Sources: Municipal Point Source Discharges

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B02R-05-BAC South Branch Potomac River

Cause Location: South Branch Potomac River from the headwaters downstream to the VA/WV state line. Start Mile: 10.36 End Mile 0.00 Total Impaired Size: 10.36 Miles

Cause City/County: Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1ASOA001.00 (2 of 12 samples for e-coli) Initial Listing Date: 2020

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B02R_SOA01A00 / South Branch Potomac River / South Branch Potomac River from its confluence with Strait Creek downstream to the VA/WVA state line.	5A	Escherichia coli (E. coli)	2020	L	1.02
VAV-B02R_SOA01B10 / South Branch Potomac River / South Branch Potomac River 5.27 miles from the VA/WVA state line downstream to the confluence with Strait Creek.	5A	Escherichia coli (E. coli)	2020	L	4.32
VAV-B02R_SOA02A10 / South Branch Potomac River / South Branch Potomac River from the headwaters downstream (4.9 miles) to a point 5.27 miles above the VA/WVA state line.	5A	Escherichia coli (E. coli)	2020	L	5.04

South Branch Potomac River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.38

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B02R-06-BAC **Strait Creek**

Cause Location: Strait Creek from the headwaters downstream to its confluence with West Strait Creek. (Start Mile: 6.06 End Mile: 3.29 Total Impaired Size: 2.77 Miles) This segment was shortened in 2016 with delist of downstream segments)

Cause City/County: Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations 1ASTT000.02 (No new data in 2020). Initial Listing Date: 2006

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B02R_STC02A00 / Strait Creek / Strait Creek from the headwaters downstream to its confluence with West Strait Creek.	5A	Escherichia coli (E. coli)	2006	L	2.78

Strait Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.78

Sources: Agriculture; Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B03R-03-BAC South Fork South Branch Potomac River

Cause Location: South Fork South Branch Potomac River from the headwaters downstream to the VA/WVA State Line. (Start Mile: 2.71 End Mile: 0.00 Total Impaired Size: 2.71 Miles)

Cause City/County: Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1ASFP000.22 (4 exceedances of 12 samples for e-coli). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B03R_SFP01A00 / South Fork South Branch Potomac River / South Fork South Branch Potomac River from the headwaters downstream to the VA/WVA state line.	5A	Escherichia coli (E. coli)	2012	L	2.71

South Fork South Branch Potomac River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.71

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B04R-01-BAC** Middle Fork Sleepy Creek

Cause Location: Middle Fork Sleepy Creek from the headwaters downstream to the VA/WVA state line. (Start Mile: 2.93 End Mile: 0.00 Total Impaired Size: 2.93 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1AMIS010.45 (4 exceedances of 10 samples for e-coli) Initial Listing Date: 2020

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B04R_MIS01A14 / Middle Fork Sleepy Creek / Middle Fork Sleepy Creek from the headwaters downstream to the VA/WVA state line.	5A	Escherichia coli (E. coli)	2020	L	2.93

Middle Fork Sleepy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.93

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B04R-02-BAC** **Sleepy Creek**

Cause Location: Sleepy Creek from the headwaters downstream to the VA/WVA state line. (Start Mile: 7.72 End Mile: 0.00 Total Impaired Size: 7.72 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1ASLP034.20 (2 exceedances of 12 samples for e-coli) Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B04R_SLP01A00 / Sleepy Creek / Sleepy Creek from the headwaters downstream to the VA/WVA state line.	5A	Escherichia coli (E. coli)	2016	L	7.73

Sleepy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.73

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B04R-03-BAC Middle Fork Sleepy Creek X-trib

Cause Location: Middle Fork Sleepy Creek X-trib from the headwaters downstream to its confluence with Middle Fork Sleepy Creek. (Start Mile: 2.55 End Mile: 0.00 Total Impaired Size: 2.55 Miles.

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1AXMS000.08 (3 of 11) in 2014, no data in 2022 Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B04R_XSM01A18 / Middle Fork Sleepy Creek X-trib / Middle Fork Sleepy Creek X-trib from the headwaters downstream to its confluence with Middle Fork Sleepy Creek.	5A	Escherichia coli (E. coli)	2014	L	2.56

Middle Fork Sleepy Creek X-trib

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.56

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B05R-01-BAC Back Creek

Cause Location: Back Creek from the headwaters downstream to its confluence with Isaacs Creek. (Start Mile: 21.14 End Mile: 7.73 Total Impaired Size: 13.41 Miles) This segment was shortened in the 2020 cycle delist of upstream assessment unit.

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1ABAR041.11 (3 exceedances of 12 samples for e-coli). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B05R_BAR01B10 / Back Creek / Back Creek from the Route 600 bridge crossing downstream to its confluence with Isaacs Creek.	5A	Escherichia coli (E. coli)	2010	L	2.47
VAV-B05R_BAR02A04 / Back Creek / Back Creek from Rock Enon Spring downstream to the Route 600 bridge crossing.	5A	Escherichia coli (E. coli)	2010	L	10.94

Back Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.41

Sources: Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B05R-01-TEMP** Back Creek

Cause Location: Back Creek from the headwaters downstream to its confluence with Rock Enon Spring.

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment of Back Creek is assessed as impaired for aquatic life based on stockable trout waters temperature exceedances (2/13) at station 1ABAR052.96

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B05R_BAR03A10 / Back Creek / Back Creek from the headwaters downstream to its confluence with Rock Enon Spring.	5A	Temperature	2022	L	4.2

Back Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.2

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B05R-02-BAC** Little Isaacs Creek

Cause Location: Little Isaacs Creek from the Timber Ridge School STP downstream (including an unnamed tributary originating near Reynolds Store) to its confluence with Isaacs Creek. (Start Mile: 9.93 End Mile: 0.00 Total Impaired Size: 9.93 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1ALIG001.84 (No new data in 2020, last data available was 2012). Initial Listing Date: 2008

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B05R_LIG01A00 / Little Isaacs Creek / Little Isaacs Creek from the Timber Ridge School STP downstream (including unnamed tributary originating near Reynolds Store) to its confluence with Isaacs Creek.	5A	Escherichia coli (E. coli)	2008	L	9.93

Little Isaacs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.93

Sources: Agriculture; Non-Point Source

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B05R-03-BAC Isaacs Creek

Cause Location: Isaacs Creek from its confluence with Little Isaacs Creek downstream to its confluence with Back Creek. (Start Mile: 2.84 End Mile: 0.00 Total Impaired Size: 2.84 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1AISC001.77 (2 exceedances of 11 samples for e-coli) Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B05R_ISC01A00 / Isaacs Creek / Isaacs Creek from its confluence with Little Isaacs Creek downstream to its confluence with Back Creek.	5A	Escherichia coli (E. coli)	2016	L	2.84

Isaacs Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 2.84
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Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B05R-03-BEN Issacs Creek

Cause Location: Issacs Creek from the headwaters downstream to its confluence with Little Isaacs Creek.

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired for aquatic life use with exceedances of the State's water quality General Standard for benthic macroinvertebrates (Virginia Stream Condition Index (VSCI) <60) at station 1AISC004.64, located 0.4 miles upstream of Faughts Lane. VSCI scores: 51.62 Spring 2018, 57.35 Fall 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B05R_ISC02A16 / Isaacs Creek / Issacs Creek from the dam at Lake Holiday downstream to its confluence with Little Isaacs Creek.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.45

Issacs Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.45

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B06R-02-BAC** **Hogue Creek**

Cause Location: Hogue Creek from the headwaters downstream to its confluence with Back Creek. (Start Mile: 17.27 End Mile: 0.00 Total Impaired Size: 17.27 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1AHOC003.67 (5 exceedances of 12 samples); 1AHOC006.23; no new data in 2020 and 1AHOC008.96; no new data in 2020. Initial Listing Date: 2002. This segment is included in the EPA approved Hogue Creek bacteria TMDL. Federal TMDL ID # 34147

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B06R_HOC01A00 / Hogue Creek / Hogue Creek from the Route 679 bridge crossing downstream to its confluence with Back Creek.	4A	Escherichia coli (E. coli)	2008	L	6.44
VAV-B06R_HOC02A10 / Hogue Creek / Hogue Creek from Route 679 upstream 6 miles to the Forks below Route 612.	4A	Escherichia coli (E. coli)	2008	L	6.29
VAV-B06R_HOC03A10 / Hogue Creek / Hogue Creek from the headwaters downstream approximately 4.5 miles to the Forks below Route 612	4A	Escherichia coli (E. coli)	2008	L	4.54

Hogue Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.27

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B07R-01-BAC** **Back Creek**

Cause Location: Back Creek from its confluence with Hogue Creek downstream to its confluence with Babbs Creek.

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1ABAR037.84 (3 exceedances of 13 samples). Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B07R_BAR02A10 / Back Creek / Back Creek from its confluence with Hogue Creek downstream to its confluence with Babbs Creek.	5A	Escherichia coli (E. coli)	2018	L	4.92

Back Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.92

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B08R-01-BAC** **Opequon Creek**

Cause Location: Opequon Creek from the headwaters downstream to its confluence with Abrams Creek.

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1AOPE036.13 (4 exceedances of 36 samples for e-coli- new WQS Insufficient Information (Prioritize for follow up monitoring)- One STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean); 1AOPE044.17 (5 exceedances of 12 samples for e-coli, no data 2022); 1AOPE047.44 (4 exceedances of 6 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 2004; This segment is included in the EPA approved Opequon Creek bacteria TMDL. Federal TMDL ID # 20941

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B08R_OPE01A00 / Opequon Creek / Opequon Creek from its confluence with Hoge Run downstream to its confluence with Abrams Creek.	4A	Escherichia coli (E. coli)	2004	L	12.84
VAV-B08R_OPE02A10 / Opequon Creek / Opequon Creek from the first Route 620 crossing downstream to its confluence with Hoge Run.	4A	Escherichia coli (E. coli)	2004	L	9.00
VAV-B08R_OPE03A10 / Opequon Creek / Opequon Creek from the first Route 620 crossing to the headwaters.	4A	Escherichia coli (E. coli)	2004	L	1.38

Opequon Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.22

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B08R-01-BEN** **Opequon Creek**

Cause Location: Opequon Creek from the headwaters downstream to its confluence with Abrams Creek.

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station 1AOPE036.13 (Impaired for VSCI). VSCI scores 51.5 average with last samples collected in 2020. Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B08R_OPE01A00 / Opequon Creek / Opequon Creek from its confluence with Hoge Run downstream to its confluence with Abrams Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	12.84
VAV-B08R_OPE02A10 / Opequon Creek / Opequon Creek from the first Route 620 crossing downstream to its confluence with Hoge Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	9.00
VAV-B08R_OPE03A10 / Opequon Creek / Opequon Creek from the first Route 620 crossing to the headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.38

Opequon Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		23.22

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B08R-01-TEMP** **Opequon Creek**

Cause Location: Opequon Creek from the first Route 620 crossing downstream to its confluence with Hoge Run.

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the Temperature WQS at trend station 1AOPE036.13: 4 exceedances of 38 samples in Class V stockable trout waters (11% exceedance rate), Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B08R_OPE02A10 / Opequon Creek / Opequon Creek from the first Route 620 crossing downstream to its confluence with Hoge Run.	5A	Temperature	2022	L	9

Opequon Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			9

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B09R-01-BAC** **Abrams Creek**

Cause Location: Abrams Creek from the headwaters downstream to its confluence with Opequon Creek. (Start Mile: 11.18 End Mile: 0.00 Total Impaired Size: 11.18 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1AABR000.78. E.coli remains impaired at station 1AABR000.78 (7/11) in 2020. New WQS: Impaired- 2 or more STV hits in the same 90-day period with < 10 samples. Initial Listing Date: 1996; This segment is included in the EPA approved Abrams Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_ABR01A00 / Abrams Creek / Abrams Creek from its headwaters downstream to its confluence with Opequon Creek.	4A	Escherichia coli (E. coli)	2008	L	11.18

Abrams Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.18

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B09R-01-BEN** **Abrams Creek**

Cause Location: Abrams Creek from the headwaters downstream to its confluence with Opequon Creek. (Start Mile: 11.18 End Mile: 0.00 Total Impaired Size: 11.18 Miles)

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1AABR000.78 (Impaired for VSCI); no data 2022 cycle; Initial Listing Date: 1996; This segment is included in the EPA approved Abrams Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_ABR01A00 / Abrams Creek / Abrams Creek from its headwaters downstream to its confluence with Opequon Creek.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	11.18

Abrams Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.18

Sources: Municipal (Urbanized High Density Area)

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Potomac and Shenandoah River Basins

Cause Group Code: **B09R-02-BAC** Opequon Creek

Cause Location: Opequon Creek from its confluence with Abrams Creek downstream to the VA/WV state line.
 (Start Mile: 32.61 End Mile: 23.55 Total Impaired Size: 9.06 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at: DEQ stations 1AOPE025.10 and 1AOPE027.30, New WQS 2022: Impaired- 2 or more STV hits in the same 90-day period with < 10 samples and Friends of the Shenandoah River station 1AOPE-FCOC-FOSR with E.coli data Level III, new WQS evaluation in 2022: Impaired - 2 or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples, Initial Listing Date: 1996; This segment is part of the EPA approved Abrams/Opequon watershed TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_OPE01A00 / Opequon Creek / Opequon Creek from its confluence with Hot Run downstream to the VA/WVA state line.	4A	Escherichia coli (E. coli)	2008	L	3.03
VAV-B09R_OPE02A10 / Opequon Creek / Opequon Creek from its confluence with Abrams Creek downstream to its confluence with Hot Run.	4A	Escherichia coli (E. coli)	2008	L	6.03

Opequon Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 9.06		

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Cause Group Code: **B09R-02-BEN** Opequon Creek

Cause Location: Opequon Creek from its confluence with Abrams Creek downstream to the VA/WV state line.
 (Start Mile: 32.61 End Mile: 23.55 Total Impaired Size: 9.06 Miles)

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1AOPE028.72 (Impaired for VSCI). Impaired VSCI benthic scores 45.92 (spring 2014) and 48.6 (spring 2017).
 Initial Listing Date: 1996; This segment is part of the EPA approved Abrams/Opequon watershed TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_OPE01A00 / Opequon Creek / Opequon Creek from its confluence with Hot Run downstream to the VA/WVA state line.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.03
VAV-B09R_OPE02A10 / Opequon Creek / Opequon Creek from its confluence with Abrams Creek downstream to its confluence with Hot Run.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	6.03

Opequon Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.06

Sources: Municipal (Urbanized High Density Area)

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Cause Group Code: **B09R-03-BAC** **Lick Run**

Cause Location: Lick Run (also known as Hiatt Run) from its headwaters downstream to its confluence with Opequon Creek. (Start Mile: 8.21 End Mile: 0.00 Total Impaired Size: 8.21 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1ALIR000.95 (no new data in 2022); Initial Listing Date: 2006; This segment is included in the EPA approved TMDL for the Abrams/Opequon watershed. Federal TMDL ID # 20941

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_LIR01A00 / Lick Run / Lick Run (also known as Hiatt Run) from its headwaters downstream to its confluence with Opequon Creek.	4A	Escherichia coli (E. coli)	2006	L	8.22

Lick Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.22

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B09R-04-BAC Redbud Run

Cause Location: Redbud Run and tributary from the headwaters downstream to its confluence with Opequon Creek. (Start Mile: 8.05 End Mile: 0.00 Total Impaired Size: 8.05 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1ARED000.46 (no 2022 data for e-coli). 2020 cycle: E. coli exceedances: 7/11 at 1ARED-SVB03-FOSR, 9/12 at 1ARED-SVB02-FOSR; new WQS 2022: E.coli: Impaired - 2 or more STV exceedances in the same 90-day period with < 10 samples. Initial Listing Date: 2004; The segment is nested into the EPA approved Abrams/Opequon TMDL .

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_RED01A00 / Redbud Run / Redbud Run from a point 4.4 miles upstream of its confluence with Opequon Creek downstream to its confluence with Opequon Creek.	4A	Escherichia coli (E. coli)	2008	L	4.50
VAV-B09R_RED02A10 / Redbud Run / Redbud Run from its headwaters downstream to a point 4.4 miles upstream of its confluence with Opequon Creek.	4A	Escherichia coli (E. coli)	2008	L	2.00
VAV-B09R_XRD01A10 / Redbud Run x-trib / Redbud Run x-trib from the headwaters downstream to its confluence with Redbud Run.	4A	Escherichia coli (E. coli)	2008	L	1.55

Redbud Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.05

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Cause Group Code: B09R-04-BEN Redbud Run

Cause Location: Redbud Run and tributary from the headwaters downstream to its confluence with Opequon Creek. (Start Mile: 8.05 End Mile: 0.00 Total Impaired Size: 8.05 Miles)

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1ARED000.46 (Impaired for VSCI). 2022 cycle- 1ARED000.46 impaired VSCI: 37.2 avg, last sampled 2017. Initial Listing Date: 2004. This segment is included in the EPA Approved Abrams/Opequon TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B09R_RED01A00 / Redbud Run / Redbud Run from a point 4.4 miles upstream of its confluence with Opequon Creek downstream to its confluence with Opequon Creek.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	4.50
VAV-B09R_RED02A10 / Redbud Run / Redbud Run from its headwaters downstream to a point 4.4 miles upstream of its confluence with Opequon Creek.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	2.00
VAV-B09R_XRD01A10 / Redbud Run x-trib / Redbud Run x-trib from the headwaters downstream to its confluence with Redbud Run.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	1.55

Redbud Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			8.05

Sources: Agriculture; Channel Erosion/Incision from Upstream Hydromodifications; Industrial/Commercial Site Stormwater Discharge (Permitted); Municipal (Urbanized High Density Area); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **B10R-01-BEN** **Cockran Spring Branch**

Cause Location: Cockran Spring Branch from the spring downstream to its confluence with Middle River. (Start Mile: .58 End Mile: 0.00 Total Impaired Size: .58 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The benthic community at this site was not assessed during the 2022 cycle and the impaired status carries from previous assessments. This assessment unit is included in an EPA approved TMDL for Streams Impacted by Fish Farms. Initial Listing Date: 1996.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B10R_XDN01A00 / Cockran Spring Branch / Cockran Spring Branch from the spring downstream to its confluence with Middle River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.59

Cockran Spring Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.59

Sources: Aquaculture (Permitted)

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Potomac and Shenandoah River Basins

Cause Group Code: B10R-02-BAC Middle River

Cause Location: Middle River from the headwaters downstream to its confluence with Jennings Branch. (Start Mile: 69.61 End Mile: 45.69 Total Impaired Size: 23.92 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BMDL060.48 (2022 cycle- two or more STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)); 1BMDL051.36 (4 exceedances of 12 samples in 2014, no new data 2022); 1BMDL047.90 (4 exceedances of 12 samples in 2018, no new data 2022). Initial Listing Date: 2004; This segment is included in the Middle River bacteria TMDL and is considered category 4A Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B10R_MDL01A00 / Middle River / Middle River from its confluence with Back Creek downstream to its confluence with Eidson Creek.	4A	Escherichia coli (E. coli)	2004	L	4.79
VAV-B10R_MDL02A00 / Middle River / Middle River from its confluence with Cockran Spring Branch downstream to its confluence with Back Creek.	4A	Escherichia coli (E. coli)	2004	L	9.30
VAV-B10R_MDL03A00 / Middle River / Middle River from the headwaters downstream to its confluence with Cockran Spring Branch.	4A	Escherichia coli (E. coli)	2004	L	2.97
VAV-B11R_MDL01A00 / Middle River / Middle River from its confluence with Buffalo Branch downstream to its confluence with Jennings Branch.	4A	Escherichia coli (E. coli)	2010	L	3.37
VAV-B11R_MDL02A00 / Middle River / Middle River from its confluence with Eidson Creek downstream to its confluence with Buffalo Branch.	4A	Escherichia coli (E. coli)	2008	L	3.49

Middle River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.92

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B10R-02-BEN** Middle River

Cause Location: Middle River from the headwaters downstream to its confluence with Eidson Creek. (Start Mile: 69.61 End Mile: 52.55 Total Impaired Size: 17.06 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BMDL066.05 (Impaired for VSCI); 1BMDL066.84 (Impaired for VSCI). Initial Listing Date: 1998; This segment is included in the Middle River benthic TMDL and is considered category 4A Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B10R_MDL01A00 / Middle River / Middle River from its confluence with Back Creek downstream to its confluence with Eidson Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.79
VAV-B10R_MDL02A00 / Middle River / Middle River from its confluence with Cockran Spring Branch downstream to its confluence with Back Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	9.30
VAV-B10R_MDL03A00 / Middle River / Middle River from the headwaters downstream to its confluence with Cockran Spring Branch.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	2.97

Middle River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			17.06

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B10R-03-BAC** **Back Creek**

Cause Location: Back Creek from the headwaters downstream to its confluence with Middle River. (Start Mile: 10.72 End Mile: 0.00 Total Impaired Size: 10.72 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BBAK001.74 (6 exceedances of 12 samples for e-coli in 2014, no new data in 2022). This impairment was lengthened in the 2018 cycle to correct for GIS errors. Initial Listing Date: 2004; The segment is considered category 4A Impaired - EPA Approved TMDL since it is within the geographical region covered by the EPA approved Middle River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B10R_BAK01A00 / Back Creek / Back Creek from the headwaters downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2008	L	10.73

Back Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.73

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B10R-04-BAC** **Eidson Creek**

Cause Location: Eidson Creek from the headwaters downstream to its confluence with Middle River. (Start Mile: 8.84 End Mile: 0.00 Total Impaired Size: 8.84 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BEDN003.67 (9 exceedances of 12 samples for e-coli) no new data in 2022. FOMR Level II monitoring indicate impairment remains. Initial Listing Date: 2004; The segment is considered category 4A Impaired - EPA Approved TMDL since it is within the geographical region covered by the EPA approved Middle River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B10R_EDN01A00 / Eidson Creek / Eidson Creek from the headwaters downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2008	L	8.85

Eidson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.85

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B11R-02-BEN** Middle River

Cause Location: Middle River from its confluence with Buffalo Branch downstream to its confluence with Jennings Branch.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the general standard for benthics at station: 1BMDL047.90 (Impaired for VSCI). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B11R_MDL01A00 / Middle River / Middle River from its confluence with Buffalo Branch downstream to its confluence with Jennings Branch.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.37

Middle River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.37

Sources: Agriculture; Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: **B11R-03-BEN** Jennings Branch

Cause Location: Jennings Branch from its confluence with McKittricks Branch downstream to its confluence with Middle River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the general standard for benthics at station(s): 1BJEN000.30 and 1BJEN000.59 (both impaired for VSCI). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B11R_JEN01A00 / Jennings Branch / Jennings Branch from its confluence with McKittricks Branch downstream to its confluence with Middle River.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.11

Jennings Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.11

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B12R-01-BAC** Lewis Creek

Cause Location: Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River. (Start Mile: 10.06 End Mile: 0.00 Total Impaired Size: 10.06 Miles)

Cause City/County: Augusta County; Staunton

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLEW002.91 (no new data 2022), additional E.coli exceedances collected at station(s): (1BLEW000.61 (7 exceedances of 12 samples for e-coli in 2014, no data in 2022); 1BLEW006.95 (10 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2004; This segment is included in the EPA approved Lewis Creek TMDL for Bacteria (e-coli).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_LEW01A00 / Lewis Creek / Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2004	L	10.07

Lewis Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.07

Sources: Municipal (Urbanized High Density Area); Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B12R-01-BEN** Lewis Creek

Cause Location: Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River. (Start Mile: 10.06 End Mile: 0.00 Total Impaired Size: 10.06 Miles)

Cause City/County: Augusta County; Staunton

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BLEW006.95 (Impaired for VSCI); additional impaired VSCI data collected at station(s) 1BLEW000.61 and 1BLEW009.19. Initial Listing Date: 1996; This segment is included in the EPA approved Lewis Creek TMDL for benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_LEW01A00 / Lewis Creek / Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	10.07

Lewis Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.07

Sources: Contaminated Sediments; Illegal Dumps or Other Inappropriate Waste Disposal; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Contaminated Sediment); Streambank Erosion; Unpermitted Discharge (Industrial/commercial Wastes); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: B12R-01-PCB Lewis Creek

Cause Location: Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River. (Start Mile: 10.06 End Mile: 0.00 Total Impaired Size: 10.06 Miles)

Cause City/County: Augusta County; Staunton

Use(s): Aquatic Life; Fish Consumption; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: This segment is impaired due to the presence of PCBs in fish tissue at station: 1BLEW005.24 (three samples with PCBs in 2005, two samples with PCBs in 2022 (white sucker and bluehead chub)). Additional data collected in 2020 show an observed effect for PCBs in torrent sucker fish tissue at 1BLEW008.24. This segment is included in the VDH Fish Consumption Advisory for Polychlorinated Biphenyl (PCB), effective 12/13/04. <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/> Initial Listing Date: 2004. In 2022 this segment is impaired due to the presence of PCBs in the water column at station 1BLEW000.61. There is an observed effect for PCBs in the water column at 1BLEW006.53. The PCB impairments are included in the EPA approved Lewis Creek PCB TMDL (approved 02/04/2022).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_LEW01A00 / Lewis Creek / Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River.	4A	PCBs in Fish Tissue	2004	L	10.07

Lewis Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.07

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_LEW01A00 / Lewis Creek / Lewis Creek south of the Staunton City boundary near the power line crossing downstream to its confluence with Middle River.	4A	Polychlorinated biphenyls (PCBs)	2022	L	10.07

Lewis Creek

Aquatic Life

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.07

Lewis Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.07

Lewis Creek

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.07

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Sources: Contaminated Sediments; Illegal Dumps or Other Inappropriate Waste Disposal; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Contaminated Sediment); Streambank Erosion; Unpermitted Discharge (Industrial/commercial Wastes); Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **B12R-02-BAC** Middle River

Cause Location: Middle River from the quarry discharge west of Franks Mill downstream to its confluence with Christians Creek.

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BMDL043.35 (4 exceedances of 12 samples for e-coli- 2018, no new data 2022). Original Initial Listing Date: 2008, segment de-listed in 2016, re-listed in 2018 as Cause ID B12-02-BAC. In 2022 this segment is extended to include one additional downstream segment with exceedances of the E.coli WQS at stations 1BMDL036.08 and 1BMDL037.63 (both stations are impaired with two or more STV hits in the same 90-day period with less than 10 samples-revised E.coli WQS analysis). This segment is nested into the EPA approved Middle River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_MDL01A00 / Middle River / Middle River from its confluence with Moffett Creek downstream to its confluence with Christians Creek.	4A	Escherichia coli (E. coli)	2022	L	23.16
VAV-B12R_MDL01B10 / Middle River / Middle River from the quarry discharge west of Franks Mill downstream to its confluence with Moffett Creek.	4A	Escherichia coli (E. coli)	2018	L	2.92

Middle River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			26.08

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B12R-02-PCB** Lewis Creek

Cause Location: Lewis Creek from the headwaters near Rt. 252 downstream approximately 2.5 miles to just south of the Staunton City line near the power line crossing.

Cause City/County: Augusta County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: This segment is impaired due to the presence of PCBs in fish tissue, VDH Fish Consumption Advisory for Polychlorinated Biphenyl (PCB), effective 12/13/04.

<https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/>

Initial Listing Date: 2020. The PCB impairment is included in the EPA approved Lewis Creek PCB TMDL (approved 02/04/2022).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B12R_LEW02A00 / Lewis Creek / Lewis Creek from the headwaters downstream to just south of the Staunton City line near the power line crossing.	4A	PCBs in Fish Tissue	2020	L	2.47

Lewis Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.47

Sources: Illegal Dumps or Other Inappropriate Waste Disposal; Municipal Point Source Discharges; Sediment Resuspension (Contaminated Sediment); Unpermitted Discharge (Industrial/commercial Wastes); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B13R-01-BAC** **Moffett Creek**

Cause Location: Moffett Creek from the headwaters downstream to its confluence with Middle River. (Start Mile: 9.91 End Mile: 0.00 Total Impaired Size: 9.91 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BMFT001.43 and 1BMFT006.20 (2022 cycle: both are impaired with two or more STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)). Initial Listing Date: 2004; This segment is included in the EPA approved Moffetts Creek bacteria TMDL and is considered a category 4A - Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B13R_MFT01A00 / Moffett Creek / Moffett Creek from the headwaters downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2008	L	9.91

Moffett Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.91

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B13R-01-BEN** **Moffett Creek**

Cause Location: Moffett Creek from the headwaters downstream to its confluence with Middle River. (Start Mile: 9.91 End Mile: 0.00 Total Impaired Size: 9.91 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BMFT006.24 (remains impaired for VSCI in 2022); additional data collected at downstream station 1BMFT002.46 (Fully supporting VSCI in 2020). Initial Listing Date: 1996; This segment is included in the EPA approved Moffetts Creek benthic TMDL and is considered a category 4A - Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B13R_MFT01A00 / Moffett Creek / Moffett Creek from the headwaters downstream to its confluence with Middle River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	9.91

Moffett Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.91

Sources: Agriculture; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B13R-02-BAC** **Elk Run**

Cause Location: Elk Run from the headwaters downstream to its confluence with Moffett Creek. (Start Mile: 4.13
 End Mile: 0.00 Total Impaired Size: 4.13 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BEKR000.25 (5 exceedances of 12 samples for e-coli in 2014, no new data in 2022). Initial Listing Date: 2004; This segment lies within the geographic area of the EPA approved Moffatts Creek Bacteria TMDL and thus is considered Category 4A - Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B13R_ELK01A00 / Elk Run / Elk Run from the headwaters downstream to its confluence with Moffett Creek.	4A	Escherichia coli (E. coli)	2008	L	4.13

Elk Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.13

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B13R-03-BEN** **Tunnel Hollow X-trib**

Cause Location: Tunnel Hollow X-trib from the headwaters downstream to its confluence with Tunnel Hollow.
 (Start Mile: .58 End Mile: 0.00 Total Impaired Size: .58 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: U.S. Forest Service station 2021. This assessment unit is located within the George Washington National Forest was deemed to be impaired due to natural conditions due to the regional 4 year drought (1998 - 2002). Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B13R_XEI02A02 / Tunnel Hollow x-trib / Tunnel Hollow x-trib from the headwaters downstream to its confluence with Tunnel Hollow	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	0.59

Tunnel Hollow X-trib

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			0.59

Sources: Drought-related Impacts

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B14R-01-BAC** Christians Creek

Cause Location: Christians Creek from the headwaters downstream to its confluence with Middle River.

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BCST000.13 (2 exceedance of 11 samples for e-coli in 2020, no new data in 2022); 1BCST007.42 (5 exceedances of 12 samples for e-coli in 2018, no new data 2022); 1BCST012.32 (22 exceedances of 34 samples for e-coli in 2020, no new data 2022); 1BCST016.48 (9 exceedances of 12 samples for e-coli in 2018, no new data 2022); and 1BCST021.76 (30 exceedances of 48 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 1996; This segment is part of the EPA approved Christians Creek bacteria TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B14R_CST01A00 / Christians Creek / Christians Creek from its confluence with Folly Mills Creek downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2004	L	18.61
VAV-B14R_CST02A00 / Christians Creek / Christians Creek from the headwaters downstream to its confluence with Folly Mills Creek.	4A	Escherichia coli (E. coli)	2004	L	14.34

Christians Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			32.95

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B14R-01-BEN** Christians Creek

Cause Location: Christians Creek from the headwaters downstream to its confluence with Middle River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station 1BCST007.42. Initial Listing Date 1996. This segment is included in the EPA approved Christians Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B14R_CST01A00 / Christians Creek / Christians Creek from its confluence with Folly Mills Creek downstream to its confluence with Middle River.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	18.61
VAV-B14R_CST02A00 / Christians Creek / Christians Creek from the headwaters downstream to its confluence with Folly Mills Creek.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	14.34

Christians Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		32.95

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B14R-02-BAC** Folly Mills Creek

Cause Location: Folly Mills Creek and tributary from the headwaters downstream to its confluence with Christians Creek. (Start Mile: 14.14 End Mile: 0.00 Total Impaired Size: 14.14 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BFMC003.57 (10 exceedances of 12 samples for e-coli in 2016, no new data in 2022). Initial Listing Date: 2004; This segment is within the geographic boundary of the EPA approved Christians Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B14R_FMC01A00 / Folly Mills Creek / Folly Mills Creek from a point 2.4 miles upstream of Christians Creek downstream to its confluence with Christians Creek.	4A	Escherichia coli (E. coli)	2012	L	2.48
VAV-B14R_FMC02A10 / Folly Mills Creek / Folly Mills Creek from the headwaters downstream to a point 2.4 miles upstream of Christians Creek.	4A	Escherichia coli (E. coli)	2012	L	7.34
VAV-B14R_XFM01A10 / Folly Mills Creek X-trib / Folly Mills Creek X-trib from the headwaters downstream to its confluence with Folly Mills Creek.	4A	Escherichia coli (E. coli)	2012	L	4.33

Folly Mills Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			14.15

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B14R-03-BAC** **Long Meadow Run**

Cause Location: Long Meadow Run and tributary from the headwaters downstream to its confluence with Christians Creek. (Start Mile: 11.06 End Mile: 0.00 Total Impaired Size: 11.06 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BMDW000.18 (5 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2006; This segment is located within the geographical boundary of the EPA approved Christians Creek bacteria TMDL and is considered to be Category 4A - Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B14R_LMR01A00 / Long Meadow Run / Long Meadow Run and tributary (Coleytown Run) from the headwaters downstream to its confluence with Christians Creek.	4A	Escherichia coli (E. coli)	2006	L	11.06

Long Meadow Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.06

Sources: Agriculture; Impervious Surface/Parking Lot Runoff; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)

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Potomac and Shenandoah River Basins

Cause Group Code: B15R-01-BAC Middle River

Cause Location: Middle River from the confluence with Christians Creek downstream to its confluence with North River. (Start Mile: 17.85 End Mile: 0.00 Total Impaired Size: 17.85 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BMDL001.83 ((two or more STV hits in the same 90-day period with less than 10 samples = impaired- revised E.coli WQS analysis, 2022 cycle). Initial Listing Date: 1996. This segment is included in the EPA approved Middle River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B15R_MDL01A00 / Middle River / Middle River from its confluence with Christians Creek downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2008	L	17.85

Middle River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.85

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B15R-02-BAC** **Polecat Draft**

Cause Location: Polecat Draft and tributary from the headwaters downstream to its confluence with Middle River.
 (Start Mile: 7.90 End Mile: 0.00 Total Impaired Size: 7.90 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BPCD000.20 (32 exceedances of 45 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 1996; This segment is included in the EPA approval Polecat Draft TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B15R_PCD01A00 / Polecat Draft / Polecat Draft and tributary from the headwaters downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2004	L	7.9

Polecat Draft

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.9

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B16L-01-TEMP** **Elkhorn Lake**

Cause Location: Elkhorn Lake from it's headwaters to the dam.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This lake remains impaired due to exceedances of the temperature WQS at station: 1BNTH045.36 (22 exceedances of 131 samples for temperature).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B16L_NTH01A04 / Elkhorn Lake / Elkhorn Lake	5A	Temperature	2010	L	52.67

Elkhorn Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:		52.67	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B16L-02-TEMP** Staunton Dam Lake

Cause Location: Staunton Dam Lake from the headwaters to dam.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This lake is impaired due to exceedances of the temperature WQS at station: 1BNTH043.48 (31 exceedances of 141 samples for temperature).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B16L_01 / Staunton Dam Lake / Staunton Dam Lake	5A	Temperature	2022	L	20.71

Staunton Dam Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:		20.71	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B16R-01-PH** **North River**

Cause Location: North River from its confluence with Little River downstream to its confluence with Freemason Run. This impairment length was shortened in 2010 due to upstream stations returning to fully supporting status. Original length was 21.80 Miles. (Start Mile: 36.42 End Mile: 31.96 Total Impaired Size: 4.46 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment remains impaired due to excursions of the pH WQS at station: 1BNTH036.96 (3 excursions of 9 samples for pH in 2010, no new data in 2022). Initial Listing Date: 2002

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B17R_NTH04A00 / North River / North River from its confluence with Little River downstream to its confluence with Freemason Run.	5A	pH	2002	L	4.46

North River

Aquatic Life	pH - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 4.46
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Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B16R-02-PH** North River

Cause Location: North River from the headwaters downstream to the upper end of Elkhorn Lake.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the natural trout waters pH WQS at DEQ station 1BNTH053.89. Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B16R_NTH03A00 / North River / North River from the headwaters downstream to the upper end of Elkhorn Lake.	5A	pH	2022	L	10.25

North River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10.25

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B17R-01-BAC** North River

Cause Location: North River from its confluence with Freemason Run downstream to its confluence with South River. Segment lengthened in the 2012 assessment cycle.

Cause City/County: Augusta County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 1BNTH029.30 (3 exceedances of 6 samples in 2016, no new data 2022); additional E.coli samples showing impairment include 1BNTH026.23 (3 exceedances of 10 samples for e-coli in 2020, no new data in 2022); 1BNTH014.08 (impaired with at least one geomean exceedance in any 90-day period in 2022) and 1BNTH015.45 (impaired with two STV hits in the same 90-day period with less than 10 samples in 2022) Initial Listing Date: 2002; This segment is included in the EPA approved North River TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B17R_NTH01A00 / North River / North River from its confluence with Briery Branch downstream to its confluence with Dry River.	4A	Escherichia coli (E. coli)	2014	L	3.49
VAV-B17R_NTH02A00 / North River / North River 5 miles above the Bridgewater Public Water Intake downstream to its confluence with Briery Branch.	4A	Escherichia coli (E. coli)	2012	L	1.32
VAV-B17R_NTH03A00 / North River / North River from its confluence with Freemason Run downstream to the 5 mile PWS limit for the Bridgewater Public Water Intake.	4A	Escherichia coli (E. coli)	2012	L	5.77
VAV-B23R_NTH01A04 / North River / North River from its confluence with Middle River downstream to its confluence with South River.	4A	Escherichia coli (E. coli)	2004	L	4.70
VAV-B23R_NTH01B10 / North River / North River from its confluence with Naked Creek downstream to its confluence with Middle River.	4A	Escherichia coli (E. coli)	2004	L	4.25
VAV-B23R_NTH02A04 / North River / North River from its confluence with Cooks Creek downstream to its confluence with Naked Creek.	4A	Escherichia coli (E. coli)	2004	L	6.88
VAV-B23R_NTH03A04 / North River / North River from the Harrisonburg Public Water Intake downstream to its confluence with Cooks Creek.	4A	Escherichia coli (E. coli)	2012	L	3.33
VAV-B23R_NTH04A04 / North River / North River from its confluence with Dry River downstream to the Harrisonburg Public Water Intake.	4A	Escherichia coli (E. coli)	2012	L	2.22

North River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			31.96

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Appendix 4 - Fact Sheets for
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Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B17R-02-BAC** **Thorny Branch**

Cause Location: Thorny Branch and tributaries from the headwaters downstream to its confluence with North River. (Start Mile: 7.76 End Mile: 0.00 Total Impaired Size: 7.76 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: This segment remains impaired due to exceedances of the fecal coliform bacteria WQS at station: 1BTRN000.38 No fecal coliform or e-coli data are available in 2022. Initial Listing Date: 2004; This segment is included in the EPA approved North River TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B17R_TRN01A00 / Thorny Branch / Thorny Branch and tributaries from the headwaters downstream to its confluence with North River.	4A	Fecal Coliform	2004	L	7.76

Thorny Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			7.76

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)

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Potomac and Shenandoah River Basins

Cause Group Code: **B18R-01-BEN** **Wolf Run**

Cause Location: Wolf Run from the headwaters downstream to its confluence with Briery Branch. (Start Mile: 3.31 End Mile: 0.00 Total Impaired Size: 3.31 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: USFS 2019. No new data available for the 2022 assessment window, this impairment carries over to this cycle. Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_WFR01A02 / Wolf Run / Wolf Run from the Forest Service Road crossing downstream to its confluence with Briery Branch.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	1.19
VAV-B18R_WFR02A02 / Wolf Run / Wolf Run from the headwaters downstream to the Forest Service Road crossing.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	2.12

Wolf Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.31

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: **B18R-01-PH** **Wolf Run**

Cause Location: Wolf Run from the headwaters downstream to its confluence with Briery Branch. (Start Mile: 3.31 End Mile: 0.00 Total Impaired Size: 3.31 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA VT56 (12 excursions of 12 samples for pH in 2010, no new Level III data available for 2022). Level II data show 24 exceedances of 24 samples for pH in 2018. Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_WFR01A02 / Wolf Run / Wolf Run from the Forest Service Road crossing downstream to its confluence with Briery Branch.	5A	pH	2006	L	1.19
VAV-B18R_WFR02A02 / Wolf Run / Wolf Run from the headwaters downstream to the Forest Service Road crossing.	5A	pH	2006	L	2.12

Wolf Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.31

Sources: Atmospheric Deposition - Acidity

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B18R-04-BAC Beaver Creek

Cause Location: Beaver Creek from the headwaters downstream to its confluence with Briery Branch. (Start Mile: 6.30 End Mile: 0.00 Total Impaired Size: 6.30 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired for recreational use based on bacteria WQS exceedances at 1BBVR003.60 (3 fecal coliform WQS exceedances out of 12 samples, 2002 cycle; one E.coli WQS exceedance out of four samples, insufficient to change the assessment status, 2008 cycle). There is no new E.coli data in the 2022 cycle. Initial Listing Date: 2002. This segment is included in the EPA approved Beaver Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_BVR01A00 / Beaver Creek / Beaver Creek from its confluence with Waggys Creek downstream to its confluence with Briery Branch.	4A	Escherichia coli (E. coli)	2008	L	2.66
VAV-B18R_BVR02A00 / Beaver Creek / Beaver Creek from the headwaters (including Redbanks Run) downstream to its confluence with Waggys Creek.	4A	Escherichia coli (E. coli)	2008	L	3.64

Beaver Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.3

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B18R-04-TEMP** Beaver Creek

Cause Location: Beaver Creek from the headwaters downstream to its confluence with Briery Branch. (Start Mile: 6.30 End Mile: 0.00 Total Impaired Size: 6.30 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4C

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 1BBVR003.60.

Initial Listing Date: 2002; Temperature readings used to determine this assessment unit as impaired were based on readings at station 1BBVR003.60 and has been determined to be natural. By letter from the Virginia Department of Wildlife Resources, this stream is considered a warm water stream and should not be considered Class V - Stockable Trout. This segment became Category 4C - Impaired, but not needing a TMDL due to natural conditions in the 2006 cycle. New data needed for de-listing. Initial Listing Date: 2002

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_BVR01A00 / Beaver Creek / Beaver Creek from its confluence with Waggys Creek downstream to its confluence with Briery Branch.	4C	Temperature	NA	NA	2.66
VAV-B18R_BVR02A00 / Beaver Creek / Beaver Creek from the headwaters (including Redbanks Run) downstream to its confluence with Waggys Creek.	4C	Temperature	NA	NA	3.64

Beaver Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			6.3

Sources: Natural Sources

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Potomac and Shenandoah River Basins

Cause Group Code: **B18R-05-BAC** Briery Branch

Cause Location: Briery Branch from its confluence with Beaver Creek downstream to its confluence with North River. (Start Mile: 1.47 End Mile: 0.00 Total Impaired Size: 1.47 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 1BBRY001.22 (5 exceedances of 12 samples for e-coli in 2014, no new data 2022). Initial Listing Date: 2004. This segment is included in the EPA approved North River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_BRY01A02 / Briery Branch / Briery Branch from the 5 mile upper limit of the Bridgewater raw water intake (confluence with Beaver Creek) downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2014	L	1.47

Briery Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.47

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B18R-06-PH Rocky Run

Cause Location: Rocky Run from the headwaters downstream to its confluence with Briery Branch. (Start Mile: 1.93 End Mile: 0.00 Total Impaired Size: 1.93 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: RH33-UVA (12 excursions of 12 samples for pH in 2010, no new data for 2022, impairment carries forward). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_ROB01A02 / Rocky Run / Rocky Run from the headwaters downstream to its confluence with Briery Branch.	5A	pH	2006	L	1.94

Rocky Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.94

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B18R-07-PH Union Springs Run

Cause Location: Union Springs Run from the headwaters downstream to its confluence with Red Banks Run.
 (Start Mile: 3.74 End Mile: 0.00 Total Impaired Size: 3.74 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: RH34-UVA (12 excursions of 12 samples for pH in 2010, no new data for 2022, impairment carries forward). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B18R_USB01A00 / Union Springs Run / Union Springs Run from a point 3 miles upstream of Beaver Creek downstream to its confluence with Beaver Creek at Redbanks Run.	5A	pH	2006	L	3.07
VAV-B18R_USB02A10 / Union Springs Run / Union Springs Run from the headwaters downstream to a point 3 miles upstream of Beaver Creek at Redbanks Run.	5A	pH	2006	L	0.67

Union Springs Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.74

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B19R-01-BAC** Mossy Creek

Cause Location: Mossy Creek from the headwaters downstream to its confluence with North River. (Start Mile: 10.46 End Mile: 0.00 Total Impaired Size: 10.46 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BMSS001.35 (2022 cycle- Impaired: two or more STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)). Initial Listing Date: 1996; The segment is included in the EPA approved Mossy Creek TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B19R_MSS01A00 / Mossy Creek / Mossy Creek from the Rockingham/Augusta county line downstream to its confluence with North River (previously associated with PWS designation but now Mossy Creek is not designated as PWS).	4A	Escherichia coli (E. coli)	2004	L	2.29
VAV-B19R_MSS02A00 / Mossy Creek / Mossy Creek from a point 7.1 miles upstream of the confluence with North River downstream to the Rockingham/Augusta county line (the downstream AU was previously associated with PWS designation but now Mossy Creek is not designated as PWS).	4A	Escherichia coli (E. coli)	2004	L	5.10
VAV-B19R_MSS03A10 / Mossy Creek / Mossy Creek from the headwaters downstream to a point 7.1 miles upstream of the confluence with North River.	4A	Escherichia coli (E. coli)	2004	L	3.07

Mossy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.46

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B19R-01-BEN** Mossy Creek

Cause Location: Mossy Creek from the headwaters downstream to its confluence with North River. (Start Mile: 10.46 End Mile: 0.00 Total Impaired Size: 10.46 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BMSS003.01 (Impaired for VSCI). Initial Listing Date 1998; This segment is included in the EPA approved Mossy Creek TMDL for benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B19R_MSS01A00 / Mossy Creek / Mossy Creek from the Rockingham/Augusta county line downstream to its confluence with North River (previously associated with PWS designation but now Mossy Creek is not designated as PWS).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	2.29
VAV-B19R_MSS02A00 / Mossy Creek / Mossy Creek from a point 7.1 miles upstream of the confluence with North River downstream to the Rockingham/Augusta county line (the downstream AU was previously associated with PWS designation but now Mossy Creek is not designated as PWS).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	5.10
VAV-B19R_MSS03A10 / Mossy Creek / Mossy Creek from the headwaters downstream to a point 7.1 miles upstream of the confluence with North River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	3.07

Mossy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.46

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations)

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Potomac and Shenandoah River Basins

Cause Group Code: **B20L-01-TEMP** **Switzer Lake**

Cause Location: Switzer Lake from headwaters to the dam

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This lake is impaired due to exceedances of the temperature WQS at station: 1BSKD003.18 (49 exceedances of 387 samples for temperature).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B20L_01 / Switzer Lake / Switzer Lake	5A	Temperature	2006	L	100.82

Switzer Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:		100.82	

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: B20R-01-PH Dry River

Cause Location: Dry River from its confluence with Little Laurel Run downstream to its confluence with Blacks Run. This segment was shortened in 2014 due to a downstream assessment unit returning for fully supporting status.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 1BDUR016.66 (no new data 2022); additional data collected at 1BDUR017.26 (0 excursions of 11 samples for pH) in 2020 shows support of pH. Follow-up monitoring at the listing station is requested in order to consider a delist of this aquatic life use impairment. Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B20R_DUR01A00 / Dry River / Dry River from the City of Harrisonburg water intake downstream to its confluence with Black Run.	5A	pH	2002	L	1.52
VAV-B20R_DUR02A00 / Dry River / Dry River from its confluence with Skidmore Fork downstream to the City of Harrisonburg Water Intake.	5A	pH	2002	L	4.32
VAV-B20R_DUR02B10 / Dry River / Dry River from the 5 miles PWS designation downstream to its confluence with Skidmore Fork.	5A	pH	2008	L	0.64
VAV-B20R_DUR03A00 / Dry River / Dry River from its confluence with Little Laurel Run downstream to the 5 mile PWS designation for the City of Harrisonburg Water Intake.	5A	pH	2002	L	3.70

Dry River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10.18

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B20R-02-BEN Skidmore Fork

Cause Location: Skidmore Fork from the headwaters downstream to the upper end of Switzer Lake. (Start Mile: 8.50 End Mile: 3.06 Total Impaired Size: 5.44 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: U.S. Forest Service station 2001 (MAIS-Impaired), no new data 2022. Initial Listing Date: 2006. The USFS believes this is a drought related impairment from the 1998-2002 regional drought and a natural conditions. Data in 2016 indicated that this impairment is no longer present, however both samples were taken in the spring. Successive spring and fall supporting samples are needed in order to delist.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B20R_SKD03A00 / Skidmore Fork / Skidmore Fork from the headwaters downstream to the upper end of Switzer Lake.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	5.45

Skidmore Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.45

Sources: Drought-related Impacts

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Potomac and Shenandoah River Basins

Cause Group Code: B21R-01-BAC Dry River

Cause Location: Dry River from the Route 613 bridge at Lilly downstream to its confluence with North River.
 (Start Mile: 6.57 End Mile: 0.00 Total Impaired Size: 6.57 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BDUR000.02 (2022 cycle- two or more STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)). Initial Listing Date: 1998; This segment is included in the EPA approved Dry River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B21R_DUR01A00 / Dry River / Dry River from its confluence with Muddy Creek downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2004	L	2.70
VAV-B21R_DUR02A00 / Dry River / Dry River from the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake downstream to its confluence with Muddy Creek.	4A	Escherichia coli (E. coli)	2004	L	2.21
VAV-B21R_DUR03A00 / Dry River / Dry River from the Route 613 bridge downstream to the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake.	4A	Escherichia coli (E. coli)	2004	L	1.66

Dry River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.57

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B21R-02-BAC Honey Run

Cause Location: Honey Run from the headwaters downstream to its confluence with Dry River. (Start Mile: 4.26
 End Mile: 0.00 Total Impaired Size: 4.26 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: This segment is impaired due to exceedances of the fecal coliform bacteria WQS at DEQ station 1BHNY003.76, no new data 2022. Initial Listing Date: 2004. This segment is included in the geographical boundary of the EPA approved Dry River TMDL for bacteria and is listed as Category 4A - Impaired - EPA Approved TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B21R_HNY01A02 / Honey Run / Honey Run from the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Supply Intake downstream to its confluence with Dry River.	4A	Fecal Coliform	2004	L	1.15
VAV-B21R_HNY02A02 / Honey Run / Honey Run from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake.	4A	Fecal Coliform	2004	L	3.12

Honey Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.27

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B22R-01-BAC Muddy Creek

Cause Location: Muddy Creek from the headwaters downstream to its confluence with Dry River. (Start Mile: 11.15 End Mile: 0.00 Total Impaired Size: 11.15 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BMDD000.40 (2022- two STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)) and 1BMDD005.81 (2022- two or more STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)). Initial Listing Date: 1996; This segment is included in the EPA approved Muddy Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B22R_MDD01A00 / Muddy Creek / Muddy Creek from the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake downstream to its confluence with Dry River.	4A	Escherichia coli (E. coli)	2004	L	2.34
VAV-B22R_MDD02A00 / Muddy Creek / Muddy Creek from its confluence with War Branch downstream to the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake.	4A	Escherichia coli (E. coli)	2004	L	1.34
VAV-B22R_MDD03A00 / Muddy Creek / Muddy Creek from the headwaters downstream to its confluence with War Branch.	4A	Escherichia coli (E. coli)	2004	L	7.47

Muddy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.15

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B22R-01-BEN** Muddy Creek

Cause Location: Muddy Creek from the headwaters downstream to its confluence with Dry River. (Start Mile: 11.15 End Mile: 0.00 Total Impaired Size: 11.15 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BMDD002.10 (Impaired for VSCI) and 1BMDD005.81 (Impaired for VSCI). Initial Listing Date: 1996; This unit is included in the EPA approved Muddy Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B22R_MDD01A00 / Muddy Creek / Muddy Creek from the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake downstream to its confluence with Dry River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	2.34
VAV-B22R_MDD02A00 / Muddy Creek / Muddy Creek from its confluence with War Branch downstream to the 5 mile upper limit of the PWS designation for the Bridgewater Public Water Intake.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.34
VAV-B22R_MDD03A00 / Muddy Creek / Muddy Creek from the headwaters downstream to its confluence with War Branch.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.47

Muddy Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			11.15

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: **B23R-01-BEN** North River

Cause Location: North River from its confluence with Cooks Creek downstream to its confluence with South River.

Cause City/County: Augusta County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BNTH014.48 (Impaired for VSCI). Initial Listing Date: 1996; The aquatic life impairment based on the impaired benthic status is now part of an EPA approved stressor report to move from 5A to 4A - Impaired - EPA approved TMDL (Letter from EPA dated 2/3/06).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B23R_NTH01A04 / North River / North River from its confluence with Middle River downstream to its confluence with South River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.70
VAV-B23R_NTH01B10 / North River / North River from its confluence with Naked Creek downstream to its confluence with Middle River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.25
VAV-B23R_NTH02A04 / North River / North River from its confluence with Cooks Creek downstream to its confluence with Naked Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	6.88

North River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			15.83

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Non-Point Source; Streambank Erosion; Urban Development in Riparian Buffer

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Potomac and Shenandoah River Basins

Cause Group Code: **B24R-01-BAC** Long Glade Creek

Cause Location: Long Glade Creek from the headwaters downstream to its confluence with North River. (Start Mile: 11.22 End Mile: 0.00 Total Impaired Size: 11.22 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLGC000.96 (22 exceedances of 45 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2004. This segment is included in the EPA approved Mossy Creek/Long Glade Creek bacteria TMDL. Federal TMDL ID # 19708

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B24R_LGC01A00 / Long Glade Creek / Long Glade Creek from the headwaters downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2008	L	11.22

Long Glade Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 11.22
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Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B25L-01-BAC** Silver Lake

Cause Location: Silver Lake

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This lake is impaired due to exceedances of the e-coli WQS at station 1BXEF000.23 in the 2018 cycle (3 exceedances of 13 samples for e-coli). Carried over into the 2022 cycle, (new WQS: One STV exceedance but insufficient data to analyze geomean)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B25L_00 / Silver Lake / Silver Lake in Dayton, VA	5A	Escherichia coli (E. coli)	2018	L	10.52

Silver Lake

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.52	

Sources: Agriculture; Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B25R-01-BAC Cooks Creek

Cause Location: Cooks Creek from the headwaters downstream to its confluence with North River. (Start Mile: 14.39 End Mile: 0.00 Total Impaired Size: 14.39 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BCKS003.10 (23 exceedances of 41 samples for e-coli 2020 cycle, no new data 2022); 1BCKS007.71 (5 exceedances of 12 samples for e-coli 2018 cycle, no new data 2022) Initial Listing Date: 1996; This segment is included in the EPA approved Cooks Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B25R_CKS01A00 / Cooks Creek / Cooks Creek from its confluence with Silver Creek (at Route 701 Slab Crossing) downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2004	L	7.75
VAV-B25R_CKS02A04 / Cooks Creek / Cooks Creek from the headwaters downstream to its confluence with Silver Creek (at the Route 701 Slab Crossing).	4A	Escherichia coli (E. coli)	2004	L	6.64

Cooks Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.39

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B25R-01-BEN Cooks Creek

Cause Location: Cooks Creek from the headwaters downstream to its confluence with North River. (Start Mile: 14.39 End Mile: 0.00 Total Impaired Size: 14.39 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BCKS003.04 (Impaired for VSCI). Additional data collected at 1BCKS001.03 (Impaired for VSCI). Initial Listing Date: 1996; This segment is included in the EPA approved Cooks Creek/Blacks Run benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B25R_CKS01A00 / Cooks Creek / Cooks Creek from its confluence with Silver Creek (at Route 701 Slab Crossing) downstream to its confluence with North River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.75
VAV-B25R_CKS02A04 / Cooks Creek / Cooks Creek from the headwaters downstream to its confluence with Silver Creek (at the Route 701 Slab Crossing).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	6.64

Cooks Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		14.39

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B25R-02-BAC** **Silver Creek**

Cause Location: Silver Creek from the Silver Lake dam outfall downstream to its confluence with Cooks Creek.
 (Start Mile: .21 End Mile: 0.00 Total Impaired Size: .21 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: This segment remains impaired due to exceedances of the fecal coliform WQS during the 2004 cycle.
 No new data in the 2022 cycle. Initial Listing Date: 2002; This segment is included in the EPA approved Cooks Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B25R_SLV01A04 / Silver Creek / Silver Creek from the Silver Lake dam outfall downstream to its confluence with Cooks Creek.	4A	Fecal Coliform	2002	L	0.21

Silver Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			0.21

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B25R-03-BAC Sunset Heights Branch

Cause Location: Sunset Heights Branch from the headwaters downstream to its confluence with Cooks Creek.
 (Start Mile: 4.75 End Mile: 0.00 Total Impaired Size: 4.75 Miles)

Cause City/County: Harrisonburg; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: This segment remains impaired due to exceedances of the fecal coliform WQS during the 2004 cycle.
 No new data collected in the 2022 cycle. Initial Listing Date: 2004; This segment is included in the EPA approved
 Cooks Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B25R_XBU01A02 / Sunset Heights Branch / Sunset Heights Branch from the headwaters downstream to its confluence with Cooks Creek.	4A	Fecal Coliform	2004	L	4.75

Sunset Heights Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.75

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas);
 Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B26R-01-BAC Blacks Run

Cause Location: Blacks Run from the headwaters downstream to its confluence with Cooks Creek. (Start Mile: 11.64 End Mile: 0.00 Total Impaired Size: 11.64 Miles)

Cause City/County: Harrisonburg; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BBLK000.38 (12 exceedances of 41 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 1996; This segment is included in the EPA approved Blacks Run bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B26R_BLK01A00 / Blacks Run / Blacks Run from the headwaters downstream to its confluence with Cooks Creek.	4A	Escherichia coli (E. coli)	2004	L	11.64

Blacks Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.64

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B26R-01-BEN Blacks Run

Cause Location: Blacks Run from the headwaters downstream to its confluence with Cooks Creek. (Start Mile: 11.64 End Mile: 0.00 Total Impaired Size: 11.64 Miles)

Cause City/County: Harrisonburg; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BBLK000.08 (Impaired for VSCI) and 1BBLK005.62 (Impaired for VSCI). Initial Listing Date: 1996; This segment is included in the EPA approved Blacks Run benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B26R_BLK01A00 / Blacks Run / Blacks Run from the headwaters downstream to its confluence with Cooks Creek.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	11.64

Blacks Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.64

Sources: Municipal (Urbanized High Density Area); Non-Point Source; Streambank Erosion; Urban Development in Riparian Buffer

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Potomac and Shenandoah River Basins

Cause Group Code: B27R-01-BAC Pleasant Run

Cause Location: Pleasant Run from the headwaters downstream to its confluence with North River. (Start Mile: 6.74 End Mile: 0.00 Total Impaired Size: 6.74 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BPLR000.16 (12 exceedances of 12 samples for e-coli in the 2018 cycle, no new data 2022). Initial Listing Date: 1996; This segment is included in the EPA approved Pleasants Run bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B27R_PLR01A00 / Pleasant Run / Pleasant Run from the headwaters downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2004	L	6.74

Pleasant Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.74

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B27R-01-BEN Pleasant Run

Cause Location: Pleasant Run from the headwaters downstream to its confluence with North River. (Start Mile: 6.74 End Mile: 0.00 Total Impaired Size: 6.74 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BPLR000.08 (Impaired for VSCI). Initial Listing Date: 1996; This segment is included in the EPA approved Pleasants Run benthic TMDL. Federal TMDL ID # 9508

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B27R_PLR01A00 / Pleasant Run / Pleasant Run from the headwaters downstream to its confluence with North River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	6.74

Pleasant Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.74

Sources: Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B28R-01-BAC Naked Creek

Cause Location: Naked Creek from the headwaters downstream to its confluence with North River. (Start Mile: 7.12 End Mile: 0.00 Total Impaired Size: 7.12 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BNKD000.80 (2020 cycle- 35 exceedances of 48 samples for E.coli, no new data 2022). Initial Listing Date: 1996; This segment is located within the EPA approved Naked Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B28R_NKD01A00 / Naked Creek / Naked Creek from the Route 696 bridge crossing downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2004	L	3.79
VAV-B28R_NKD02A10 / Naked Creek / Naked Creek from the headwaters downstream to the Route 696 bridge crossing.	4A	Escherichia coli (E. coli)	2004	L	3.33

Naked Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.12

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B28R-02-BAC** North Fork Naked Creek

Cause Location: North Fork Naked Creek from the headwaters downstream to its confluence with Naked Creek.
 (Start Mile: 5.25 End Mile: 0.00 Total Impaired Size 5.25 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BNKN-NC2-FOSR (10 exceedances of 18 samples for e-coli in 2016, no data in 2022); 1BNKN-NC3-FOSR (9 exceedances of 18 samples for e-coli in 2016, no data in 2022). Initial Listing 2012. This segment is nested into the EPA approved Naked Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B28R_NKN01A00 / North Fork Naked Creek / North Fork Naked Creek from the headwaters downstream to its confluence with Naked Creek.	4A	Escherichia coli (E. coli)	2012	L	5.25

North Fork Naked Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type:		
			5.25

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B29R-01-BAC** **Congers Creek/Duck Run/Mill Creek**

Cause Location: Congers Creek from the headwaters downstream to its confluence with Duck Run; Duck Run from the headwaters downstream to its confluence with Mill Creek, Mill Creek from the headwaters downstream to its confluence with North River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: These segments remain impaired for recreational use based on exceedances of the fecal coliform and e-coli bacteria standards at station(s) 1BCNG000.03 (no new data 2022), 1BDRK000.18 (no new data 2022) and 1BMIC001.00 (8 exceedances of 12 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 1996; These segments are included in the EPA approved Mill Creek TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B29R_CNG01A00 / Congers Creek / Congers Creek from the Lake Shenandoah Dam outfall downstream to its confluence with Mill Creek.	4A	Fecal Coliform	2004	L	3.20
VAV-B29R_CNG02A10 / Congers Creek / Congers Creek from the headwaters downstream to the upper end of Lake Shenandoah.	4A	Fecal Coliform	2004	L	2.79
VAV-B29R_DKR01A00 / Duck Run / Duck Run from its headwaters downstream to its confluence with Mill Creek.	4A	Fecal Coliform	1996	L	2.88

Congers Creek/Duck Run/Mill Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
8.87

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B29R_MIC01A00 / Mill Creek / Mill Creek from its confluence with Duck Run downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2004	L	2.79
VAV-B29R_MIC02A00 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with Duck Run.	4A	Escherichia coli (E. coli)	2004	L	3.47

Congers Creek/Duck Run/Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
6.26

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B29R-01-BEN** Mill Creek

Cause Location: Mill Creek from the headwaters downstream to its confluence with North River.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BMIC001.00 (Impaired for VSCI). Initial Listing Date: 1996; This segment is included in the EPA approved Mill Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B29R_MIC01A00 / Mill Creek / Mill Creek from its confluence with Duck Run downstream to its confluence with the South Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	2.79
VAV-B29R_MIC02A00 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with Duck Run.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.47

Mill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.26

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B30R-01-BAC** **South River**

Cause Location: South River from the headwaters downstream to its confluence with Stony Run. (Start Mile: 52.54 End Mile: 40.11 Total Impaired Size: 12.43 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BSTH041.68 (40 exceedances of 71 samples for e-coli in 2020, no data 2022) and 1BSTH044.90 (4 exceedances of 6 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 1996; This segment was included in the EPA approved Middle River/South River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B30R_STH01A00 / South River / South River from the headwaters downstream to its confluence with Stony Run.	4A	Escherichia coli (E. coli)	2008	L	12.43

South River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.43

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B30R-02-PH** **Loves Run**

Cause Location: Loves Run from the headwaters downstream to its confluence with the South River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA AU14 (12 excursions of 12 samples for pH in 2006). Level II data at this site indicates continued impairment (1 excursion of 1 sample for pH in 2016, no data in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B30R_LOV01A00 / Loves Run / Loves Run from a point 2.7 miles upstream of South River downstream to its confluence with South River.	5A	pH	2006	L	2.70
VAV-B30R_LOV02A10 / Loves Run / Loves Run from the headwaters downstream to a point 2.7 miles upstream of its confluence with South River.	5A	pH	2006	L	2.94

Loves Run

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.64

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: **B30R-03-BAC** **Pine Run**

Cause Location: Pine Run from the headwaters downstream to its confluence with the South River. (Start Mile: 20.38 End Mile: 0.00 Total Impaired Size: 20.38 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BPNE000.04 (3 exceedances of 6 samples for e-coli in 2016, no data in 2018). Initial Listing Date: 2006. This segment is included in the EPA approved South River bacteria TMDL. Federal TMDL ID # 7700

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B30R_PNE01A00 / Pine Run / Pine Run and tributaries from the headwaters downstream to its confluence with South River.	4A	Escherichia coli (E. coli)	2006	L	20.39

Pine Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.39

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B30R-03-BEN** **Pine Run**

Cause Location: Pine Run from the headwaters downstream to its confluence with the South River. (Start Mile: 20.38 End Mile: 0.00 Total Impaired Size: 20.38 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 1BPNE001.60 (Impaired for VSCI). Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B30R_PNE01A00 / Pine Run / Pine Run and tributaries from the headwaters downstream to its confluence with South River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	20.39

Pine Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			20.39

Sources: Agriculture; Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B31L-01-PH Coles Run Reservoir

Cause Location: Coles Run Reservoir (Total Impaired Size: 10.84 Acres)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This lake is impaired due to excursions of the pH WQS at station: 1BCLS003.60 (109 excursions of 109 samples for pH in 2022 cycle). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31L_00 / Coles Run Reservoir / Coles Run Reservoir	5A	pH	2008	L	10.85

Coles Run Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		10.85	

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: **B31R-01-BAC** **Back Creek**

Cause Location: Back Creek from its confluence with Toms Branch downstream to the confluence with South River.

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 1BBCK000.78. (2 exceedances of 9 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_BCK01A00 / Back Creek / Back Creek from its confluence with Toms Branch downstream to its confluence with South River.	4A	Escherichia coli (E. coli)	2012	L	6.02

Back Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.02

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B31R-01-BEN** **Back Creek**

Cause Location: Back Creek from its confluence with Toms Branch downstream to the confluence with South River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station 1BBCK000.78 (Impaired for VSCI). Initial Listing Date 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_BCK01A00 / Back Creek / Back Creek from its confluence with Toms Branch downstream to its confluence with South River.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	6.02

Back Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.02

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B31R-02-BEN** Mills Creek

Cause Location: Mills Creek from the headwaters downstream to its confluence with Back Creek. (Start Mile: 9.14
 End Mile: 0.00 Total Impaired Size: 9.14 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at USFS Station: 5116 (Impaired for VSCI but shows scores above 60 in spring 2015 and 2016). Two consecutive (one spring/one fall) supporting samples are needed in order to consider a delist. Additional data collected at 1BMLS002.37 (Impaired for VSCI, no new data 2022). Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_MLS01A02 / Mills Creek / Mills Creek from a point 1.8 miles upstream of Back Creek downstream to its confluence with Back Creek.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	1.66
VAV-B31R_MLS02A10 / Mills Creek / Mills Creek from the South River Sanitary District's raw water intake downstream to a point 1.8 miles upstream of Back Creek.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	2.45
VAV-B31R_MLS03A10 / Mills Creek / Mills Creek from the headwaters downstream to the South River Sanitary District's raw water intake.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	5.03

Mills Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.14

Sources: Atmospheric Deposition - Acidity; Non-Point Source

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B31R-02-PH** Mills Creek

Cause Location: Mills Creek from the headwaters downstream to its confluence with Back Creek. (Start Mile: 9.14
 End Mile: 0.00 Total Impaired Size: 9.14 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station 1BMLS002.37 (2 excursions of 6 samples for pH in 2018, no new data 2022). Additional level II data collected at UVA station VT40-UVA (12 excursions of 24 samples for pH, Level II data, no new data 2022). Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_MLS01A02 / Mills Creek / Mills Creek from a point 1.8 miles upstream of Back Creek downstream to its confluence with Back Creek.	5A	pH	2018	L	1.66
VAV-B31R_MLS02A10 / Mills Creek / Mills Creek from the South River Sanitary District's raw water intake downstream to a point 1.8 miles upstream of Back Creek.	5A	pH	2018	L	2.45
VAV-B31R_MLS03A10 / Mills Creek / Mills Creek from the headwaters downstream to the South River Sanitary District's raw water intake.	5A	pH	2018	L	5.03

Mills Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			9.14

Sources: Atmospheric Deposition - Acidity; Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B31R-03-BEN** Toms Branch

Cause Location: Toms Branch from the headwaters downstream to its confluence with Back Creek. (Start Mile: 3.49 End Mile: 0.00 Total Impaired Size: 3.49 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: This segment is considered impaired for aquatic life use based on benthic assessment performed by the U.S. Forest Service at site 5104 in the 2004 assessment. Newer data in 2012 indicate improvement at this site, however, at least two consecutive supporting samples are needed for de-listing. This impairment was determined to be natural in the 2004 assessment based on prolonged drought conditions. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_TMS01A02 / Toms Branch / Toms Branch from a point 1.1 miles upstream of Back Creek downstream to its confluence with Back Creek.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	1.15
VAV-B31R_TMS02A10 / Toms Branch / Toms Branch from the headwaters downstream to a point 1.1 miles upstream of Back Creek.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	2.34

Toms Branch

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.49

Sources: Drought-related Impacts

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B31R-04-PH** **Coles Run**

Cause Location: Coles Run from the headwaters downstream to its confluence with South River. (Start Mile: 6.89
 End Mile: 0.00 Total Impaired Size: 6.89 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: AU16-UVA (12 excursions of 12 samples for pH in 2010, 1 excursion of 1 samples in 2016 with Level II data indicate continued impairment, no new data in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_CLS01A00 / Coles Run / Coles Run from the South River Sanitary District's raw water intake (Coles Run Dam) downstream to its confluence with South River.	5A	pH	2006	L	4.26
VAV-B31R_CLS02A10 / Coles Run / Coles Run from the headwaters downstream to the upper end of the Coles Run Reservoir.	5A	pH	2006	L	2.64

Coles Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.9

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B31R-05-PH** **Johns Run**

Cause Location: Johns Run from the headwaters downstream its confluence with South River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: AU15-UVA (12 excursions of 12 samples for pH in 2010, 1 excursion of 1 samples in 2016 with Level II data indicate continued impairment, the impairment carries forward, no data in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_JHN01A00 / Johns Run / Johns Run from the headwaters downstream to its confluence with South River.	5A	pH	2006	L	5.46

Johns Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.46

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: **B31R-06-PH** **Kennedy Creek**

Cause Location: Kennedy Creek and tributaries from the headwaters downstream to its confluence with South River.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at UVA station: VT39-UVA (12 excursions of 12 samples for pH in 2010, 24 excursions of 24 samples in 2018 with Level II data indicate continued impairment, no new data 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_KND01A00 / Kennedy Creek / Kennedy Creek and tributaries from the headwaters downstream to its confluence with South River.	5A	pH	2006	L	15.48

Kennedy Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			15.48

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B31R-07-PH** **Orebank Creek**

Cause Location: Orebank Creek from the headwaters downstream to its confluence with Back Creek.

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: OB01-UVA (12 excursions of 12 samples for pH in 2010, no new data are available in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_ORE01A02 / Orebank Creek / Orebank Creek from the headwaters downstream to its confluence with Back Creek.	5A	pH	2006	L	3.56

Orebank Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.56

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B32R-01-BEN South River

Cause Location: South River from its confluence with Back Creek downstream to its confluence with the North River. (Impairment was lengthened in 2012)

Cause City/County: Augusta County; Rockingham County; Waynesboro

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BSTH02.14 (Reserve Judgment for VSCI in 2022: shows improvement, two consecutive supporting samples, taken over a two year period, are needed to consider delisting the aquatic life use impairment.); 1BSTH012.71 (Impaired for VSCI, no new data 2022); 1BSTH021.59 (VSCI showing improvement in 2022 but a minimum of two consecutive supporting samples, taken over a two year period, are needed to consider delisting the aquatic life use impairment.) and 1BSTH027.08 (Supporting for VSCI overall in 2022 but a minimum of two consecutive supporting samples, taken over a two year period, are needed to consider delisting the aquatic life use impairment.). Initial Listing Date: 1996. This impairment is included in the EPA approved South River benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_STH01A04 / South River / South River from its confluence with Stull Run downstream to its confluence with North River.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	5.38
VAV-B32R_STH02A04 / South River / South River from its confluence with Porterfield Run downstream to its confluence with Stull Run.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	11.55
VAV-B32R_STH03A04 / South River / South River from the INVISTA discharge downstream to its confluence with Porterfield Run.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.44
VAV-B32R_STH04A04 / South River / South River from its confluence with Coiner Spring intermittent run downstream to the INVISTA discharge.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	2.12
VAV-B32R_STH05A04 / South River / South River from its confluence with Back Creek downstream to its confluence with Coiner Spring intermittent run.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	2.83

South River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			29.32

Sources: Agriculture; Industrial Point Source Discharge; Municipal (Urbanized High Density Area); Streambank Erosion

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B32R-02-BAC** South River

Cause Location: South River from its confluence with Stony Creek downstream to its confluence with the North River. (Start Mile: 40.11 End Mile: 0.00 Total Impaired Size: 40.11 Miles) Impairment lengthened in 2012 with additional upstream assessment unit.

Cause City/County: Augusta County; Rockingham County; Waynesboro

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BSTH002.14 (2 exceedances of 12 samples for e-coli in 2018, no new data 2022); 1BSTH007.80 (Impaired- geomean exceedance in any 90-day period (2022 revised E.coli WQS analysis)); 1BSTH023.73 (2 exceedances of 6 samples for e-coli in 2016, no new data 2022); 1BSTH027.85 (one STV exceedance in multiple 90-day periods but insufficient data to analyze geomean (2022 revised E.coli WQS analysis)) and 1BSTH036.84 (5 exceedances of 6 samples for e-coli in 2016, no data in 2022). Additional data collected at station(s) 1BSTH019.52 (10 exceedances of 71 samples for e-coli in 2020, no new data 2022); BSTH020.85 (9 exceedances of 58 samples for e-coli in 2020, no new data 2022); 1BSTH031.45 (2022 revised E.coli WQS analysis: No STV exceedances but insufficient data to analyze geomean). Initial Listing Date: 1996. This impairment is included in the EPA approved South River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B31R_STH01A00 / South River / South River from its confluence with Stony Creek downstream to its confluence with Back Creek.	4A	Escherichia coli (E. coli)	2012	L	10.79
VAV-B32R_STH01A04 / South River / South River from its confluence with Stull Run downstream to its confluence with North River.	4A	Escherichia coli (E. coli)	2014	L	5.38
VAV-B32R_STH02A04 / South River / South River from its confluence with Porterfield Run downstream to its confluence with Stull Run.	4A	Escherichia coli (E. coli)	2006	L	11.55
VAV-B32R_STH03A04 / South River / South River from the INVISTA discharge downstream to its confluence with Porterfield Run.	4A	Escherichia coli (E. coli)	2012	L	7.44
VAV-B32R_STH04A04 / South River / South River from its confluence with Coiner Spring intermittent run downstream to the INVISTA discharge.	4A	Escherichia coli (E. coli)	2010	L	2.12
VAV-B32R_STH05A04 / South River / South River from its confluence with Back Creek downstream to its confluence with Coiner Spring intermittent run.	4A	Escherichia coli (E. coli)	2006	L	2.83

South River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			40.11

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B32R-02-HG South River/South Fork Shenandoah River/North Fork Shenandoah River/Shenandoah River

Cause Location: South River from the INVISTA discharge downstream to its confluence with the South Fork Shenandoah River; the entire South Fork Shenandoah River; North Fork Shenandoah River from old Riverton Dam (removed) downstream to its confluence with the South Fork Shenandoah River; and the Shenandoah River to its confluence with Craig Run.

Cause City/County: Augusta County; Clarke County; Page County; Rockingham County; Warren County; Waynesboro

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/4A

Cause Description: This segment is impaired due to the presence of Hg in fish tissue at stations: 1BSTH004.21 (4 samples of Hg (Redbreast Sunfish, Lmouth Bass (2) & Wh. Sucker) 2005); 1BSTH002.14- 2 samples in 2022 (redbreast sunfish and smallmouth bass); 1BSTH020.44 (2 samples of Hg (Lmouth Bass & Wh. Sucker) 2005); 1BSTH022.75 (3 samples of Hg (Lmouth Bass (2) and White Sucker) 2005); 1BSTH023.73 (5 samples of Hg in Redbreast Sunfish, 3 samples in Largemouth Bass and 1 sample in Smallmouth Bass 2005); 1BSTH025.10 (2 samples of Hg (Redbreast Sunfish & Largemouth Bass-2005); 1BSSF096.03 (3 samples of Hg in fallfish, redbreast sunfish, smallmouth bass, 2020); 1BSSF078.24 (4 samples Hg in fish 2020-Channel catfish, smallmouth bass, redbreast sunfish, white sucker); 1BSSF063.17 (5 fish Hg samples-smallmouth bass, redbreast sunfish, white sucker, northern hogsucker, channel catfish, 2020); 1BSSF037.60 (3 samples of Hg in smallmouth bass, channel catfish, redbreast sunfish- 2020); 1BSSF010.33 (4 samples of Hg in channel catfish, smallmouth bass, redbreast sunfish, and white sucker, 2020); 1BSSF000.19 (three samples of Hg in smallmouth bass, redbreast sunfish, and channel catfish-2020); 1BNFS000.57 (two samples of Hg in largemouth bass and channel catfish, 2020); 1BSHN053.63 (5 samples of Hg in largemouth bass, redbreast sunfish, carp, channel catfish, & rock bass- 2020); 1BSHN028.15 (3 samples of Hg in carp, channel catfish, and smallmouth bass- 2020); 1BSHN038.27 (5 samples of Hg in smallmouth bass, walleye, redbreast sunfish, carp, & channel catfish-2020). Initial Listing Date: 1998. Included in the EPA approved South Fork Shenandoah River Mercury (Fish Tissue) TMDL. Within a VDH Fish Consumption Advisory for Mercury Contamination, effective 5/17/89; modified 12/13/04. For more information visit <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/>

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_STH01A04 / South River / South River from its confluence with Stull Run downstream to its confluence with North River.	4A	Mercury in Fish Tissue	1998	L	5.38
VAV-B32R_STH02A04 / South River / South River from its confluence with Porterfield Run downstream to its confluence with Stull Run.	4A	Mercury in Fish Tissue	1998	L	11.55
VAV-B32R_STH03A04 / South River / South River from the INVISTA discharge downstream to its confluence with Porterfield Run.	4A	Mercury in Fish Tissue	1998	L	7.44
VAV-B33R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with the North & South Rivers downstream to its confluence with Big Run.	4A	Mercury in Fish Tissue	1998	L	7.89
VAV-B35R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Dry Run downstream to its confluence with Naked Creek.	4A	Mercury in Fish Tissue	1998	L	3.56

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_SSF01B14 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Hawksbill Creek downstream to its confluence with Dry Run.	4A	Mercury in Fish Tissue	1998	L	4.04
VAV-B35R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Big Run downstream to its confluence with Hawksbill Creek.	4A	Mercury in Fish Tissue	1998	L	7.09
VAV-B37R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cub Run downstream to its confluence with Stony Run just below the Route 340 bridge at Alma.	4A	Mercury in Fish Tissue	1998	L	4.99
VAV-B37R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from the Shenandoah STP outfall downstream to its confluence with Cub Run.	4A	Mercury in Fish Tissue	1998	L	12.16
VAV-B37R_SSF02B14 / South Fork Shenandoah River / South Fork Shenandoah River from Naked Creek downstream to the Shenandoah STP outfall.	4A	Mercury in Fish Tissue	1998	L	1.98
VAV-B38R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Whitehouse Landing downstream to its confluence with Hawksbill Creek.	4A	Mercury in Fish Tissue	1998	L	10.46
VAV-B38R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Stony Run downstream to the Whitehouse Landing.	4A	Mercury in Fish Tissue	1998	L	5.98
VAV-B40R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Andy Guest State Park STP outfall downstream to its confluence with Gooney Run.	4A	Mercury in Fish Tissue	2006	L	6.61
VAV-B40R_SSF01B14 / South Fork Shenandoah River / South Fork Shenandoah River from the Bentonville Landing Bridge downstream to the Andy Guest State Park STP outfall.	4A	Mercury in Fish Tissue	1998	L	2.18
VAV-B40R_SSF01C14 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Dry Mine Run downstream to the Bentonville Landing Bridge.	4A	Mercury in Fish Tissue	1998	L	10.35
VAV-B40R_SSF02A00 / South Fork Shenandoah River / South Fork Shenandoah River from Seekford's Ford downstream to its confluence with Dry Mine Run.	4A	Mercury in Fish Tissue	1998	L	1.23
VAV-B40R_SSF03A14 / South Fork Shenandoah River / South Fork Shenandoah River from the Foster's Landing Rapids downstream to Seekford's Ford.	4A	Mercury in Fish Tissue	1998	L	5.39

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_SSF04A14 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Hawksbill Creek downstream to the Foster's Landing Rapids	4A	Mercury in Fish Tissue	1998	L	6.96
VAV-B41R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cabin Run downstream to its confluence with the North Fork Shenandoah River.	4A	Mercury in Fish Tissue	2002	L	1.85
VAV-B41R_SSF02A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Rivermont Drive Bridge downstream to its confluence with Cabin Run.	4A	Mercury in Fish Tissue	2002	L	2.45
VAV-B41R_SSF03A00 / South Fork Shenandoah River / South Fork Shenandoah River from the 5 mile upper limit of the PWS designation for the Front Royal Public Water Intake downstream to the Rivermont Drive Bridge.	4A	Mercury in Fish Tissue	1998	L	1.55
VAV-B41R_SSF04A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Gooney Run downstream approximately 4.5 miles.	4A	Mercury in Fish Tissue	1998	L	4.47
VAV-B51R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from the old dam site at the boat ramp downstream to its confluence with the South Fork Shenandoah River.	4A	Mercury in Fish Tissue	2002	L	0.71
VAV-B55R_SHN01A00 / Shenandoah River / Shenandoah River from its confluence with Oregon Hollow downstream to its confluence with Long Branch.	4A	Mercury in Fish Tissue	2008	L	8.52
VAV-B55R_SHN01B10 / Shenandoah River / Shenandoah River from the power plant dam near Front Royal downstream to its confluence with Oregon Hollow.	4A	Mercury in Fish Tissue	2008	L	4.42
VAV-B55R_SHN02A00 / Shenandoah River / Shenandoah River from the confluence of the North and South Fork's downstream to the power plant dam near Front Royal.	4A	Mercury in Fish Tissue	1998	L	3.66
VAV-B57R_SHN01A00 / Shenandoah River / Shenandoah River from the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake downstream to its confluence with Craig Run.	4A	Mercury in Fish Tissue	2008	L	5.00
VAV-B57R_SHN02A22 / Shenandoah River / Shenandoah River from its confluence with Long Branch downstream to the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake.	4A	Mercury in Fish Tissue	2008	L	6.44

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South River/South Fork Shenandoah River/North Fork Shenandoah
River/Shenandoah River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			154.31

Sources: Contaminated Sediments; Industrial Point Source Discharge; Sediment Resuspension (Contaminated Sediment); Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: B32R-02-PCB South River

Cause Location: South River from its confluence with Stull Run downstream to its confluence with North River.
 (Start Mile: 5.37 End Mile: 0.00 Total Impaired Size: 5.37 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: This segment is impaired due to the presence of PCB's in fish tissue at station: 1BSTH000.19 (2 samples of PCB's (Carp and Redhorse Sucker (2005). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_STH01A04 / South River / South River from its confluence with Stull Run downstream to its confluence with North River.	4A	PCBs in Fish Tissue	2008	L	5.38

South River

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.38

Sources: Contaminated Sediments; Industrial Point Source Discharge; Sediment Resuspension (Contaminated Sediment); Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: B32R-03-PH Paine Run

Cause Location: Paine Run from the headwaters downstream to its confluence with South River. (Start Mile: 6.75 End Mile: 0.00 Total Impaired Size: 6.75 Miles)

Cause City/County: Augusta County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at UVA Trout Sensitivity Study station: PAIN-UVA (Level III data: 12 excursions of 12 samples for pH in 2004; Level II data: 272 excursions of 272 samples for pH in 2022). Additional data collection in 2020 cycle at DEQ station 1BPAN000.20 (6 excursions of 22 samples for pH). Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_PAN01A00 / Paine Run / Paine Run from a point 1.7 miles upstream of South River downstream to its confluence with South River.	5A	pH	2004	L	1.91
VAV-B32R_PAN02A10 / Paine Run / Paine Run from the headwaters downstream to a point 1.7 miles upstream of South River.	5A	pH	2004	L	4.84

Paine Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.75

Sources: Atmospheric Deposition - Acidity

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B32R-04-PH** Meadow Run

Cause Location: Meadow Run from the headwaters downstream its confluence with South River. (Start Mile: 8.82
 End Mile: 0.00 Total Impaired Size: 8.82 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at UVA Trout Sensitivity Study station:
 VT36-UVA (12 excursions of 12 samples for pH in 2010 cycle, 8 excursions of 8 samples in 2022 with Level II data).
 Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_MDW01A00 / Meadow Run / Meadow Run and tributary from the headwaters downstream to its confluence with South River.	5A	pH	2004	L	8.82

Meadow Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			8.82

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B32R-05-BAC** **Steele Run**

Cause Location: Steele Run from the headwaters downstream to its confluence with South River. (Start Mile: 3.78
 End Mile: 0.00 Total Impaired Size: 3.78 Miles)

Cause City/County: Augusta County; Waynesboro

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BSTL002.14 (8
 exceedances of 12 samples for e-coli). Initial Listing Date: 2016. This segment is included in the South River
 Bacteria TMDL. Federal TMDL ID# 38140.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B32R_STL01A16 / Steele Run / Steele Run from the headwaters downstream to its confluence with South River.	4A	Escherichia coli (E. coli)	2016	L	3.78

Steele Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.78

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B33R-01-BAC South Fork Shenandoah River

Cause Location: South Fork Shenandoah River from its confluence with the North & South Rivers downstream to its confluence with Big Run.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BSSF0100.10 (2022 cycle- two STV hits in the same 90-day period with less than 10 samples (revised E.coli WQS analysis)). Initial Listing Date: 2002. This impairment is included in the EPA approved South Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B33R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with the North & South Rivers downstream to its confluence with Big Run.	4A	Escherichia coli (E. coli)	2008	L	7.89

South Fork Shenandoah River

Recreation	<table> <tr> <td style="text-align: right;">Estuary (Sq. Miles)</td> <td style="text-align: right;">Reservoir (Acres)</td> <td style="text-align: right;">River (Miles)</td> </tr> <tr> <td colspan="3" style="text-align: right;">7.89</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)	7.89		
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)					
7.89							

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B33R-01-BEN South Fork Shenandoah River

Cause Location: South Fork Shenandoah River from its confluence with North and South Rivers downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BSSF100.10 (Reserve Judgement for VSCI, no data collected in 2022), 1BSSF078.18 (Impaired for VSCI) and 1BSSF053.05 (Impaired for VSCI). Initial Listing Date: 1998. Included in the EPA approved South Fork Shenandoah River Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B33R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with the North & South Rivers downstream to its confluence with Big Run.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	7.89
VAV-B35R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Dry Run downstream to its confluence with Naked Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	3.56
VAV-B35R_SSF01B14 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Hawksbill Creek downstream to its confluence with Dry Run.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.04
VAV-B35R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Big Run downstream to its confluence with Hawksbill Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	7.09
VAV-B37R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cub Run downstream to its confluence with Stony Run just below the Route 340 bridge at Alma.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.99
VAV-B37R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from the Shenandoah STP outfall downstream to its confluence with Cub Run.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	12.16
VAV-B37R_SSF02B14 / South Fork Shenandoah River / South Fork Shenandoah River from Naked Creek downstream to the Shenandoah STP outfall.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	1.98
VAV-B38R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Whitehouse Landing downstream to its confluence with Hawksbill Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	10.46
VAV-B38R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Stony Run downstream to the Whitehouse Landing.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	5.98

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South Fork Shenandoah River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water

Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)

River
(Miles)

58.15

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Streambank Erosion

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B33R-02-PH Deep Run

Cause Location: Deep Run from the headwaters downstream to its confluence with the South Fork Shenandoah River. (Start Mile: 4.49 End Mile: 0.00 Total Impaired Size: 4.49 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: DR01-UVA (Level III data 12 excursions of 12 samples for pH in 2008, Level II data 7 excursions of 7 samples in 2022); additional data collected at 1BDPR000.60 (3 excursions of 7 samples for pH in 2020, no new data 2022) and 1BDPR002.09 *co-located with the DR01-UVA listing station (21 excursions of 22 samples for pH in 2020, no new data 2022). Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B33R_DPR01A00 / Deep Run / Deep Run from a point 1.8 miles upstream of the South Fork Shenandoah River downstream to its confluence with the South Fork Shenandoah River.	5A	pH	2004	L	1.87
VAV-B33R_DPR02A10 / Deep Run / Deep Run from the headwaters downstream to point 1.8 miles upstream of the South Fork Shenandoah River.	5A	pH	2004	L	2.62

Deep Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.49

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B33R-03-PH Lower Lewis Run

Cause Location: Lower Lewis Run from the headwaters downstream to its confluence with the South Fork Shenandoah River. (Start Mile: 3.94 End Mile: 0.00 Total Impaired Size: 3.94 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA RH47 (12 excursions of 12 samples for pH in 2010, no new data 2022); one additional sample collected at 1BLLW000.62 (1 excursion of 1 samples for pH in 2018, no new data 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B33R_LLW01A00 / Lower Lewis Run / Lower Lewis Run from the Shenandoah National Park boundary downstream to its confluence with the South Fork Shenandoah River.	5A	pH	2006	L	1.90
VAV-B33R_LLW02A10 / Lower Lewis Run / Lower Lewis Run from the headwaters downstream to the Shenandoah National Park boundary.	5A	pH	2006	L	2.04

Lower Lewis Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.94

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B34R-01-BAC** **Cub Run**

Cause Location: Cub Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BCBR000.80 (3 exceedances of 10 samples for e-coli in 2018, no new data 2022) and 1BCBR007.42 (4 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 1998; This segment is included in the EPA approved Cub Run bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B34R_CBR01A00 / Cub Run / Cub Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2004	L	14.89

Cub Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.89

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B35R-01-BAC Boone Run

Cause Location: Boone Run and tributaries from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment remains impaired for recreational use due to exceedances of the e-coli bacteria WQS at station: 1BBON000.60 (13 exceedances of 23 samples in 2020, no new data 2022); additional data collected at 1BBON001.46 (12 exceedances of 17 samples in 2020, no new data 2022). Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_BON01A00 / Boone Run / Boone Run from the vicinity of Route 637 at East Point and tributary from the headwaters downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2010	L	6.53
VAV-B35R_BON02A10 / Boone Run / Boone Run and tributaries from the headwaters downstream to its confluence with an unnamed tributary in the vicinity of Route 637 at East Point.	5A	Escherichia coli (E. coli)	2010	L	7.29

Boone Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.82

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-01-DO** **Two Mile Run**

Cause Location: Two Mile Run from the headwaters downstream to a point approximately 1.4 miles upstream of the South Fork Shenandoah River (Natural Trout Waters).

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: This segment is impaired due to excursions of the Dissolved Oxygen WQS at station: 1BTWO001.79 (3 samples fall below the minimum DO criteria out of 21 total samples in 2022). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_TWO02A10 / Two Mile Run / Two Mile Run from the headwaters downstream to a point approximately 1.4 miles upstream of the South Fork Shenandoah River.	5A	Dissolved Oxygen	2022	L	3.52

Two Mile Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.52

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B35R-01-TEMP Boone Run

Cause Location: Boone Run and tributaries from the headwaters downstream to its confluence with an unnamed tributary in the vicinity of Route 637 at East Point.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired for aquatic life use due to exceedances of the Temperature WQS for Natural Trout Waters at DEQ stations 1BBON000.60 (7 exceedances of 37 samples) and 1BBOB001.46 (5 exceedances of 36 samples). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_BON02A10 / Boone Run / Boone Run and tributaries from the headwaters downstream to its confluence with an unnamed tributary in the vicinity of Route 637 at East Point.	5A	Temperature	2022	L	7.29

Boone Run

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 7.29
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-02-BAC** **Quail Run**

Cause Location: Quail Run from the headwaters downstream to the Massanutten STP discharge.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BQAL005.29 (6 exceedances of 35 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2004 (shortened 2018).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_QAL03A00 / Quail Run / Quail Run from the headwaters downstream to the Massanutten STP discharge.	5A	Escherichia coli (E. coli)	2010	L	1.46

Quail Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.46

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-02-BEN** **Quail Run**

Cause Location: Quail Run from the Massanutten STP discharge downstream to its confluence with Boone Run.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BQAL004.30 (Impaired for VSCI). Initial Listing Date: 1998; This segment is included in the EPA approved Quail Run benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_QAL01A00 / Quail Run / Quail Run from the Bloomer Springs Road bridge downstream to its confluence with Boone Run.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.40
VAV-B35R_QAL02A00 / Quail Run / Quail Run from the Massanutten STP discharge downstream to the Bloomer Springs Road bridge.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.74

Quail Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.14

Sources: Municipal Point Source Discharges

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-03-BAC** **Elk Run**

Cause Location: Elk Run and tributaries from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BELK001.00 (two or more STV hits in the same 90-day period with less than 10 samples equals impairment based on revised E.coli WQS). This impairment is nested into the South Fork Shenandoah River Bacteria TMDL. Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_ELK01A00 / Elk Run / Elk Run and tributaries from the headwaters downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2022	L	19.47

Elk Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.47

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-03-BEN** **Quail Run**

Cause Location: Quail Run from the headwaters downstream to the Massanutten STP discharge. (Start Mile: 6.60
 End Mile: 5.14 Total Impaired Size: 1.46 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5C

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station:
 1BQAL005.04 (Impaired for VSCI) and 1BQAL005.09 (Impaired for VSCI). Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_QAL03A00 / Quail Run / Quail Run from the headwaters downstream to the Massanutten STP discharge.	5C	Benthic Macroinvertebrates Bioassessments	2002	L	1.46

Quail Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.46

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B35R-04-BAC Stony Run

Cause Location: Stony Run from a point 4.1 miles upstream of its confluence with the South Fork Shenandoah River and a tributary from the headwaters, downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BSNN000.18 (two or more STV hits in the same 90-day period with less than 10 samples equals impairment based on revised E.coli WQS). Initial Listing Date: 2022 This impairment is nested into the South Fork Shenandoah River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_SNN01A00 / Stony Run / Stony Run from a point 4.1 miles upstream of its confluence with the South Fork Shenandoah River and a tributary from the headwaters downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2022	L	7.36

Stony Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.36

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B35R-04-PH** **Two Mile Run**

Cause Location: Two Mile Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS UVA station VT53-UVA (39 excursions of the pH WQS out of 39 samples Level II in 2022). Additional data collected at DEQ stations 1BTWO000.95 (12 excursions of 12 samples) and 1BTWO001.79 (20 excursions of 20 samples). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_TWO01A00 / Two Mile Run / Two Mile Run from a point approximately 1.4 miles upstream of the South Fork Shenandoah River downstream to its confluence with the South Fork Shenandoah River.	5A	pH	2006	L	1.54
VAV-B35R_TWO02A10 / Two Mile Run / Two Mile Run from the headwaters downstream to a point approximately 1.4 miles upstream of the South Fork Shenandoah River.	5A	pH	2006	L	3.52

Two Mile Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.06

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B35R-05-PH One Mile Run

Cause Location: One Mile Run from the headwaters downstream to its confluence with the South Fork Shenandoah River (Start Mile: 9.17 End Mile: 0.00, Total Impaired Size: 9.17 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA RH52 (6 excursions of 6 samples for pH in 2010, no new data 2022); additional data collected at station 1BONE000.71 (9 excursions of 10 samples for pH in 2020, no new data 2022). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B35R_ONE01A00 / One Mile Run / One Mile Run from a point approximately 1.5 miles upstream of the South Fork Shenandoah River downstream to its confluence with the South Fork Shenandoah River.	5A	pH	2010	L	1.63
VAV-B35R_ONE02A10 / One Mile Run / One Mile Run and tributaries from the headwaters downstream to a point approximately 1.5 miles upstream of the South Fork Shenandoah River.	5A	pH	2010	L	7.54

One Mile Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			9.17

Sources: Atmospheric Deposition - Acidity

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B36R-01-BEN** Naked Creek

Cause Location: Naked Creek including the East Branch from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County; Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BNAK001.24 (Impaired for VSCI). Initial Listing Date: 1998. This impairment has been determined to be natural and is considered 4C by letter received from EPA TMDL Program Manager Helene Drago dated July 13, 2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B36R_NAK01A00 / Naked Creek / Naked Creek from its confluence with the East Branch Naked Creek downstream to its confluence with the South Fork Shenandoah River.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	6.67
VAV-B36R_NKE01A10 / East Branch Naked Creek / East Branch Naked Creek from its headwaters downstream to its confluence with Naked Creek.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	6.15

Naked Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.82

Sources: Natural Sources

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B37R-01-BAC** **Cub Run**

Cause Location: Cub Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired for recreation use due to exceedances of the E.coli WQS at DEQ station: 1BCUB000.40 (2022- two STV hits in the same 90-day period with less than 10 samples, revised E.coli WQS analysis). This impairment is nested into the EPA approved South Fork Shenandoah Bacteria TMDL. Initial listing date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B37R_CUB01A00 / Cub Run / Cub Run from its confluence with Pitt Spring Run downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2022	L	2.88
VAV-B37R_CUB02A10 / Cub Run / Cub Run from the headwaters downstream to its confluence with Pitt Spring Run.	4A	Escherichia coli (E. coli)	2022	L	6.93

Cub Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.81

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B37R-01-PCB South Fork Shenandoah River

Cause Location: South Fork Shenandoah River from its confluence with Naked Creek downstream to its confluence with Stony Creek just above the Route 340 bridge at Alma.

Cause City/County: Page County; Rockingham County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: This segment is impaired due to exceedances of the fish tissues screening value for PCB at stations: 1BSSF063.17 (2 samples of PCB in Lmouth Bass & Redbreast Sunfish in 2010; no exceedances in 2022) and 1BSSF078.24 (3 samples of PCB in 2010; 1 sample of PCB observed in 2022). While fish tissue samples collected at 1BSSF063.17 show no exceedances, all of the original species from the 2010 PCB listing need to show support for PCBs in order to consider a delist. A largemouth bass sample is needed. Initial Listing Date: 2010. The PCB impairment is nested in the EPA approved Shenandoah River Watershed TMDL for Polychlorinated biphenyls (PCBs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B37R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cub Run downstream to its confluence with Stony Run just below the Route 340 bridge at Alma.	4A	PCBs in Fish Tissue	2010	L	4.99
VAV-B37R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from the Shenandoah STP outfall downstream to its confluence with Cub Run.	4A	PCBs in Fish Tissue	2010	L	12.16
VAV-B37R_SSF02B14 / South Fork Shenandoah River / South Fork Shenandoah River from Naked Creek downstream to the Shenandoah STP outfall.	4A	PCBs in Fish Tissue	2010	L	1.98

South Fork Shenandoah River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			19.13

Sources: Contaminated Sediments; Industrial Point Source Discharge; Sediment Resuspension (Contaminated Sediment); Streambank Erosion

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B37R-02-BAC Line Run

Cause Location: Line Run from the headwaters downstream to its confluence with Honey Run.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLIN001.60 (no new data 2022) Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B37R_LIN01A06 / Line Run / Line Run from the headwaters downstream to its confluence with Honey Run.	5A	Escherichia coli (E. coli)	2006	L	4.94

Line Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.94

Sources: Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B37R-03-BAC Honey Run

Cause Location: Honey Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BHDY000.91 (2 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B37R_HDY01A00 / Honey Run / Honey Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2008	L	5.11

Honey Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 5.11
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Sources: Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B37R-04-BAC** **South Fork Shenandoah River**

Cause Location: South Fork Shenandoah River from its confluence with Cub Run downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County; Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River stations: 1BSSF-FP02-FOSR (2022 revised E.coli WQS analysis: two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples) and 1BSSF-FP03-FOSR (2022 revised E.coli WQS analysis - impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B37R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cub Run downstream to its confluence with Stony Run just below the Route 340 bridge at Alma.	4A	Escherichia coli (E. coli)	2022	L	4.99
VAV-B38R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Whitehouse Landing downstream to its confluence with Hawksbill Creek.	4A	Escherichia coli (E. coli)	2022	L	10.46
VAV-B38R_SSF02A10 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Stony Run downstream to the Whitehouse Landing.	4A	Escherichia coli (E. coli)	2022	L	5.98

South Fork Shenandoah River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.43

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B38R-01-BAC** Mill Creek

Cause Location: Mill Creek from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BMLC000.40 (21 exceedances of 60 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 1998; This segment is included in the EPA approved Mill Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B38R_MLC01A00 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	7.07

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.07

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B38R-02-BAC** **Big Run**

Cause Location: Big Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BBIG000.48 (21 exceedances of 23 samples for e-coli in 2014, no data in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B38R_BIG01A00 / Big Run / Big Run from the headwaters downstream to its confluence with South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2006	L	6.41

Big Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.41

Sources: Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B39R-01-BAC Pass Run

Cause Location: Pass Run from the headwaters downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BPSS000.64 (2 exceedances of 12 samples for e-coli in 2014, no new data 2022). Initial Listing Date: 2002; The segment is included in the EPA approved Hawksbill Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_PSS01A00 / Pass Run / Pass Run from the headwaters downstream to its confluence with Hawksbill Creek.	4A	Escherichia coli (E. coli)	2004	L	9.48

Pass Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.48

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B39R-02-BAC** **Hawksbill Creek**

Cause Location: Hawksbill Creek from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BHKS000.96 (21 exceedances of 48 samples for e-coli in 2020, no new data 2022) and 1BHKS009.58 (3 exceedances of 12 samples for e-coli in 2016, no new data in 2022). Additional data collected at 1BHKS007.77 (10 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002. This segment is included in the EPA approved Hawksbill Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_HKS01A00 / Hawksbill Creek / Hawksbill Creek from the Route 211 bypass downstream to its confluence with the South Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2006	L	6.05
VAV-B39R_HKS01B10 / Hawksbill Creek / Hawksbill Creek from its confluence with East Hawksbill Creek downstream to the Route 211 bypass.	4A	Escherichia coli (E. coli)	2006	L	1.31
VAV-B39R_HKS02A00 / Hawksbill Creek / Hawksbill Creek from a point near the Route 340 and Route 624 intersection downstream to its confluence with East Hawksbill Creek.	4A	Escherichia coli (E. coli)	2004	L	5.91
VAV-B39R_HKS03A10 / Hawksbill Creek / Hawksbill Creek from a point near the St. Georges Church at Pine Grove downstream to a point near the intersection of Route 340 and Route 624.	4A	Escherichia coli (E. coli)	2004	L	3.84
VAV-B39R_HKS04A10 / Hawksbill Creek / Hawksbill Creek from the headwaters downstream to a point near the St. Georges Church at Pine Grove.	4A	Escherichia coli (E. coli)	2004	L	2.78

Hawksbill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.89

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B39R-03-BAC** **East Hawksbill Creek**

Cause Location: East Hawksbill Creek from the headwaters downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BEHC001.18 (18 exceedances of 60 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2006; This segment is included in the EPA approved Hawksbill Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_EHC01A00 / East Hawksbill Creek / East Hawksbill Creek from the headwaters downstream to its confluence with Hawksbill Creek.	4A	Escherichia coli (E. coli)	2006	L	9.38

East Hawksbill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.38

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B39R-03-BEN** **East Hawksbill Creek**

Cause Location: East Hawksbill Creek from the headwaters downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BEHC001.18 (Impaired for VSCI). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_EHC01A00 / East Hawksbill Creek / East Hawksbill Creek from the headwaters downstream to its confluence with Hawksbill Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	9.38

East Hawksbill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.38

Sources: Agriculture; Non-Point Source

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B39R-03-PH** Rocky Branch

Cause Location: Rocky Branch from the headwaters downstream to its confluence with Pass Run .

Cause City/County: Page County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at USGS station: 0163054325. Initial Listing Date: 2004

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_RKB01A00 / Rocky Branch / Rocky Branch from the headwaters downstream to its confluence with Pass Run.	5A	pH	2004	L	4.25

Rocky Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.25

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B39R-03-TEMP Pass Run

Cause Location: Pass Run from the headwaters downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 1BPSS-FP17-FOSR (8 exceedances of 35 temperature samples level II in 2022). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_PSS01A00 / Pass Run / Pass Run from the headwaters downstream to its confluence with Hawksbill Creek.	5A	Temperature	2010	L	9.48

Pass Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			9.48

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B39R-04-BEN Dry Run

Cause Location: Dry Run from the outfall of Lake Arrowhead downstream to its confluence with Hawksbill Creek.

Cause City/County: Page County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BDRI000.21 (Impaired for VSCI). Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B39R_DRI01A00 / Dry Run / Dry Run from the Lake Arrowhead outfall downstream to its confluence with Hawksbill Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	5.52

Dry Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.52

Sources: Agriculture; Dam or Impoundment; Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B40R-01-BAC Jeremys Run

Cause Location: Jeremys Run from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Page County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BJER000.62 (26 exceedances of 60 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_JER01A00 / Jeremy's Run / Jeremy's Run from the Shenandoah National Park boundary downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2012	L	4.55
VAV-B40R_JER02A10 / Jeremy's Run / Jeremy's Run from the headwaters downstream to the Shenandoah National Park boundary.	5A	Escherichia coli (E. coli)	2012	L	7.15

Jeremys Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.7

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B40R-02-BAC** **Flint Run**

Cause Location: Flint Run and tributary from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment remains impaired due to exceedances of the e-coli WQS at station: 1BFNT002.16 (41 exceedances of 60 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2004

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_FNT01A00 / Flint Run / Flint Run from a point 4 miles upstream of the South Fork Shenandoah River downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2016	L	4.10
VAV-B40R_FNT02A10 / Flint Run / Flint Run from the headwaters downstream to a point 4 miles upstream of the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2016	L	3.35
VAV-B40R_XFT01A10 / Flint Run X-trib / Flint Run X-trib from the headwaters downstream to its confluence with Flint Run.	5A	Escherichia coli (E. coli)	2016	L	5.14

Flint Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.59

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B40R-03-BAC** **Gooney Run**

Cause Location: Gooney Run and tributaries (Greasy Run, Lands Run, Smith Creek) from the headwaters downstream to its confluence with the South Fork Shenandoah River. (Start Mile: 20.18 End Mile: 0.00 Total Impaired Size: 20.18 Miles)

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BGNY000.04 (2022-insufficient E.coli information with one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean- revised E.coli WQS analysis). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_GNY01A00 / Gooney Run / Gooney Run from its confluence with Broad Run downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2010	L	6.73
VAV-B40R_GNY02A10 / Gooney Run / Gooney Run from its headwaters downstream to its confluence with Broad Run.	5A	Escherichia coli (E. coli)	2010	L	3.39
VAV-B40R_GRS01A10 / Greasy Run / Greasy Run from the headwaters downstream to its confluence with Gooney Run.	5A	Escherichia coli (E. coli)	2010	L	3.65
VAV-B40R_LND01A10 / Lands Run / Lands Run from its headwaters downstream to its confluence with Gooney Run.	5A	Escherichia coli (E. coli)	2010	L	3.97
VAV-B40R_SMC02A10 / Smith Creek / Smith Creek from the headwaters downstream to its confluence with Gooney Run.	5A	Escherichia coli (E. coli)	2010	L	2.44

Gooney Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.18

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B40R-03-TEMP Gooney Run

Cause Location: Gooney Run and tributary (Lands Run) from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Warren County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 1BGNY000.04 (2022: 6 exceedances of 48 temperature samples- Class V; 7 exceedances of 48 temperature samples- Class VI).
 Initial Listing Date: 2018 (re-listing from 2016 of Stockable and Natural Trout waters)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_GNY01A00 / Gooney Run / Gooney Run from its confluence with Broad Run downstream to its confluence with the South Fork Shenandoah River.	5A	Temperature	2006	L	6.73
VAV-B40R_GNY02A10 / Gooney Run / Gooney Run from its headwaters downstream to its confluence with Broad Run.	5A	Temperature	2008	L	3.39
VAV-B40R_LND01A10 / Lands Run / Lands Run from its headwaters downstream to its confluence with Gooney Run.	5A	Temperature	2008	L	3.97

Gooney Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			14.09

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B40R-04-BAC** **South Fork Shenandoah River**

Cause Location: South Fork Shenandoah River from its confluence with Dry Mine Run downstream to its confluence with Gooney Run.

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River stations: 1BSSF-FWIH-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period represented by 10+ samples) and 1BSSF-FWAGSP-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B40R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Andy Guest State Park STP outfall downstream to its confluence with Gooney Run.	5A	Escherichia coli (E. coli)	2022	L	6.61
VAV-B40R_SSF01B14 / South Fork Shenandoah River / South Fork Shenandoah River from the Bentonville Landing Bridge downstream to the Andy Guest State Park STP outfall.	5A	Escherichia coli (E. coli)	2022	L	2.18
VAV-B40R_SSF01C14 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Dry Mine Run downstream to the Bentonville Landing Bridge.	5A	Escherichia coli (E. coli)	2022	L	10.35

South Fork Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.14

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B41R-01-BAC** **Happy Creek**

Cause Location: Happy Creek from the headwaters downstream to its confluence with the South Fork Shenandoah River. (Start Mile: 8.55 End Mile: 0.00 Total Impaired Size: 8.55 Miles)

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli WQS at station: 1BHPY001.29. (3 exceedances of 12 samples for e-coli in 2018, no new data 2022) Initial Listing Date: 2004. Additional data collected at 1BHPY000.10 (5 exceedances of 12 samples for e-coli in 2020, no new data 2022). This segment is included in the EPA Approved Happy Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B41R_HPY01A00 / Happy Creek / Happy Creek from the Front Royal Public Water Intake downstream to its confluence with the South Fork Shenandoah River. (non-PWS waters)	4A	Escherichia coli (E. coli)	2014	L	5.71
VAV-B41R_HPY02A00 / Happy Creek / Happy Creek from the headwaters downstream to the Front Royal Public Water Intake.	4A	Escherichia coli (E. coli)	2014	L	2.85

Happy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.56

Sources: Agriculture; Impervious Surface/Parking Lot Runoff; Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B41R-02-PCB South Fork Shenandoah River/North Fork Shenandoah River/Shenandoah River

Cause Location: South Fork Shenandoah River from the Rivermont Drive Bridge downstream to the VA/WV state line on the Shenandoah River (inclusive of the North Fork Shenandoah River from its confluence with Passage Creek downstream to its confluence with the South Fork Shenandoah River).

Cause City/County: Clarke County; Warren County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: This segment is impaired due to the presence of PCB's in fish tissue at stations: 1BSSF000.19 (2020-1 sample with PCB in Channel Catfish); 1BSHN053.63 (2020- 2 samples of PCB in Carp & Channel Catfish); 1BSHN028.15 (2020- 2 samples with PCB in Carp and Channel Catfish); 1BSHN038.27 (2020- 3 samples of PCB in Carp, Walleye, & Channel Catfish). Initial Listing Date: 1998; This segment is included in the EPA approved Shenandoah River PCB TMDL. VDH Fish Consumption Advisory for PCBs, effective 5/17/89; modified 12/13/04. For more information visit <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/>

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B41R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cabin Run downstream to its confluence with the North Fork Shenandoah River.	4A	PCBs in Fish Tissue	1998	L	1.85
VAV-B41R_SSF02A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Rivermont Drive Bridge downstream to its confluence with Cabin Run.	4A	PCBs in Fish Tissue	1998	L	2.45
VAV-B51R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from the old dam site at the boat ramp downstream to its confluence with the South Fork Shenandoah River.	4A	PCBs in Fish Tissue	1998	L	0.71
VAV-B51R_NFS02A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Passage Creek downstream to the old dam site at the boat ramp.	4A	PCBs in Fish Tissue	1998	L	4.71
VAV-B55R_SHN01A00 / Shenandoah River / Shenandoah River from its confluence with Oregon Hollow downstream to its confluence with Long Branch.	4A	PCBs in Fish Tissue	1998	L	8.52
VAV-B55R_SHN01B10 / Shenandoah River / Shenandoah River from the power plant dam near Front Royal downstream to its confluence with Oregon Hollow.	4A	PCBs in Fish Tissue	1998	L	4.42
VAV-B55R_SHN02A00 / Shenandoah River / Shenandoah River from the confluence of the North and South Fork's downstream to the power plant dam near Front Royal.	4A	PCBs in Fish Tissue	1998	L	3.66

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_SHN01A00 / Shenandoah River / Shenandoah River from the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake downstream to its confluence with Craig Run.	4A	PCBs in Fish Tissue	1998	L	5.00
VAV-B57R_SHN02A22 / Shenandoah River / Shenandoah River from its confluence with Long Branch downstream to the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake.	4A	PCBs in Fish Tissue	1998	L	6.44
VAV-B58R_SHN01A00 / Shenandoah River / Shenandoah River from its confluence with Dog Run downstream to the VA/WVA State Line.	4A	PCBs in Fish Tissue	1998	L	5.11
VAV-B58R_SHN02A00 / Shenandoah River / Shenandoah River from its confluence with Craig Run downstream to its confluence with Dog Run.	4A	PCBs in Fish Tissue	1998	L	2.81

South Fork Shenandoah River/North Fork Shenandoah River/Shenandoah River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			45.68

Sources: Contaminated Sediments

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B41R-03-BEN** Happy Creek

Cause Location: Happy Creek from the headwaters downstream to its confluence with the South Fork Shenandoah River.

Cause City/County: Warren County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BHPY001.29 (Impaired for VSCI). Initial Listing Date: 2008. Additional benthic data collected at 1BHPY002.67 (Impaired for VSCI). This segment is included in the EPA Approved Happy Creek Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B41R_HPY01A00 / Happy Creek / Happy Creek from the Front Royal Public Water Intake downstream to its confluence with the South Fork Shenandoah River. (non-PWS waters)	4A	Benthic Macroinvertebrates Bioassessments	2008	L	5.71
VAV-B41R_HPY02A00 / Happy Creek / Happy Creek from the headwaters downstream to the Front Royal Public Water Intake.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.85

Happy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.56

Sources: Agriculture; Erosion and Sedimentation; Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Non-Point Source; Streambank Erosion

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B41R-04-BAC South Fork Shenandoah River

Cause Location: South Fork Shenandoah River from its confluence with Gooney Run downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BSSF003.56 (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period represented by 10+ samples); and 1BSSF009.58 (2 exceedances of 13 samples in 2014, no new data 2022). Additional data collected at 1BSSF000.19 (5 exceedances of 12 samples for e-coli in 2018, no new data 2022) and Friends of the Shenandoah River station 1BSSF-FW14-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B41R_SSF01A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Cabin Run downstream to its confluence with the North Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2012	L	1.85
VAV-B41R_SSF02A00 / South Fork Shenandoah River / South Fork Shenandoah River from the Rivermont Drive Bridge downstream to its confluence with Cabin Run.	5A	Escherichia coli (E. coli)	2012	L	2.45
VAV-B41R_SSF03A00 / South Fork Shenandoah River / South Fork Shenandoah River from the 5 mile upper limit of the PWS designation for the Front Royal Public Water Intake downstream to the Rivermont Drive Bridge.	5A	Escherichia coli (E. coli)	2012	L	1.55
VAV-B41R_SSF04A00 / South Fork Shenandoah River / South Fork Shenandoah River from its confluence with Gooney Run downstream approximately 4.5 miles.	5A	Escherichia coli (E. coli)	2010	L	4.47

South Fork Shenandoah River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.32

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B42R-01-BAC Crab Run

Cause Location: Crab Run from the VA/WVA line downstream to its confluence with the German River. (Start Mile: 3.93 End Mile: 0.00 Total Impaired Size: 3.93 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BCRB000.18 (2 exceedances of 11 samples for e-coli in 2020, no new data 2022). The bacteria impairment is nested into the EPA approved North Fork Shenandoah Bacteria TMDL. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B42R_CRB01A00 / Crab Run / Crab Run from the VA/WVA state line downstream to its confluence with the German River.	4A	Escherichia coli (E. coli)	2010	L	3.93

Crab Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.93

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B42R-01-BEN** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with the German River downstream to its confluence with Capon Run (Start Mile: 107.67 End Mile: 105.08 Total Impaired Size: 2.59 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BNFS107.86 (Impaired for VSCI) This site is improving with samples fully supporting in 2020, additional data needed. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B42R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with the German River downstream to its confluence with Capon Run.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.59

North Fork Shenandoah River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.59

Sources: Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: **B42R-02-BAC** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with the German River downstream to its confluence with Capon Run (Start Mile: 107.67 End Mile: 105.08 Total Impaired Size: 2.59 Miles)

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BNFS-EC01-FOSR (2 exceedances of 9 samples for e-coli). This impairment is nested into the EPA approved North Fork Shenandoah Bacteria TMDL. Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B42R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with the German River downstream to its confluence with Capon Run.	4A	Escherichia coli (E. coli)	2018	L	2.59

North Fork Shenandoah River

Recreation	<table> <tr> <td style="text-align: center;">Estuary (Sq. Miles)</td> <td style="text-align: center;">Reservoir (Acres)</td> <td style="text-align: center;">River (Miles)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">2.59</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)			2.59
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)					
		2.59					
Escherichia coli (E. coli) - Total Impaired Size by Water Type:							

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B44R-01-BAC** **Runions Creek**

Cause Location: Runions Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BRUN001.09 (4 exceedances of 12 samples for e-coli in 2014, no new data available in 2022). Initial Listing Date: 2010 This segment is included in the EPA approved North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B44R_RUN01A00 / Runion Creek / Runion Creek and tributary from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2010	L	14.8

Runions Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.8

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B44R-03-BAC** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with Little Dry River downstream to its confluence with Runion Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BNFS096.53 (revised E.coli WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples equals impairment). Initial listing date: 2022. The E.coli impairment is included in the EPA approved North Fork Shenandoah River TMDL for bacteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B44R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Little Dry River downstream to its confluence with Runion Creek.	4A	Escherichia coli (E. coli)	2022	L	4.22

North Fork Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.22

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B45R-01-BAC** **Long Meadow Run**

Cause Location: Long Meadow Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLOM001.45 (25 exceedances of 30 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002; This segment was included in the EPA approved North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_LOM01A00 / Long Meadow Run / Long Meadow Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	9.85

Long Meadow Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.85

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B45R-01-BEN** Long Meadow Run

Cause Location: Long Meadow Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BLOM000.24 (Impaired for VSCI). Initial Listing Date 2008. This segment is included in the EPA Approved Long Meadow Run Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_LOM01A00 / Long Meadow Run / Long Meadow Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	9.85

Long Meadow Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.85

Sources: Agriculture; Groundwater Loadings; Livestock (Grazing or Feeding Operations); Streambank Erosion

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B45R-02-BAC** Turley Creek

Cause Location: Turley Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 1BTRL000.02 (13 exceedances of 30 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002. This segment is included in the EPA approved North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_TRL01A00 / Turley Creek / Turley Creek from just above its confluence with an unnamed tributary originating near Turleytown downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2010	L	2.20
VAV-B45R_TRL02A00 / Turley Creek / Turley Creek from the headwaters downstream to just above an unnamed tributary originating near Turleytown.	4A	Escherichia coli (E. coli)	2010	L	1.84

Turley Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.04

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B45R-02-BEN** Turley Creek

Cause Location: Turley Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BTRL000.02 (Impaired for VSCI). Initial Listing Date: 2002. This segment is included in the EPA approved Turley Creek Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_TRL01A00 / Turley Creek / Turley Creek from just above its confluence with an unnamed tributary originating near Turleytown downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	2.20
VAV-B45R_TRL02A00 / Turley Creek / Turley Creek from the headwaters downstream to just above an unnamed tributary originating near Turleytown.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	1.84

Turley Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.04

Sources: Agriculture; Groundwater Loadings; Livestock (Grazing or Feeding Operations); Streambank Erosion

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B45R-03-BAC** **Holmans Creek**

Cause Location: Holmans Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BHMN002.09 (13 exceedances of 24 samples for e-coli in 2014, no data in 2022). Initial Listing Date: 1996; This impairment is included in the EPA approved Holmans Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_HMN01A00 / Holmans Creek / Holmans Creek from its confluence with an unnamed tributary at the Quicksburg Road bridge downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	5.23
VAV-B45R_HMN02A00 / Holmans Creek / Holmans Creek from the Flat Rock Road bridge near Moores Store downstream to its confluence with an unnamed tributary at the Quicksburg Road bridge crossing.	4A	Escherichia coli (E. coli)	2008	L	2.65
VAV-B45R_HMN03A00 / Holmans Creek / Holmans Creek from the headwaters downstream to the Flat Rock Road bridge crossing near Moores Store.	4A	Escherichia coli (E. coli)	2008	L	3.22

Holmans Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.1

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B45R-03-BEN** **Holmans Creek**

Cause Location: Holmans Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BHMN002.09 Impaired for VSCI) and 1BHMN007.59 (Impaired for VSCI). Initial Listing Date: 1996; This segment is included in the EPA approved Holmans Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_HMN01A00 / Holmans Creek / Holmans Creek from its confluence with an unnamed tributary at the Quicksburg Road bridge downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.23
VAV-B45R_HMN02A00 / Holmans Creek / Holmans Creek from the Flat Rock Road bridge near Moores Store downstream to its confluence with an unnamed tributary at the Quicksburg Road bridge crossing.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	2.65
VAV-B45R_HMN03A00 / Holmans Creek / Holmans Creek from the headwaters downstream to the Flat Rock Road bridge crossing near Moores Store.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.22

Holmans Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			11.1

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B45R-04-BAC** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with Turley Creek downstream to the 5 mile upper limit of the PWS designation for the Woodstock Public Water Intake.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BNFS-NR02-FOSR (Friends of Shenandoah, no new data 2022); 1BNFS090.16 (no new data 2022); 1BNFS081.42 (2 exceedances of 6 samples for e-coli in 2016, no new data 2022); 1BNFS073.75 (2 exceedances of 11 samples for e-coli in 2018, no new data 2022); additional impaired data collected at 1BNFS070.67 (2022 cycle revised E.coli WQS: Impaired- 2 or more STV hits in the same 90-day period with < 10 samples); 1BNFS-EC03-FOSR (4 exceedances of 10 samples for e-coli in 2018, no new data 2022); 1BNFS076.56 (3 exceedances of 11 samples for e-coli in 2018, no new data 2022); 1BNFS-FSMB-FOSR (2022 cycle revised E.coli WQS: Impaired - 2 or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 1996; This assessment unit was included in the EPA approved North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_NFS02B08 / North Fork Shenandoah River / North Fork Shenandoah River from the dam near Timberville downstream to the confluence with Fort Run.	4A	Fecal Coliform	2008	L	1.06
VAV-B45R_NFS02C10 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Linville Creek downstream to the dam near Timberville.	4A	Fecal Coliform	2008	L	0.93

North Fork Shenandoah River

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 1.99

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Holmans Creek downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2012	L	3.59
VAV-B45R_NFS01B14 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Plains Mill Spring Run downstream to its confluence with Holmans Creek.	4A	Escherichia coli (E. coli)	2008	L	7.08
VAV-B45R_NFS02A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Fort Run downstream to its confluence with Plains Mill Spring Run.	4A	Escherichia coli (E. coli)	2008	L	4.48

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_NFS03A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Turley Creek downstream to its confluence with Linville Creek.	4A	Escherichia coli (E. coli)	2012	L	2.94
VAV-B48R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Smith Creek downstream to its confluence with Stony Creek.	4A	Escherichia coli (E. coli)	2008	L	12.25
VAV-B50R_NFS04A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Stony Creek downstream to the 5 mile upper limit of the PWS designation for the Woodstock Public Water Intake.	4A	Escherichia coli (E. coli)	2012	L	4.29

North Fork Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			34.63

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B45R-05-BEN** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with Linville Creek downstream to its confluence with Holmans Creek. (Start Mile: 89.24 End Mile: 75.71 Total Impaired Size: 13.53 Miles).

Cause City/County: Rockingham County; Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BNFS087.35 (Impaired for VSCI) and 1BNFS088.81 (Impaired for VSCI, added in 2012 cycle) . Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B45R_NFS01B14 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Plains Mill Spring Run downstream to its confluence with Holmans Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	7.08
VAV-B45R_NFS02A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Fort Run downstream to its confluence with Plains Mill Spring Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	4.48
VAV-B45R_NFS02B08 / North Fork Shenandoah River / North Fork Shenandoah River from the dam near Timberville downstream to the confluence with Fort Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.06
VAV-B45R_NFS02C10 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Linville Creek downstream to the dam near Timberville.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	0.93

North Fork Shenandoah River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			13.55

Sources: Industrial Point Source Discharge; Municipal (Urbanized High Density Area); Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-01-BAC** Linville Creek

Cause Location: Linville Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLNV001.22 (2022 revised E.coli WQS: 2 or more STV hits in the same 90-day period with less than 10 samples) and 1BLNV006.49 (48 exceedances of 71 samples for e-coli in 2020, no new data 2022). Additional data collected at Friends of Shenandoah River station 1BLNV-NR01-FOSR (2022 revised E.coli WQS: 2 or more STV hits in the same 90-day period with less than 10 samples = impairment). Initial Listing Date: 1996; This impairment was included in the EPA approved Linville Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_LNV01A00 / Linville Creek / Linville Creek from the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2004	L	5.38
VAV-B46R_LNV02A04 / Linville Creek / Linville Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake.	4A	Escherichia coli (E. coli)	2004	L	9.00

Linville Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.38

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-01-BEN** Linville Creek

Cause Location: Linville Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BLNV000.16 (Impaired for VSCI) and 1BLNV000.71 (Impaired for VSCI). Initial Listing Date: 1996; This impairment was included in the EPA approved Linville Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_LNV01A00 / Linville Creek / Linville Creek from the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.38
VAV-B46R_LNV02A04 / Linville Creek / Linville Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	9.00

Linville Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		14.38

Sources: Agriculture; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-02-BAC** **Daphna Creek**

Cause Location: Daphna Creek from the headwaters downstream to its confluence with Linville Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River station: 1BDPH-LC05-FOSR ((5 exceedances of 7 samples for e-coli in 2020 (Level III data), no new data 2022). Initial Listing Date: 2018. This impairment is included in the EPA Approved Linville Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_DPH01A00 / Daphna Creek / Daphna Creek from the headwaters downstream to its confluence with Linville Creek.	4A	Escherichia coli (E. coli)	2018	L	3.25

Daphna Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.25

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-03-BAC** **Joes Creek**

Cause Location: Joes Creek from the headwaters downstream to its confluence with Linville Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River station: 1BJOE-LC004-FOSR (7 exceedances of 7 samples for e-coli in 2020 (level III data), no new data 2022). Initial Listing Date: 2018. This impairment is included in the EPA Approved Linville Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_JOE01A00 / Joe's Creek / Joes Creek from the headwaters downstream to its confluence with Linville Creek.	4A	Escherichia coli (E. coli)	2018	L	7.05

Joes Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.05

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-04-BAC** **West Fork Linville Creek**

Cause Location: West Fork Linville Creek from the headwaters downstream to its confluence with Linville Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River station: 1BLVW-LC01-FOSR (6 exceedances of 7 samples for e-coli in 2020 (level III data), no new data 2022). Initial Listing Date: 2018. This impairment is included in the EPA Approved Linville Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_LVW01A18 / West Fork Linville Creek. / West Fork Linville Creek from the headwaters downstream to its confluence with Linville Creek.	4A	Escherichia coli (E. coli)	2018	L	5.62

West Fork Linville Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.62

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B46R-05-BAC** **Tide Spring Branch**

Cause Location: Tide Spring Branch from the headwaters downstream to its confluence with Linville Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BTSS-LC03-FOSR (6 exceedances of 7 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2018. This impairment is included in the EPA Approved Linville Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B46R_TSB01A00 / Tide Spring Branch / Tide Spring Branch from the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake downstream to its confluence with Linville Creek.	4A	Escherichia coli (E. coli)	2018	L	0.68
VAV-B46R_TSB02A04 / Tide Spring Branch / Tide Spring Branch from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Broadway Public Water Intake.	4A	Escherichia coli (E. coli)	2018	L	2.20

Tide Spring Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.88

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-01-BEN** **Fridley Run**

Cause Location: Fridley Run from the headwaters downstream to its confluence with Mountain Run.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at USFS station: 4074 (Impaired for USFS MAIS Benthic Macro Invertebrate survey). Additional data collected at DEQ station 1BFDY000.02 (Impaired for VSCI). Initial Listing Date: 2002.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_FDY01A02 / Fridley Run / Fridley Run from the headwaters downstream to its confluence with Mountain Run.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	2.39

Fridley Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.39

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-01-PH** **Fridley Run**

Cause Location: Fridley Run from the headwaters downstream to its confluence with Mountain Run. (Start Mile: 2.38 End Mile: 0.00 Total Impaired Size: 2.38 Miles)

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 1BFDY000.02 (25 excursions of 44 samples for pH). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_FDY01A02 / Fridley Run / Fridley Run from the headwaters downstream to its confluence with Mountain Run.	5A	pH	2006	L	2.39

Fridley Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.39

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B47R-02-BAC Mountain Run/Smith Creek/War Branch

Cause Location: Mountain Run from the headwaters downstream to its confluence with Smith Creek; Smith Creek from the headwaters (including x-trib) downstream to its confluence with the North Fork Shenandoah River; War Branch from the headwaters downstream to its confluence with Smith Creek.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These segments are impaired due to exceedances of the e-coli bacteria WQS at stations: 1BMTR000.93 (2022-revised E.coli WQS analysis: impaired with two STV hits in the same 90-day period with less than 10 samples); 1BSMT004.60 (2022-revised E.coli WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples); 1BSMT023.18 (2022-revised E.coli WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples); 1BSMT026.41 (8 exceedances of 12 samples for e-coli in 2018, no new data 2022); 1BXSG-SC 1-FOSR (10 exceedances of 12 samples for e-coli in 2016, no new data 2022); 1BXSG-SC-2-FOSR (20 exceedances of 24 samples for e-coli in 2016, no new data 2022); 1BWAR003.88 (2022-revised E.coli WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples). Initial Listing Dates: 2006 (Mountain Run), 1996 (Smith Creek), 2012 (Smith Creek X-trib), 2008 (War Branch); These segments are included in the EPA approved Smith Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_MTN01A00 / Mountain Run / Mountain Run and tributary from Route 722 downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2006	L	4.13
VAV-B47R_MTN01B22 / Mountain Run / Mountain Run from its confluence with Fridley Run downstream to Route 722.	4A	Escherichia coli (E. coli)	2006	L	1.57
VAV-B47R_MTN02A00 / Mountain Run / Mountain Run from the headwaters downstream to its confluence with Fridley Run.	4A	Escherichia coli (E. coli)	2006	L	0.95
VAV-B47R_SMT01A00 / Smith Creek / Smith Creek from the New Market Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	14.10
VAV-B47R_SMT02A00 / Smith Creek / Smith Creek from its confluence with War Branch downstream to the New Market Public Water Intake.	4A	Escherichia coli (E. coli)	2008	L	5.44
VAV-B47R_SMT03A00 / Smith Creek / Smith Creek from its confluence with Dry Fork downstream to its confluence with War Branch.	4A	Escherichia coli (E. coli)	2008	L	6.89
VAV-B47R_SMT04A00 / Smith Creek / Smith Creek from the headwaters downstream to its confluence with Dry Fork.	4A	Escherichia coli (E. coli)	2012	L	9.22
VAV-B47R_WAR01A00 / War Branch / War Branch from the headwaters downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2008	L	7.11
VAV-B47R_XSG01A12 / X-trib to Smith Creek / X-trib to Smith Creek from the headwaters downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2012	L	1.17

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Mountain Run/Smith Creek/War Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			50.58

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-03-BAC** **Lacey Spring Branch**

Cause Location: Lacey Spring Branch from the spring downstream to its confluence with Smith Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli WQS at station: 1BLAC-SCL-FOSR (7 exceedances of 22 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2014; This impairment is included in the EPA approved Smith Creek Bacteria TMDL

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_LAC01A00 / Lacey Spring Branch / Lacey Spring Branch from the spring downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2014	L	0.6

Lacey Spring Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.6

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-03-BEN** Lacey Spring Branch

Cause Location: Lacey Spring Branch from the spring downstream to its confluence with Smith Creek.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment remains impaired due to severely impaired benthic ratings in previous assessment cycles. It was not visited during the 2022 cycle. Initial Listing Date: 1998; The aquatic life impairment is included in the EPA approved TMDL for Commercial Fish farms.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_LAC01A00 / Lacey Spring Branch / Lacey Spring Branch from the spring downstream to its confluence with Smith Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.6

Lacey Spring Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.6

Sources: Aquaculture (Permitted)

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-05-BEN** **Smith Creek**

Cause Location: Smith Creek from the Shenandoah Fisheries outfall downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BSMT06.62 (Impaired for VSCI). Additional data collected at 1BSMT009.08 (Impaired for VSCI in 2016). Initial Listing Date: 1998; This segment is included in the EPA approved Smith Creek benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_SMT01A00 / Smith Creek / Smith Creek from the New Market Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	14.10
VAV-B47R_SMT02A00 / Smith Creek / Smith Creek from its confluence with War Branch downstream to the New Market Public Water Intake.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	5.44
VAV-B47R_SMT03A00 / Smith Creek / Smith Creek from its confluence with Dry Fork downstream to its confluence with War Branch.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	6.89

Smith Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			26.43

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Streambank Erosion

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: **B47R-06-BAC** **Dry Fork**

Cause Location: Dry Fork from the headwaters downstream to its confluence with Smith Creek.

Cause City/County: Rockingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 1BDFK000.76 (40 exceedances of 71 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2004. This impairment is addressed in the EPA approved Smith Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_DFK01A00 / Dry Fork / Dry Fork and tributary from the headwaters downstream to its confluence with Smith Creek.	4A	Escherichia coli (E. coli)	2012	L	10.85

Dry Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.85

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B47R-07-BEN** Dry Fork

Cause Location: Dry Fork from the headwaters downstream to its confluence with Smith Creek.

Cause City/County: Rockingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BDFK003.82 (Impaired for VSCI) and 1BDFK004.03 (Impaired for VSCI) in the 2010 cycle, no new data in 2022. Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B47R_DFK01A00 / Dry Fork / Dry Fork and tributary from the headwaters downstream to its confluence with Smith Creek.	5A	Benthic Macroinvertebrates Bioassessments	2006	L	10.85

Dry Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.85

Sources: Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B48R-01-BAC Mill Creek

Cause Location: Mill Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Rockingham County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at stations: 1BMIL002.20 (3 exceedances of 12 samples for e-coli in 2016, no new data 2022) and 1BMIL005.67 (2 exceedances of 13 samples for fecal coliform in 2008, no new data 2022). Additional data collected at 1BMIL000.33 (1 exceedances of 11 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002; This segment is included in the EPA approved Mill Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B48R_MIL01A00 / Mill Creek / Mill Creek from its confluence with Crooked Run downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2012	L	2.89
VAV-B48R_MIL02A04 / Mill Creek / Mill Creek from a point 3.5 miles above Mt. Jackson downstream to its confluence with Crooked Run.	4A	Escherichia coli (E. coli)	2012	L	1.67

Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.56

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B48R_MIL02B10 / Mill Creek / Mill Creek from its confluence with Straight Run downstream to a point 3.5 miles above Mt. Jackson.	4A	Fecal Coliform	2002	L	3.24
VAV-B48R_MIL03A04 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with Straight Run.	4A	Fecal Coliform	2002	L	7.88

Mill Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.12

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B48R-02-BEN** **Crooked Run**

Cause Location: Crooked Run from the headwaters downstream to its confluence with Mill Creek.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BCKD000.38 (Impaired for VSCI). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B48R_CKD01A00 / Crooked Run / Crooked Run from its headwaters downstream to its confluence with Mill Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	4.08

Crooked Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.08

Sources: Agriculture; Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B49L-01-DO Lake Laura

Cause Location: Lake Laura

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: Remains impaired for aquatic life use due to DO WQS exceedances (58/135). All TSI calculations <60, therefore DO impairment is due to pollution from natural sources-No TMDL needed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49L_STY01A10 / Lake Laura / Lake Laura	4C	Dissolved Oxygen	NA	NA	46.25

Lake Laura

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		46.25	

Sources: Natural Sources

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Potomac and Shenandoah River Basins

Cause Group Code: B49R-01-BAC Stony Creek

Cause Location: Stony Creek from its confluence with Riles Run downstream to its confluence with the North Fork Shenandoah River. Segmentation error corrected in 2012, impairment length shortened to align with assessment unit boundaries.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BSTY001.22 (2 exceedances of 11 samples for e-coli in 2018, no new data 2022) and 1BSTY013.85 (2022- no STV exceedances but insufficient data to analyze geomean); Initial Listing Date: 1998; This segment was included in the EPA approved Stony Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_STY01A00 / Stony Creek / Stony Creek from the Route 682 (Wakemans Grove Road) bridge crossing downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	4.59
VAV-B49R_STY02A00 / Stony Creek / Stony Creek from the Georges Chicken discharge downstream to the Route 682 (Wakemans Grove Road) bridge crossing.	4A	Escherichia coli (E. coli)	2008	L	1.27
VAV-B49R_STY03A00 / Stony Creek / Stony Creek from its confluence with Yellow Spring Run downstream to the Georges Chicken discharge.	4A	Escherichia coli (E. coli)	2012	L	3.44
VAV-B49R_STY04A04 / Stony Creek / Stony Creek from its confluence with Riles Run downstream to its confluence with Yellow Spring Run.	4A	Escherichia coli (E. coli)	2008	L	4.69

Stony Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.99

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B49R-01-BEN Stony Creek

Cause Location: Stony Creek from its confluence with Yellow Spring Run downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BSTY004.24 (Impaired for VSCI) and 1BSTY005.91 (Impaired for VSCI). Additional data collected at 1BSTY004.68 (Impaired for VSCI). Initial Listing Date: 2008. This impairment was lengthened (added upstream segment) in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_STY01A00 / Stony Creek / Stony Creek from the Route 682 (Wakemans Grove Road) bridge crossing downstream to its confluence with the North Fork Shenandoah River.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	4.59
VAV-B49R_STY02A00 / Stony Creek / Stony Creek from the Georges Chicken discharge downstream to the Route 682 (Wakemans Grove Road) bridge crossing.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	1.27
VAV-B49R_STY03A00 / Stony Creek / Stony Creek from its confluence with Yellow Spring Run downstream to the Georges Chicken discharge.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	3.44

Stony Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.3

Sources: Agriculture; Municipal (Urbanized High Density Area); Non-Point Source; Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B49R-05-TEMP** **Little Stony Creek**

Cause Location: Little Stony Creek and tributary from the headwaters of the tributary and the confluence of the tributary with Little Stony Creek near USFS Road 92 downstream to the confluence with Stony Creek.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 1BLSC000.50 (3 exceedances of 10 for temperature in 2016, no new data 2022). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_LSC01B08 / Little Stony Creek / Little Stony Creek and tributary from the headwaters of the tributary and the confluence of the tributary with Little Stony Creek near USFS Road 92 downstream to the confluence with Stony Creek.	5A	Temperature	2012	L	4.91

Little Stony Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.91

Sources: Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: **B49R-07-TEMP** **Stony Creek**

Cause Location: Stony Creek from the Lake Laura dam outfall downstream to the Route 682 bridge (Wakeman's Grove Road). This impairment's downstream extent was modified in 2012 and the impairment lengthened based on additional data.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: ; 1BSTY019.70 (2 exceedances of 13 samples for temperature in 2010, no new data 2022); 1BSTY-NS30-FOSR (9 exceedances of 71 samples for temperature in 2018, no new level III data); 1BSTY-NS58-FOSR (7 exceedances of 70 samples for temperature); and 1BSTY-NS29-FOSR (9 exceedances of 74 samples for temperature in 2018, no new level III data). Additional data collected at 1BSTY013.85 (2 exceedances of 12 samples for temperature in 2018, no new data 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_STY02A00 / Stony Creek / Stony Creek from the Georges Chicken discharge downstream to the Route 682 (Wakemans Grove Road) bridge crossing.	5A	Temperature	2002	L	1.27
VAV-B49R_STY03A00 / Stony Creek / Stony Creek from its confluence with Yellow Spring Run downstream to the Georges Chicken discharge.	5A	Temperature	2002	L	3.44
VAV-B49R_STY04A04 / Stony Creek / Stony Creek from its confluence with Riles Run downstream to its confluence with Yellow Spring Run.	5A	Temperature	2004	L	4.69
VAV-B49R_STY05A04 / Stony Creek / Stony Creek from the Lake Laura Dam downstream to its confluence with Riles Run.	5A	Temperature	2006	L	9.46

Stony Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			18.86

Sources: Agriculture; Non-Point Source; Source Unknown

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Potomac and Shenandoah River Basins

Cause Group Code: B49R-08-BAC Orkney Springs Run

Cause Location: Orkney Springs Run from the headwaters downstream to its confluence with Stony Creek above Lake Laura.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BXPB-OS01-FOSR (8 exceedances of 24 samples for e-coli in 2016, no data in 2022) and 1BXPB-OS03-FOSR (3 exceedances of 7 samples for e-coli in 2018, no data 2022). Initial Listing Date: 2012. This segment was included in the EPA approved Stony Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_XBP01A10 / Orkney Springs Run / Orkney Springs Run from the headwaters downstream to its confluence with Stony Creek.	4A	Escherichia coli (E. coli)	2012	L	2.19

Orkney Springs Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.19

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B49R-09-BAC** **Stony Creek**

Cause Location: Stony Creek from the headwaters downstream to the upper end of the normal pool of Lake Laura.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BSTY-STY03-FOSR (3 exceedances of 12 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 2014. This segment was included in the EPA approved Stony Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B49R_STY06A10 / Stony Creek / Stony Creek from the headwaters downstream to the upper end of the normal pool of Lake Laura.	4A	Escherichia coli (E. coli)	2014	L	3.5

Stony Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.5

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-01-BAC** **Toms Brook**

Cause Location: Toms Brook from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BTMB000.54 (3 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date; 2018. This impairment is nested into the North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_TMB01A00 / Toms Brook / Toms Brook from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2018	L	9.51

Toms Brook

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.51

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-01-BEN** **Toms Brook**

Cause Location: Toms Brook from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 1BTMB000.70 (Impaired for VSCI in 2018). This is a re-list of a previous impairment that is included in the EPA Approved Toms Brook Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_TMB01A00 / Toms Brook / Toms Brook from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	9.51

Toms Brook

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.51

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Streambank Erosion; Urban Development in Riparian Buffer

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-02-BAC** **Narrow Passage Creek**

Cause Location: Narrow Passage Creek from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BNPC000.02 (13 exceedances of 36 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002. This segment is included in the North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_NPC01A00 / Narrow Passage Creek / Narrow Passage Creek from the 5 mile upper limit of the PWS designation for the Woodstock Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	0.55
VAV-B50R_NPC02A00 / Narrow Passage Creek / Narrow Passage Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Woodstock Public Water Intake.	4A	Escherichia coli (E. coli)	2008	L	11.07

Narrow Passage Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.62

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-03-BAC** **Pughs Run**

Cause Location: Pughs Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BPGH000.60 (8 exceedances of 12 samples for e-coli in 2020, no data in 2022). Initial Listing Date: 2004 The bacteria impairment is nested into the North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_PGH01A00 / Pugh's Run / Pugh's Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	7

Pughs Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-03-BEN** **Pughs Run**

Cause Location: Pughs Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station(s): 1BPGH000.29 (Impaired for VSCI). Additional data collected at 1BPGH000.60 (Impaired for VSCI). Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_PGH01A00 / Pugh's Run / Pugh's Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	7

Pughs Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7

Sources: Agriculture; Non-Point Source; Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B50R-05-BAC** **Spring Hollow**

Cause Location: Spring Hollow from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at Friends of the Shenandoah River station: 1BXSH-NS64-FOSR (13 exceedances of 18 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 2012. This impairment is included in the EPA Approved North Fork Shenandoah River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B50R_XSH01A10 / Spring Hollow / Spring Hollow from the headwaters downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2012	L	6.4

Spring Hollow

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.4

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B51R-01-BAC** **Tumbling Run**

Cause Location: Tumbling Run from the headwaters downstream to its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BTBL001.27 (2022 cycle- revised E.coli WQS analysis: impaired with two or more STV hits in the same 90-day period with less than 10 samples). Additional E.coli data collected at 1BTBL-SVB05-FOSR(2022 cycle- revised E.coli WQS analysis: impaired with two or more STV hits in the same 90-day period with less than 10 samples). Initial Listing Date: 2004

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B51R_TBL01A00 / Tumbling Run / Tumbling Run from the 5 mile upper limit of the PWS designation for Strasburg Public Water Intake downstream to its confluence with the North Fork Shenandoah River.	4A	Escherichia coli (E. coli)	2022	L	3.07
VAV-B51R_TBL02A04 / Tumbling Run / Tumbling Run from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Strasburg Public Water Intake.	4A	Escherichia coli (E. coli)	2008	L	2.13

Tumbling Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.2

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B51R-01-HG North Fork Shenandoah River

Cause Location: North Fork Shenandoah River from its confluence with Passage Creek downstream to the old dam site at the boat ramp.

Cause City/County: Warren County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This segment is impaired due to the presence of Hg in fish tissue at station: 1BNFS000.57 (2 samples of Hg (largemouth bass and channel catfish) -2020). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B51R_NFS02A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Passage Creek downstream to the old dam site at the boat ramp.	5A	Mercury in Fish Tissue	2022	L	4.71

North Fork Shenandoah River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.71

Sources: Contaminated Sediments

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Potomac and Shenandoah River Basins

Cause Group Code: **B51R-02-BAC** North Fork Shenandoah River

Cause Location: North Fork Shenandoah River from the Route 55 bridge crossing downstream to its confluence with the South Fork Shenandoah River. The length of this impairment segment was extended in the 2022 cycle due to the impairment of one upstream segment.

Cause City/County: Shenandoah County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BNFS010.34 (2022 revised WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples), 1BNFS-EC06-FOSR (2022 revised E.coli WQS analysis: Impaired - two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples), 1BNFS000.57 (2022 revised E.coli WQS analysis- Impaired- two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B51R_NFS01A00 / North Fork Shenandoah River / North Fork Shenandoah River from the old dam site at the boat ramp downstream to its confluence with the South Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2008	L	0.71
VAV-B51R_NFS02A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Passage Creek downstream to the old dam site at the boat ramp.	5A	Escherichia coli (E. coli)	2008	L	4.71
VAV-B51R_NFS03A00 / North Fork Shenandoah River / North Fork Shenandoah River from the Winchester Public Water Intake downstream to its confluence with Passage Creek.	5A	Escherichia coli (E. coli)	2010	L	1.29
VAV-B51R_NFS04A00 / North Fork Shenandoah River / North Fork Shenandoah River from the Route 55 bridge crossing downstream to the Winchester Public Water Intake.	5A	Escherichia coli (E. coli)	2022	L	3.79

North Fork Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.5

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B51R-03-BAC** **South Fork Tumbling Run**

Cause Location: South Fork Tumbling Run from the headwaters downstream to its confluence with Tumbling Run.

Cause City/County: Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BSFT-SVB04-FOSR (revised E.coli WQS analysis = Impaired with two or more STV exceedances in the same 90-day period with less than 10 samples). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B51R_SFT01A20 / South Fork Tumbling Run / South Fork Tumbling Run from the 5 mile upper limit of the PWS designation for the Strasburg Public Water Intake downstream to its confluence with Tumbling Run.	4A	Escherichia coli (E. coli)	2022	L	1.57
VAV-B51R_SFT02A22 / South Fork Tumbling Run / South Fork Tumbling Run from the headwaters downstream to its 5 mile upper limit of the PWS designation for the Strasburg Public Water Intake.	4A	Escherichia coli (E. coli)	2022	L	2.02

South Fork Tumbling Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.59

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B51R-04-BAC** **North Fork Shenandoah River**

Cause Location: North Fork Shenandoah River from its confluence with Toms Brook downstream to the Route 55 bridge crossing.

Cause City/County: Shenandoah County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at DEQ station 1BNFS017.43 (2022 revised E.coli WQS analysis: 2 or more STV hits in the same 90-day period with < 10 samples); the Friends of the Shenandoah River level III station 1BNFS-EC06-FOSR (2022 revised E.coli WQS analysis: Impaired - two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples); DEQ station 1BNFS010.34 (2022 revised WQS analysis: two or more STV hits in the same 90-day period with less than 10 samples). Additional impaired E.coli data collected at FOSR station 1BNFS-FSDR-FOSR (2022 revised WQS analysis: 2 or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2022. These impairments are nested into the EPA approved North Fork Shenandoah River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B51R_NFS04B10 / North Fork Shenandoah River / North Fork Shenandoah River from the 5 mile upper limit of the PWS designation for the Winchester Public Water Intake downstream to the Route 55 bridge crossing.	4A	Escherichia coli (E. coli)	2022	L	1.22
VAV-B51R_NFS05A00 / North Fork Shenandoah River / North Fork Shenandoah River from the Strasburg Public Water Intake downstream to the 5 mile upper limit of the PWS designation for the Winchester Public Water Intake.	4A	Escherichia coli (E. coli)	2022	L	1.64
VAV-B51R_NFS06A00 / North Fork Shenandoah River / North Fork Shenandoah River from the 5 mile upper limit of the PWS designation for the Strasburg Public Water Intake downstream to the Strasburg Public Water Intake.	4A	Escherichia coli (E. coli)	2022	L	5.87
VAV-B51R_NFS07A00 / North Fork Shenandoah River / North Fork Shenandoah River from its confluence with Toms Brook downstream to the 5 mile upper limit of the PWS designation for the Strasburg Public Water Intake.	4A	Escherichia coli (E. coli)	2022	L	7.02

North Fork Shenandoah River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.75

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B52R-01-PH Cedar Creek

Cause Location: Cedar Creek from the headwaters downstream to the U.S. Forest Service boundary.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 1BCDR045.30 (3 excursions of 31 samples for pH in 2022). Additional data collected at 1BCDR045.33 (4 excursions of 6 samples for pH in 2022).
 Initial Listing Date: 2014 (Upstream assessment unit added in 2016)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B52R_CDR03B10 / Cedar Creek / Cedar Creek from its confluence with a spring branch near Van Buren Furnace downstream to the U.S. Forest Service boundary.	5A	pH	2014	L	4.83
VAV-B52R_CDR04A02 / Cedar Creek / Cedar Creek from the headwaters downstream to its confluence with a spring branch near Van Buren Furnace.	5A	pH	2016	L	3.46

Cedar Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			8.29

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B52R-02-BEN Orndorff Spring Branch

Cause Location: Orndorff Spring Branch from the spring downstream to its confluence with Cedar Creek.

Cause City/County: Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment remains impaired for aquatic life use based on a severely impaired benthic status during the 1998 cycle. This site has not had a benthic survey since. Initial Listing Date: 1998; This segment is included in the EPA approved TMDL for Impairments from Commercial Fish Farming operations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B52R_XOS01A00 / Orndorff Spring Branch / Orndorff Spring Branch from the spring down stream to its confluence with Cedar Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.24

Orndorff Spring Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			0.24

Sources: Aquaculture (Permitted)

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Potomac and Shenandoah River Basins

Cause Group Code: **B52R-04-BAC** Cedar Creek

Cause Location: Cedar Creek from its confluence with a spring branch near Van Buren Furnace downstream to its confluence with Duck Run. This impairment was lengthened in 2014 adding two downstream segments.

Cause City/County: Frederick County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BCDR023.47 (2 exceedances of 12 samples for e-coli in 2018, no new data 2022); 1BCDR028.86 (2022-one STV exceedance in multiple 90-day periods but insufficient data to analyze geomean); 1BCDR-CC06-FOSR (9 exceedances of 17 samples for e-coli in 2016, no new data 2022). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B52R_CDR02A00 / Cedar Creek / Cedar Creek from the Route 55 bridge crossing downstream to its confluence with Duck Run.	5A	Escherichia coli (E. coli)	2014	L	3.14
VAV-B52R_CDR02B10 / Cedar Creek / Cedar Creek from its confluence with Paddy Run downstream to the Route 55 bridge crossing.	5A	Escherichia coli (E. coli)	2014	L	6.08
VAV-B52R_CDR03A00 / Cedar Creek / Cedar Creek from the U.S. Forest Service boundary downstream to its confluence with Paddy Run.	5A	Escherichia coli (E. coli)	2012	L	2.77
VAV-B52R_CDR03B10 / Cedar Creek / Cedar Creek from its confluence with a spring branch near Van Buren Furnace downstream to the U.S. Forest Service boundary.	5A	Escherichia coli (E. coli)	2012	L	4.83

Cedar Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.82

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B52R-05-BAC Fall Run

Cause Location: Fall Run and its tributaries from the headwaters downstream to its confluence with Cedar Creek.

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BFLR000.57 (2022 cycle-
The recreation use impairment remains with insufficient data collected - one E.coli STV exceedance in multiple
90-day periods but insufficient data to analyze geomean). Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B52R_FLR01A14 / Fall Run / Fall Run and its tributaries from the headwaters downstream to its confluence with Cedar Creek.	5A	Escherichia coli (E. coli)	2014	L	15.17

Fall Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.17

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B52R-06-BAC** **Gravel Springs**

Cause Location: Gravel Springs from the headwaters downstream to its confluence with Cedar Creek.

Cause City/County: Frederick County; Shenandoah County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BGSR000.40 (3 exceedances of 10 samples for e-coli in 2020, no new data 2022) Initial Listing Date: 2016

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B52R_GSR01A16 / Gravel Springs / Gravel Springs from the headwaters downstream to its confluence with Cedar Creek.	5A	Escherichia coli (E. coli)	2016	L	3.29

Gravel Springs

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.29

Sources: Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B53R-01-BAC Cedar Creek

Cause Location: Cedar Creek from its confluence with Fall Run downstream to its confluence with the North Fork Shenandoah River. This impairment was lengthened in 2018 re-listing two upstream segments.

Cause City/County: Frederick County; Shenandoah County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BCDR000.81 (2 exceedances of 12 samples for e-coli 2020 cycle, no new data 2022) and 1BCDR013.29 (2022-two STV hits in the same 90-day period with less than 10 samples = impaired (revised E.coli WQS analysis)). Initial Listing Date: 2008. Upper segments re-listed and impairment lengthened in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B53R_CDR01A00 / Cedar Creek / Cedar Creek from its confluence with Stickley Run downstream to its confluence with the North Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2014	L	3.76
VAV-B53R_CDR02A00 / Cedar Creek / Cedar Creek from its confluence with Fawcett Run downstream to its confluence with Stickley Run.	5A	Escherichia coli (E. coli)	2008	L	9.78
VAV-B53R_CDR03A10 / Cedar Creek / Cedar Creek from its confluence with Fall Run downstream to its confluence with Fawcett Run.	5A	Escherichia coli (E. coli)	2008	L	4.58

Cedar Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.12

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B54R-01-BAC** **Passage Creek**

Cause Location: Passage Creek from its confluence with Peters Mill Run downstream its confluence with the North Fork Shenandoah River.

Cause City/County: Shenandoah County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 1BPSG018.13 (2022- revised E.coli WQS analysis is impaired with two STV hits in the same 90-day period with less than 10 samples)., 1BPSG001.36 (2022- revised E.coli WQS analysis is impaired with two STV hits in the same 90-day period with less than 10 samples). Initial Listing Date: 2006. This impairment length was extended to the North Fork Shenandoah in 2022, adding the two downstream segments.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B54R_PSG01A00 / Passage Creek / Passage Creek from the U. S. Forest Service boundary downstream to its confluence with the North Fork Shenandoah River.	5A	Escherichia coli (E. coli)	2022	L	3.86
VAV-B54R_PSG01B10 / Passage Creek / Passage Creek from a point 4.6 miles upstream of the U. S. Forest Service boundary downstream to the U.S. Forest Service boundary.	5A	Escherichia coli (E. coli)	2022	L	4.79
VAV-B54R_PSG01C10 / Passage Creek / Passage Creek from its confluence with Peters Mill Run downstream to a point 4.6 miles upstream of the U. S. Forest Service boundary.	5A	Escherichia coli (E. coli)	2008	L	10.43

Passage Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.08

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B54R-01-PH** **Passage Creek**

Cause Location: Passage Creek from the headwaters downstream to the Route 675 bridge crossing. (Start Mile: 37.38 End Mile: 31.93 Total Impaired Size: 5.45 Miles)

Cause City/County: Page County; Shenandoah County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 1BPSG031.99 (2 excursions of 5 samples for pH in 2010, no new data in 2022). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B54R_PSG03A10 / Passage Creek / Passage Creek from the headwaters downstream to the Route 675 bridge crossing at Big Spring.	5A	pH	2010	L	5.45

Passage Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.45

Sources: Atmospheric Deposition - Acidity

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Potomac and Shenandoah River Basins

Cause Group Code: B55R-01-BAC Manassas Run

Cause Location: Manassas Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 1BMAN002.55 (2 exceedances of 24 samples for e-coli in 2020, no new data 2022). Additional data collected at the Friends of the Shenandoah River station 1BMAN-FW36-FOSR (2022-revised E.coli WQS analysis: impaired with a geomean exceedance in any 90-day period). Initial Listing Date: 2004. This segment is included in the EPA Approved Manassas Run Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B55R_MAN01A00 / Manassas Run / Manassas Run from the Apple House WWTP discharge downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2014	L	5.02
VAV-B55R_MAN02A04 / Manassas Run / Manassas Run and tributaries from the headwaters downstream to the Apply House WWTP discharge.	4A	Escherichia coli (E. coli)	2014	L	10.08

Manassas Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.1

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B55R-02-BAC** **Borden Marsh Run**

Cause Location: Borden Marsh Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BBMR000.20 (8 exceedances of 23 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2006. This segment is included in the EPA Approved Borden Marsh Run Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B55R_BMR01A00 / Borden Marsh Run / Borden Marsh Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2006	L	15.68

Borden Marsh Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.68

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Urban Runoff/Storm Sewers

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Potomac and Shenandoah River Basins

Cause Group Code: **B55R-03-BAC Willow Brook**

Cause Location: Willow Brook from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BWLO000.71 (6 exceedances of 24 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2006. This segment is included in the EPA Approved Willow Brook Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B55R_WLO01A06 / Willow Brook / Willow Brook from the headwaters downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2006	L	4.1

Willow Brook

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B55R-04-BAC** Shenandoah River

Cause Location: Shenandoah River from the Potomac-Edison power plant dam near Front Royal downstream to its confluence with Long Branch.

Cause City/County: Clarke County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 1BSHN-FW35-FOSR (2022 revised E.coli WQS analysis = Impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples); 1BSHN-FW35MID-FOSR (2022 revised E.coli WQS analysis = Impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples); and 1BSHN043.19 (2022 revised E.coli WQS analysis = impaired with two or more STV hits in the same 90-day period with less than 10 samples). Initial listing date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B55R_SHN01A00 / Shenandoah River / Shenandoah River from its confluence with Oregon Hollow downstream to its confluence with Long Branch.	5A	Escherichia coli (E. coli)	2022	L	8.52
VAV-B55R_SHN01B10 / Shenandoah River / Shenandoah River from the power plant dam near Front Royal downstream to its confluence with Oregon Hollow.	5A	Escherichia coli (E. coli)	2022	L	4.42

Shenandoah River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.94

Sources: Non-Point Source

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Potomac and Shenandoah River Basins

Cause Group Code: B56R-01-BAC Crooked Run

Cause Location: Crooked Run from the Lake Frederick dam downstream to its confluence with the Shenandoah River.

Cause City/County: Frederick County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BCRO002.75 (7 exceedances of 48 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2008. This segment is included in the EPA approved Crooked Run Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B56R_CRO01A00 / Crooked Run / Crooked Run from the Nineveh Spring outfall downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	6.90
VAV-B56R_CRO01B16 / Crooked Run / Crooked Run from the Lake Frederick dam downstream to its confluence with the Nineveh Spring outfall.	4A	Escherichia coli (E. coli)	2008	L	2.33

Crooked Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.23

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B56R-01-DO** **Crooked Run**

Cause Location: Crooked Run from the Lake Frederick dam downstream to its confluence with the Nineveh Spring outfall. Impairment length was shortened in 2016 with delist of the downstream assessment unit.

Cause City/County: Frederick County; Warren County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: This segment is impaired due to excursions of the DO WQS at station: 1BCRO006.93 (10 excursions of 34 samples for DO in 2020, no new data 2022). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B56R_CRO01B16 / Crooked Run / Crooked Run from the Lake Frederick dam downstream to its confluence with the Nineveh Spring outfall.	5A	Dissolved Oxygen	2008	L	2.33

Crooked Run

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.33

Sources: Upstream Impoundments

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: B56R-02-BAC Stephens Run

Cause Location: Stephens Run from an unnamed tributary 1 mile upstream of Crooked Run downstream to its confluence with Crooked Run. (Start Mile: 1.00 End Mile: 0.00 Total Impaired Size: 1.00 Miles)

Cause City/County: Frederick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BSTV000.20 (10 exceedances of 69 samples for e-coli 2018, no new data 2022). Initial Listing Date: 2010. This segment is included in the EPA Approved Stephens Run Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B56R_STV01A00 / Stephens Run / Stephens Run from an unnamed tributary .99 miles upstream of Crooked Run downstream to its confluence with Crooked Run.	4A	Escherichia coli (E. coli)	2010	L	1

Stephens Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B56R-02-BEN** **Stephens Run**

Cause Location: Stephens Run from an unnamed tributary 1 mile upstream of Crooked Run downstream to its confluence with Crooked Run. (Start Mile: 1.00 End Mile: 0.00 Total Impaired Size: 1.00 Miles)

Cause City/County: Frederick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BSTV000.20 (Impaired for VSCI). Initial Listing Date: 2016

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B56R_STV01A00 / Stephens Run / Stephens Run from an unnamed tributary .99 miles upstream of Crooked Run downstream to its confluence with Crooked Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	1

Stephens Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1

Sources: Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: B56R-03-BAC West Run

Cause Location: West Run from the headwaters downstream to its confluence with Crooked Run. This segment was lengthened in 2014 due to a segmentation error in the 2012 assessment cycle.

Cause City/County: Frederick County; Warren County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BWST000.20 (14 exceedances of 71 samples for e-coli in 2018, no new data 2022). Additional data collected at 1BWST000.33 (3 exceedances of 13 samples for e-coli in 2016, no new data 2022). Initial Listing Date: 2010 This segment is included in the EPA Approved West Run Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B56R_WST01A00 / West Run / West Run from the headwaters downstream to its confluence with Crooked Run.	4A	Escherichia coli (E. coli)	2010	L	8.08

West Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.08

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B57R-01-BAC Page Brook Run/Spout Run

Cause Location: Page Brook Run from the headwaters downstream to its confluence with Roseville Run; Spout Run from its confluence with Page Brook Run downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at stations: 1BPGE000.09 (30 exceedances of 59 samples for e-coli in 2020, no new data 2022) and 1BSPR000.40 (9 exceedances of 60 samples for e-coli in 2020, no new data 2022). Additional data collected at 1BPGE-SRPFC09-FOSR (7 exceedances of 10 samples for e-coli in 2018, no new data 2022), 1BPGE-SRPFC35-FOSR (13 exceedances of 21 samples in 2018, no new data 2022), and 1BSPR-SRPFC02-FOSR (6 exceedances of 22 samples for e-coli in 2018, no new data 2022); and 1BSPR-SRPFC54B-FOSR (4 exceedances of 21 samples in 2018, no new data 2022). Initial Listing Date: 2004 (Page Brook Run), 1998 (Spout Run). This impairment is included in the EPA Approved Page Brook Run/Spout Run bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_PGE01A00 / Page Brook Run / Page Brook Run and tributary from a point 1 mile upstream of Spout Run downstream to its confluence with Spout Run.	4A	Escherichia coli (E. coli)	2004	L	1.32
VAV-B57R_PGE02A10 / Page Brook Run / Page Brook Run and tributaries from the headwaters downstream to a point 1 mile upstream of Spout Run.	4A	Escherichia coli (E. coli)	2004	L	9.66
VAV-B57R_SPR01A00 / Spout Run / Spout Run from its confluence with Page Brook Run downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2010	L	4.12

Page Brook Run/Spout Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.1

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-01-BEN** **Spout Run**

Cause Location: Spout Run from its confluence with Page Brook Run downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 1BSPR000.40 (Impaired for VSCI). Additional data collected at 1BSPR003.13 (Impaired for VSCI). Initial Listing Date: 1998. This impairment is included in the EPA Approved Spout Run benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_SPR01A00 / Spout Run / Spout Run from its confluence with Page Brook Run downstream to its confluence with the Shenandoah River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.12

Spout Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.12

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Streambank Erosion

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-02-BAC** **Long Branch**

Cause Location: Long Branch from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BLNG000.24 (4 exceedances of 23 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2004. This segment is included in the EPA approved Long Branch Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_LNG01A04 / Long Branch / Long Branch from the headwaters downstream to its confluence with the Shenandoah River.	4A	Escherichia coli (E. coli)	2008	L	3.87

Long Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.87

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-03-BAC** **Chapel Run**

Cause Location: Chapel Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BCPL000.95 (2022- insufficient data to assess with one STV exceedance in multiple 90-day periods but insufficient data to analyze geomean- revised E.coli WQS analysis). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_CPL01A00 / Chapel Run / Chapel Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.	5A	Escherichia coli (E. coli)	2008	L	11.75

Chapel Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.75

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-03-BEN** **Chapel Run**

Cause Location: Chapel Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 1BCPL000.95 (Impaired for VSCI). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_CPL01A00 / Chapel Run / Chapel Run and tributaries from the headwaters downstream to its confluence with the Shenandoah River.	5A	Benthic Macroinvertebrates Bioassessments	2006	L	11.75

Chapel Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.75

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-04-BAC** **Roseville Run**

Cause Location: Roseville Run from the headwaters downstream to its confluence with Page Brook Run.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BRSC001.42 (25 exceedances of 60 samples for e-coli in 2020, no new data 2022). Additional data collected at Friends of the Shenandoah River stations 1BRSC-SRPFC33-FOSR (18 exceedances of 22 samples in 2018, no new data 2022), and 1BRSC-SRPFC44-FOSR (14 exceedances of 22 samples in 2018, no new data 2022). Initial Listing Date: 2010. This impairment is included in the EPA Approved Roseville Run bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_RSC01A00 / Roseville Run / Roseville Run from the headwaters downstream to its confluence with Page Brook Run.	4A	Escherichia coli (E. coli)	2010	L	6.4

Roseville Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.4

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-05-BAC** Shenandoah River

Cause Location: Shenandoah River from its confluence with Long Branch downstream to its confluence with Craig Run.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 1BSHN038.48 (2022 revised E.coli WQS analysis = insufficient information with no STV exceedances but insufficient data to analyze geomean) and 1BSHN-FC05-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Additional data collected at Friends of the Shenandoah River station 1BSHN-FC01-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_SHN01A00 / Shenandoah River / Shenandoah River from the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake downstream to its confluence with Craig Run.	5A	Escherichia coli (E. coli)	2022	L	5.00
VAV-B57R_SHN02A22 / Shenandoah River / Shenandoah River from its confluence with Long Branch downstream to the 5 mile upper limit of the PWS designation for the Berryville Public Water Intake.	5A	Escherichia coli (E. coli)	2014	L	6.44

Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.44

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B57R-06-BAC** **Westbrook Run**

Cause Location: Westbrook Run and tributaries from the headwaters downstream to its confluence with Roseville Run.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station 1BWBK-SRPFC43-FOSR (15 exceedances of 22 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2018 This impairment is included in the EPA Approved Roseville Run (Spout Run and Tributaries) Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B57R_WBK01A00 / Westbrook Run / Westbrook Run and tributaries from the headwaters downstream to its confluence with Roseville Run.	4A	Escherichia coli (E. coli)	2018	L	9.16

Westbrook Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.16

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B58R-02-BAC** **Dog Run**

Cause Location: Dog Run from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BDGR000.23 (2022-two or more STV hits in the same 90-day period with less than 10 samples- revised E.coli WQS analysis). Additional data collected at Friends of the Shenandoah River station 1BDGR-FCTR1-FOSR (2020- two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples- revised E.coli WQS analysis). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_DGR01A00 / Dog Run / Dog Run from the headwaters downstream to its confluence with the Shenandoah River.	5A	Escherichia coli (E. coli)	2008	L	6.13

Dog Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.13

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: B58R-03-BAC Wheat Spring Branch

Cause Location: Wheat Spring Branch from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 1BWSB000.22 (2022 cycle- two or more STV hits in the same 90-day period with less than 10 samples- revised E.coli WQS analysis). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_WSB01A00 / Wheat Spring Branch / Wheat Spring Branch from the headwaters downstream to its confluence with the Shenandoah River.	5A	Escherichia coli (E. coli)	2008	L	4.69

Wheat Spring Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.69

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B58R-04-BAC** **Long Marsh Run**

Cause Location: Long Marsh Run from the headwaters downstream to the VA/WVA State Line.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BLMN004.84 (8 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_LSR01A00 / Long Marsh Run / Long Marsh Run from the headwaters downstream to the VA/WVA State Line.	5A	Escherichia coli (E. coli)	2012	L	7.09

Long Marsh Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.09

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B58R-05-BAC** Shenandoah River

Cause Location: Shenandoah River from its confluence with Craig Run downstream to the VA/WVA State Line.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 1BSHN022.63 (2022 revised E.coli WQS analysis: geomean exceedance in any 90-day period). Additional data collected at 1BSHN-EC10-FOSR (2022 revised E.coli WQS analysis: insufficient information with one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean); 1BSHN-FC08-FOSR (2022 revised E.coli WQS analysis: two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples); and 1BSHN-FCCR3-FOSR (2022 revised E.coli WQS analysis: two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_SHN01A00 / Shenandoah River / Shenandoah River from its confluence with Dog Run downstream to the VA/WVA State Line.	5A	Escherichia coli (E. coli)	2012	L	5.11
VAV-B58R_SHN02A00 / Shenandoah River / Shenandoah River from its confluence with Craig Run downstream to its confluence with Dog Run.	5A	Escherichia coli (E. coli)	2012	L	2.81

Shenandoah River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.92

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B58R-06-BAC** **Craig Run**

Cause Location: Craig Run from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 1BCRG-EC10TRIB-FOSR (5 exceedances of 6 samples for e-coli in 2018, no new data 2022) and 1BCRG-FS340-FOSR (3 exceedances of 3 monthly geometric means in 2020, no new data 2022). Additional data was collected at 1BCRG-FCCR2-FOSR (2 exceedances of 3 monthly geometric means in 2020, no new data 2022). Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_CRG01A16 / Craig Run / Craig Run from approximately 700 feet below Route 613 downstream to its confluence with the Shenandoah River.	5A	Escherichia coli (E. coli)	2018	L	2.73
VAV-B58R_CRG02A16 / Craig Run / Craig Run from the headwaters downstream to approximately 700 feet below Route 613.	5A	Escherichia coli (E. coli)	2018	L	1.68

Craig Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.41

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Potomac and Shenandoah River Basins

Cause Group Code: **B58R-07-BAC** Shenandoah River UT (local name Pigeon’s Hollow)

Cause Location: Shenandoah River UT from the headwaters downstream to its confluence with the Shenandoah River.

Cause City/County: Clarke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Friends of the Shenandoah River station: 1BXSU-SUCSPHM-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period with less than 10 samples). Additional data collected at 1BXSU-SUCSPHTRIB-FOSR (2022 revised E.coli WQS analysis = impaired with two or more STV exceedances in the same 90-day period with less than 10 samples). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-B58R_XSU01A20 / Shenandoah River UT (local name Pigeon Hollow) / Shenandoah River UT from the headwaters downstream to its confluence with the Shenandoah River.	5A	Escherichia coli (E. coli)	2022	L	3.29

Shenandoah River UT (local name Pigeon’s Hollow)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.29

Sources: Non-Point Source

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Potomac and Shenandoah River Basins

Cause Group Code: **CB5MH-DO-BAY** Chesapeake Bay segment **CB5MH-VA**

Cause Location: This area encompasses the complete CBP segment CB5MH_VA.

Cause City/County: Chesapeake Bay - County Not Applicable; Lancaster County; Northumberland County

Use(s): Aquatic Life; Deep-Channel Seasonal Refuge; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. These criteria are based on segment-wide dissolved oxygen and submerged aquatic vegetation criteria.

In the 2020 cycle, CB5MH failed the 30-day summer Open Water dissolved oxygen criteria. The rest-of-year 30-day mean criteria was met and there is insufficient information to assess other frequencies.

The estuary passes both the summer and rest-of-year criteria in the 2022 cycle and the subuse will be partially delisted.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, CB5MH is considered Category 2C.

Applicable portions of the mesohaline Chesapeake Bay estuary and applicable small tributaries fail the Deep Water- and Deep Channel dissolved oxygen criteria (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_BRI03A22 / Bridge Creek / The lower portion of Bridge Creek below the shellfish condemnation zones. CB5MH	4A	Dissolved Oxygen	2016	L	0.095
VAP-A34E_COO02A14 / Little Wicomico River / Cod Creek / Portion of VDH condemnation 010-105G, 6/9/2014 open on 6/10/1997. CB5MH	4A	Dissolved Oxygen	2020	L	0.012
VAP-A34E_ELL02A20 / Ellyson Creek / Downstream of VDH-DSS condemnation 010-105S185, 7/15/2020. Segment split and size increased in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2016	L	0.270
VAP-A34E_LIS01B12 / Little Wicomico River / Described in VDH-DSS condemnation 010-105M3, 7/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.021
VAP-A34E_LIS02A00 / Little Wicomico River / Boundary of VDH-DSS Condemnation Notice 010-105, 7/15/2020 downstream to Sunnybank Ferry. Segment shortened slightly in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2016	L	0.565
VAP-A34E_LIS02B08 / Little Wicomico River / Described in VDH condemnation 010-105M2, 7/15/2020 CB5MH	4A	Dissolved Oxygen	2020	L	0.006

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS02C20 / Little Wicomico River / Portion of VDH-DSS Condemnation 010-105S11, 7/15/2020 not condemned in 1997. Segment split in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.091
VAP-A34E_LIS03A98 / Little Wicomico River / Confined to approximately the Sunnybank Ferry Route. CB5MH	4A	Dissolved Oxygen	2016	L	0.025
VAP-A34E_LIS04A00 / Little Wicomico River / Mainstem Little Wicomico River downstream of the Sunnybank Ferry Route, except as otherwise segmented. CB5MH	4A	Dissolved Oxygen	2016	L	0.511
VAP-A34E_SLO05A98 / Slough Creek / Described in the condemnation notice 010-105M1, 7/15/2020. Merged in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.061
VAP-A34E_ZZZ02A20 / Unsegmented estuaries in A34 / Unsegmented portion of the watershed within CB01 CB5MH	4A	Dissolved Oxygen	2016	L	0.275

Chesapeake Bay segment CB5MH-VA

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	1.931		

Chesapeake Bay segment CB5MH-VA

Deep-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	1.931		

Chesapeake Bay segment CB5MH-VA

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	1.931		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: **CB5MH-SAV-BAY** Chesapeake Bay segment CB5MH

Cause Location: This cause encompasses the complete CBP segment CB5MH.

Cause City/County: Chesapeake Bay - County Not Applicable; Lancaster County; Northumberland County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. These criteria are based on segment-wide dissolved oxygen and submerged aquatic vegetation criteria.

Chesapeake Bay segment CB5MH is impaired of the Aquatic Life due to inadequate submerged aquatic vegetation acreage. The Submerged Aquatic Vegetation goal is 7,633 acres but only 36% was attained found in the most recent 3 years according to aerial analysis of SAV. Only 69% of the water clarity goal was met according to 2013 and 2014 Dataflow surveys.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_BAC01A12 / Back Creek / Described in VDH SFC 010-105S87, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAP-A34E_BBC01A08 / Bridgemans Back Creek / Described in VDH Shellfish Condemnation 010-105S184, 7/15/2020. Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAP-A34E_BRI01A20 / Bridge Creek / Described in VDH condemnation 010-105S12, 7/15/2020. Extent altered in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAP-A34E_BRI01C98 / Bridge Creek / Described in VDH condemnation 010-105B, 7/15/2020. Shrank in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.087
VAP-A34E_BRI02A20 / Bridge Creek / Portion of VDH-DSS notice 180, 6/10/1997 open in 010-105, 7/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-A34E_BRI02B20 / Bridge Creek / Described in the condemnation notice 010-105S13, 7/15/2020. Location altered in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-A34E_BRI02C98 / Bridge Creek / Described in the condemnation notice 010-105D, -105J, and -105K, 7/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAP-A34E_BRI03A22 / Bridge Creek / The lower portion of Bridge Creek below the shellfish condemnation zones. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.095
VAP-A34E_COO01A98 / Cod Creek / Described in VDH condemnation notice 010-105G, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.037

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_COO01B20 / Cod Creek / Portion of VDH condemnation notice 105A, 06/10/1997 seasonally condemned in 010-105S86, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAP-A34E_COO02A14 / Little Wicomico River / Cod Creek / Portion of VDH condemnation 010-105G, 6/9/2014 open on 6/10/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.012
VAP-A34E_ELL01A06 / Ellyson Creek / Described in VDH-DSS condemnation 010-105S185, 7/15/2020. Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.043
VAP-A34E_ELL01B22 / Ellyson Creek, UT / Described in VDH-DSS condemnation 010-105S186, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-A34E_ELL02A20 / Ellyson Creek / Downstream of VDH-DSS condemnation 010-105S185, 7/15/2020. Segment split and size increased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.270
VAP-A34E_LIS01A02 / Little Wicomico River / VDH-DSS Condemnation 010-105E, 010-105F, and -010-105H, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.085
VAP-A34E_LIS01A98 / Little Wicomico River / Described in the VDH-DSS Condemnation Notice 010-105A, 7/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.128
VAP-A34E_LIS01B12 / Little Wicomico River / Described in VDH-DSS condemnation 010-105M3, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-A34E_LIS01D20 / Little Wicomico River / Portion of VDH-DSS Condemnation 010-105S11, 7/15/2020 within 105B, 6/10/1997 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.075
VAP-A34E_LIS02A00 / Little Wicomico River / Boundary of VDH-DSS Condemnation Notice 010-105, 7/15/2020 downstream to Sunnybank Ferry. Segment shortened slightly in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.565
VAP-A34E_LIS02B08 / Little Wicomico River / Described in VDH condemnation 010-105M2, 7/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_LIS02C20 / Little Wicomico River / Portion of VDH-DSS Condemnation 010-105S11, 7/15/2020 not condemned in 1997. Segment split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.091
VAP-A34E_LIS02D22 / Sloop Creek / Described in VDH-DSS Condemnation 010-105SI, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-A34E_LIS03A98 / Little Wicomico River / Confined to approximately the Sunnybank Ferry Route. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-A34E_LIS04A00 / Little Wicomico River / Mainstem Little Wicomico River downstream of the Sunnybank Ferry Route, except as otherwise segmented. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.511
VAP-A34E_LIS04B12 / Little Wicomico River, UT / Described in VDH condemnation 010-105S187, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAP-A34E_SHR01A20 / Sharps Creek / Described in VDH-DSS condemnation 010-105C, 7/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.032
VAP-A34E_SLO05A98 / Slough Creek / Described in the condemnation notice 010-105M1, 7/15/2020. Merged in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.061
VAP-A34E_ZZZ02A20 / Unsegmented estuaries in A34 / Unsegmented portion of the watershed within CB01. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.275

Chesapeake Bay segment CB5MH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.688		

Chesapeake Bay segment CB5MH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.688		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: POTMH-SAV-BAY Potomac Mesohaline Embayments

Cause Location: Includes all waters in the mesohaline portion of the Potomac River (POTMH).

Cause City/County: King George County; Northumberland County; Westmoreland County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The mesohaline portion of the Potomac River failed the Submerged Aquatic Vegetation acreage standards during the 2006 - 2022 cycles.

There was insufficient information to assess the water clarity acreage.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, the segment is Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_DEE01A00 / Deep Creek / Segment includes the downstream portion of Deep Creek to the confluence with UMC within the admin condemnation boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAN-A30E_GAM01A02 / Gambo Creek / The Gambo Creek portion of the condemned area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section A, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.163
VAN-A30E_UMC01A02 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section F, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAN-A30E_UMC01B06 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section A, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAN-A30E_UMC02A04 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek within the condemned boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section B, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.028

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_UMC03A04 / Upper Machodoc Creek / Segment includes Upper Machodoc Creek (near Williams Creek) within the administrative condemnation boundaries described in the VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.043
VAN-A30E_UMC03B10 / Upper Machodoc Creek / Segment includes the area of UMC described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section M1, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAN-A30E_UMC04A10 / Upper Machodoc Creek / Segment includes main body of tidal Upper Machodoc Creek not included in the Sections described in VDH Shellfish Area Condemnation Number 001A-36, dated June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.765
VAN-A30E_UMC04C06 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019, and continuing until the open embayment of Upper Machodoc Creek. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.495
VAN-A30E_UMC05A02 / Upper Machodoc Creek / Segment includes the downstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAN-A30E_UMC05B20 / Upper Machodoc Creek / Segment includes the upstream portion of UMC within the admin condemnation boundaries described in VDH Shellfish Area Condemnation #001A-36, Section D, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.465
VAN-A30E_WLL01A02 / Williams Creek / The boundaries of the admin condemnation area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section E, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAN-A30E_WLL01B10 / Williams Creek / The downstream portion of the boundary of the admin condemnation area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section C, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.113

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A30E_WLL02A02 / Williams Creek / The upstream portion of the boundary of the admin condemnation area described in VDH Notice and Description of Shellfish Area Condemnation Number 001A-36, Upper Machodoc Creek, Section C, effective June 15, 2019. Portion of CBP segment POTMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-A30E_ZZZ01A10 / Unsegmented estuaries in A30 / Unsegmented estuaries in PRO's portion of A30. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-A31E_BRG01A04 / Bridges Creek / Tidal limit to mouth POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.182
VAP-A31E_GLD01A00 / Goldman Creek / Described in VDH-DSS condemnation notice 001-088B, 5/30/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAP-A31E_MAO01A98 / Mattox Creek / Portion of the condemnation notice 002-001B, 6/15/2019 that was not administratively condemned on 5/30/2018. Segment expanded and merged in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.360
VAP-A31E_MAO01B10 / Mattox Creek / Upper mainstem portion of the condemnation notice 002-001B, 6/15/2019 which was administratively condemned on 5/30/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.366
VAP-A31E_MAO02A00 / Mattox Creek / Downstream of VDH-DSS condemnation area 002-001B, 6/15/2019 (excluding 002-001M1, 6/15/2019). Segment shortened in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.318
VAP-A31E_MAO05A08 / Mattox Creek / VDH-DSS condemnation 002-001M1, 6/15/2019	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAP-A31E_MON01A00 / Monroe Creek/Monroe Bay / Prohibited area around STP outfall as described in VDH shellfish condemnation 002-001D, 6/15/2019	4A	Aquatic Plants (Macrophytes)	2006	L	0.176
VAP-A31E_MON02A98 / Monroe Bay / Administratively condemned portion of VDH condemnation notice 002-001A, 6/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.355
VAP-A31E_MON03A98 / Monroe Bay / Portion of VDH condemnation notice 002-001A, 6/15/2019 not administratively condemned AU expanded in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.172

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A31E_MON03B16 / Monroe Bay / Described in VDH condemnation notice 002-001M2, 6/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.063
VAP-A31E_MON04A00 / Monroe Bay / Downstream of VDH-DSS condemnation area 002-001M2, 6/15/2019. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.221
VAP-A31E_MON05A04 / Monroe Bay / Described in VDH Condemnation 002-001C, 6/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-A31E_POP01A98 / Popes Creek / Described in VDH-DSS condemnation notice 003-146A, 9/23/2008.	4A	Aquatic Plants (Macrophytes)	2006	L	0.576
VAP-A31E_ROS01A08 / Rosier Creek / Portion of VDH condemnation notice 001-088A, 6/15/2019 not included in the 2006 TMDL. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.280
VAP-A31E_ROS01A98 / Rosier Creek / Described in VDH condemnation notice 088A, 7/1/1998. Expanded in the 2022 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	0.206
VAP-A31E_ROS02A00 / Rosier Creek / From the downstream limit of segment ROS01A08 to its mouth at the Potomac River POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.125
VAP-A31E_XFF01A04 / XFF - Mattox Creek, UT / As described in VDH Condemnation 002-001E, 5/30/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-A31E_ZZZ01A14 / Unsegmented estuaries in A31 / Unsegmented portion of watershed PL66. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAP-A31E_ZZZ01B14 / Unsegmented estuaries in A31 / Unsegmented portion of watershed PL67. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.317
VAP-A32E_BAN01A00 / Barnes Creek / Downstream of VDH Shellfish Condemnation 082C, 2/10/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-A32E_BAN02A08 / Barnes Creek / Described in VDH Shellfish Condemnation 082C, 2/10/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.057
VAP-A32E_BRA01A98 / Branson Cove / Described in the condemnation notice 005-083C, 2/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-A32E_BUB01B16 / Buckner Creek / Described in VDH Condemnation 004-082D, 2/10/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.121

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_BUB01C22 / Buckner Creek / Portion of VDH Condemnation 004-082D, 2/10/1997 open on 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.062
VAP-A32E_BUB02A06 / Buckner Creek / Downstream of condemnation 004-082B, 2/13/2018 and 004-082A, 4/15/2020 Expanded slightly in the 2020 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.328
VAP-A32E_BUB02B14 / Buckner Creek / Portion of condemnation 004-082B, 2/13/2018 not included in 082D, 2/10/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.065
VAP-A32E_CAP01A04 / Cabin Point Creek / As described in the condemnation notice 005-083B, 2/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.123
VAP-A32E_CHB01A98 / Cold Harbor Bay / Described in the condemnation notice 004-184A, 3/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.083
VAP-A32E_CHB02A06 / Cold Harbor Creek / Currioman Bay / Described in VDH condemnation 004-184M1, 3/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAP-A32E_CRB02A00 / Currioman Bay / Downstream of Currioman Creek. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.729
VAP-A32E_CRB03A14 / Currioman Bay / Upstream of Currioman Creek POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.923
VAP-A32E_CUR01A98 / Currioman Creek / Described in the condemnation notice 004-184, 2/10/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.052
VAP-A32E_CUR01B08 / Currioman Creek / From the limit of VDH condemnation 004-184, 2/10/1997 downstream to the limit of 004-184B, 3/15/2019. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-A32E_DAV01A08 / Davis Creek / Portion of VDH condemnation 004-082F, 4/15/2020 that is restricted. The segment split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAP-A32E_DAV01B22 / Davis Creek / Portion of VDH condemnation 004-082F, 4/15/2020 that is administratively condemned. The segment split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_GLB01A00 / Glebe Creek / Downstream of condemnation 005-083A, 12/28/2007 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-A32E_GLB02A08 / Aimes and Glebe Creeks / As described in VDH Shellfish Condemnation 005-083D and -083E, 2/15/2019. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.120
VAP-A32E_GLB02B18 / Aimes and Glebe Creeks / Portion of VDH Shellfish Condemnation 005-083A, 12/28/2007 open 2/15/2019 POTMH Mileage adjusted in 2006 and 2008 cycles.	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-A32E_JUL01A08 / Jules Creek / Described in VDH Shellfish Condemnation 004-082C, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045
VAP-A32E_LOW01A04 / Lower Machodoc Creek / As described in VDH condemnation notice 005-083A, 2/15/2019 Size decreased slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.370
VAP-A32E_LOW01B18 / Lower Machodoc Creek / Boundary of condemned area 005-083B, 12/28/2007 downstream to limit of 005-083S4, 2/15/2019 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.220
VAP-A32E_LOW01C20 / Lower Machodoc Creek / Portion of VDH condemnation notice 005-083B, 12/28/2007 within 005-083S4, 2/15/2019. Size increased slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.165
VAP-A32E_LOW02A00 / Lower Machodoc Creek / Boundary of condemned area 005-083S4, 2/15/2019 downstream to approximately rivermile 2.68 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.047
VAP-A32E_LOW02B16 / Lower Machodoc Creek / One-half mile upstream and downstream of station 1ALOW002.18. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.687
VAP-A32E_LOW02C12 / Lower Machodoc Creek, UT / Described in VDH condemnation 005-083C, 12/21/2010 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.059
VAP-A32E_LOW02D16 / Lower Machodoc Creek / Approximately river mile 1.68 downstream to mouth. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	2.145
VAP-A32E_MAT01A08 / Matthews Cove / Described in VDH Shellfish Condemnation 004-082E, 2/13/2018 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A32E_NOM01A04 / Nomini Creek, Pierce Creek / Portion of VDH Shellfish Condemnation 004-082D, 4/15/2020 downstream of 082B, 7/3/1997 and portion upstream of 082A, 7/3/1997. Size reduced in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.315
VAP-A32E_NOM01A98 / Nomini Creek / As described in VDH Shellfish Condemnation 082B, 7/3/1997. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.540
VAP-A32E_NOM02A00 / Nomini Creek / Downstream condemnation boundary to the mouth. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	4.648
VAP-A32E_NOP01A02 / North Prong Buckner Creek / Described in the condemnation notice 082E, 2/10/1997. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-A32E_NOP02A08 / North Prong Buckner Creek / Portion of VDH condemnation 004-082A, 4/15/2020 that was not included in 082E, 2/10/1997. Size reduced in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.032
VAP-A32E_PEI01A98 / Pierce Creek / As described in VDH Shellfish Condemnation 082A, 7/3/1997. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.142
VAP-A32E_POO01A08 / Poor Jack Creek / Described in VDH Shellfish Condemnation 004-184C, 2/14/2017 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.147
VAP-A32E_WEA02A04 / Weatherall Creek / As described in VDH condemnation 005-083F, 1/19/2018 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.055
VAP-A32E_ZZZ01A14 / Unsegmented estuaries in A32 / Unsegmented portion of watershed PL68. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-A32E_ZZZ01B14 / Unsegmented estuaries in A32 / Unsegmented portion of watershed PL69. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAP-A33E_BOM01A98 / Bonum Creek / Described in the condemnation notice 006-143C, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.149
VAP-A33E_BOM01B10 / Bonum Creek / Portion of condemnation notice 143C, 5/5/2005 in 006-143S3, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.061
VAP-A33E_DRM01A20 / Drum Cove / Described in VDH-DSS condemnation 007-225S97, 10/2/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_DUA01A04 / Dungan Cove / As described in VDH Shellfish Condemnation 007-225C, 10/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-A33E_DUA01B08 / Dungan Cove / Downstream of VDH condemnation 028G, 5/12/1997 to limit of condemnation 007-225S97, 10/15/2020 Size increased in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.064
VAP-A33E_DUA02A22 / Dungan Cove / Portion of VDH Shellfish Condemnation 007-028G, 5/12/1997 within 007-028S97, 10/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.003
VAP-A33E_GAD01A98 / Gardner Creek / Restricted portion of VDH-DSS condemnation 006-143A, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-A33E_GAD01B14 / Gardner Creek, UT / Described in VDH Condemnation Notice 006-143S14, 7/15/2020 Size reduced in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAP-A33E_GAD01C20 / Gardner Creek / Portion of condemnation notice 006-143A, 5/5/2005 open on 7/15/2020. Size increased in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.089
VAP-A33E_GAD01D22 / Gardner Creek, UT / Described in VDH-DSS condemnation 006-143S1, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-A33E_GAD01E22 / Gardner Creek / Administratively condemned portions of VDH-DSS condemnation 006-143A, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAP-A33E_GAD02A00 / Gardner Creek / Downstream of VDH condemnation 006-143A, 5/5/2005 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-A33E_HAM01A02 / Hampton Hall Branch / Tidal Hampton Hall Branch within 007-028B, 10/2/2018. Expanded slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.231
VAP-A33E_HAM01B20 / Hampton Hall Branch / Mainstem Hampton Hall Branch below 007-028A, 10/15/2020. Segment shrank slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_HAM01C20 / Hampton Hall Branch / Tidal Hampton Hall Branch within 007-028E, 10/2/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-A33E_JCK01A98 / Jackson Creek / Described in VDH condemnation notice 006-143B and -D, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.096
VAP-A33E_JCK01B18 / Jackson Creek / Described in VDH condemnation notice 006-143S2, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAP-A33E_JCK01C20 / Jackson Creek / Portion of VDH condemnation notice 006-143B, 5/5/2005 open in 006-143, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAP-A33E_KIN01A12 / Kinsale Branch / Tidal limit to mouth POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.108
VAP-A33E_LOG01A98 / Lodge Creek / Described in the condemnation notice 007-225D, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-A33E_LOG02A98 / Lodge Creek / Portion of condemnation notice 007-225A, 10/15/2020 that is not administratively condemned. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.138
VAP-A33E_LOG02B10 / Lodge Creek / Portion of condemnation notice 007-225A, 10/15/2020 that is administratively condemned. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.074
VAP-A33E_LOG02C12 / Lodge Creek / Portion of condemnation notice 007-028F, 5/12/1997 that is within 007-225S41, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAP-A33E_LOG03A08 / Lodge Creek / Downstream boundary of 028F 5/12/1997 to downstream boundary of VDH condemnation 007-225M2, 10/2/2018 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAP-A33E_MIA01A98 / Mill Creek / Described in the condemnation notice 007-225B, 10/15/2020 Size increased in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.120
VAP-A33E_MIA01B10 / Mill Creek / Portion of condemnation notice 028E, 5/12/1997 open on 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.064

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_MIA01C20 / Mill Creek / Portion of condemnation notice 028E, 5/12/1997 seasonally condemned on 10/15/2020. Extent adjusted in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-A33E_RAG01A06 / Ragged Point Bay / Described in VDH-DSS condemnation 006-143M1, 7/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.226
VAP-A33E_SHA01A98 / Shannon Branch / Described in the condemnation notice 007-028A, 10/2/2018. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.036
VAP-A33E_SHA02A20 / Shannon Branch / Portion of VDH-DSS condemnation 007-028S95, 10/15/2020 not included in 007-028A, 10/2/2018 Size decreased in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAP-A33E_SHA03A06 / Shannon Branch / Described in VDH-DSS condemnation 007-028M1, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035
VAP-A33E_SOV01A02 / South Yeocomico River / South Yeocomico River excluding condemnation 007-225S41, 10/15/2020 Size reduced in the 2022 cycle POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.565
VAP-A33E_SOV02A06 / South Yeocomico River / South Yeocomico River within VDH-DSS condemnation 007-225S41, 10/15/2020 Size expanded in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.077
VAP-A33E_WES01A06 / West Yeocomico River, UT / Described in VDH-DSS condemnation 007-028D, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-A33E_WES01B12 / West Yeocomico River / Portion of the West Yeocomico River mainstem within condemnation notice 007-028C, 5/12/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.052
VAP-A33E_WES02A06 / West Yeocomico River / Downstream of condemnations Segment split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.273
VAP-A33E_WES02B22 / West Yeocomico River / Portion of VDH-DSS condemnation 007-028S39, 10/15/2020 downstream of condemnation 28C, 5/12/1997 Segment split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.068

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A33E_WES03A20 / West Yeocomico River, UT / Described in VDH-DSS condemnation 007-028S96, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.004
VAP-A33E_WHP01A98 / White Point Creek / Described in the condemnation notice 007-028C, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-A33E_WHP01B18 / White Point Creek / Portion of condemnation notice 007-028B, 5/12/1997 open in 007-082, 10/15/2020. Expanded and split in the 2020 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035
VAP-A33E_WHP01C20 / White Point Creek / Portion of condemnation notice 007-028B, 5/12/1997 seasonally condemned in 007-082S38, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-A33E_WHP03A06 / NW Yeocomico (White Point Creek/Shannon Branch) / Described in VDH-DSS condemnation 007-028MS199, 10/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAP-A33E_YEO01A02 / Yeocomico River and Tributaries / Yeocomico River mainstem POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.878
VAP-A33E_ZZZ01A14 / Unsegmented estuaries in A33 / Unsegmented portion of watershed PL71. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.289
VAP-A33E_ZZZ01C14 / Unsegmented estuaries in A33 / Unsegmented portion of watershed PL70. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.202
VAP-A34E_BOT01A04 / Boathouse Creek / As described in VDH Shellfish Condemnation 008-214S172, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.067
VAP-A34E_BRD01A98 / Bridgeman Creek / Described in the condemnation notice 009-142A, 3/17/2008. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045
VAP-A34E_COA01A02 / Coan River / Portion of VDH-DSS Condemnation Notice 008-214S6, 4/15/2020 not included on SFC 145, 2/23/1997. Shortened in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-A34E_COA01A98 / Coan River / Described in the VDH-DSS Condemnation Notice 008-214A, 4/15/2020. Size reduced in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.271

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VAP-A34E_COA01B16 / Coan River / Portion of VDH-DSS Condemnation Notice 145I, 2/25/1997 not condemned in 008-214, 4/15/2020. Expanded in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.078
VAP-A34E_COA02A02 / Coan River / Tidal Coan River from rivermile 2.37 to its mouth at the Potomac. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	2.173
VAP-A34E_COA02B20 / Coan River / From SFC 008-214S6, 4/15/2020 to rivermile 2.37. Expanded slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.532
VAP-A34E_COC01A98 / Cod Creek / Described in the condemnation notice 009-141A, 6/15/2020. Size increased slightly in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAP-A34E_COC01B02 / Cod Creek, UT / Described in the condemnation notice 009-141B, 6/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.054
VAP-A34E_COC02A14 / Cod Creek / Portion of 141, 1/31/1997 downstream of 009-141A, 6/15/2020. Size decreased in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAP-A34E_COC02B14 / Cod Creek, UT / Portion of condemnation notice 141B, 1/31/1997 not included in 009-141A, 6/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-A34E_COC03A22 / Cod Creek, UT / Portion of condemnation notice 009-141S176, 6/15/2020 downstream of 141B, 1/31/1997. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-A34E_CUT01A98 / Cubitt Creek / Described in the condemnation notice 009-161A, 4/27/2018 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.225
VAP-A34E_FLP01A10 / Flag Pond / Described in VDH-DSS condemnation 009-161C, 4/27/2018 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035
VAP-A34E_FTN01A06 / Fountain Cove / As described in VDH condemnation 009-142F, 4/13/2017 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.069
VAP-A34E_GLE01A04 / The Glebe / Portion of VDH-DSS notice 008-213A, 4/15/2020 open on 145D, 2/25/1997 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045

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VAP-A34E_GLE01A98 / The Glebe / Described in the condemnation notice 145D, 2/25/1997. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.132
VAP-A34E_GLE03A00 / The Glebe / Glebe Creek downstream of condemnations. Split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.677
VAP-A34E_GLE03B20 / Glebe Creek / As described in VDH-DSS condemnation 008-123S79, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.056
VAP-A34E_GLE03C22 / The Glebe, UT / Described in VDH-DSS condemnation 008-213S173, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-A34E_GLE03D22 / The Glebe, UT / Described in VDH-DSS condemnation 008-213S134, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-A34E_GLE04A04 / Wrights Cove, UT / Described in the VDH-DSS Shellfish Condemnation 08-213S78, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.046
VAP-A34E_HAC01A00 / Hack Creek / Tidal limit to mouth at Potomac River. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.224
VAP-A34E_HEA01A98 / Headly Cove / Described in the VDH-DSS Condemnation Notice 008-214B, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAP-A34E_HUC02A22 / Hull Creek / Portion of Hull Creek downstream of shellfish TMDL extents. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.088
VAP-A34E_HUL01A02 / Hull Creek and Floyd Cove / Described in VDH condemnations 009-142A and -E, 6/15/2020, excluding Spring Cove. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.252
VAP-A34E_HUL01B12 / Hull Creek / Portion of VDH condemnation 142B, 8/21/2000 open in 009-142, 4/13/2017, excluding Spring Cove and Fountain Cove. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.273
VAP-A34E_HUL01C12 / Fleets Cove (Hull Creek, UT) / Described in VDH condemnation 009-142B, 6/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAP-A34E_KIN01A00 / Kingscote Creek / Downstream of condemnations 008-213, 4/15/2020 to the Coan River. Segment split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.337

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VAP-A34E_KIN02A06 / Kingscote Creek / Described in VDH-DSS condemnation 008-213M1, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAP-A34E_KIN03A06 / Kingscote Creek / Described in VDH-DSS condemnation 008-213M2, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAP-A34E_KIN04A06 / Kingscote Creek, UT / Described in VDH-DSS condemnation 008-213A, 3/5/2015 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-A34E_KIN05A22 / Kingscote Creek, UT / Described in VDH-DSS condemnation 008-213S133, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.012
VAP-A34E_KNC01A98 / Killneck Creek / Described in the condemnation notice 008-214S5, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-A34E_KNC01B06 / Killneck Creek, UT / Described in VDH-DSS condemnation 008-214M2, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-A34E_KNC02A10 / Killneck Creek / Portion of condemnation notice 145E, 2/25/1997 open on 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-A34E_MII01A06 / Mill Creek / Tidal limit to limit of VDH-DSS condemnation 008-214D, 4/15/2020 Split in the 2022 cycle. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.096
VAP-A34E_MII01B22 / Mill Creek / Tidal Mill Creek downstream of VDH-DSS condemnation 008-214D, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-A34E_PRE01A98 / Presley Creek / Described in the condemnation notice 009-141C, 6/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.332
VAP-A34E_ROG01A98 / Rogers Creek / Described in the condemnation notice 009-142C, 6/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035
VAP-A34E_ROG01B16 / Rogers Creek / Portion of VDH-DSS Condemnation 009-142C, 3/17/2008 not included in 009-142C, 6/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-A34E_SPN01A04 / Spring Cove / Tidal limit to mouth at Hull Creek POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-A34E_XFI01A98 / XFI - Coan River, UT (Stevens Point) / Described in the condemnation notice 008-214M1, 4/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAP-A34E_XFJ01A98 / XFJ - Coan River, UT (aka Cellars Cove) / Described in the condemnation notice 008-214C, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.032
VAP-A34E_XFJ02A22 / XFJ - Coan River, UT (aka Cellars Cove) / Described in VDH-DSS condemnation 008-214S135, 4/15/2020. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-A34E_XLV01A10 / XLV - Potomac River, UT (aka Corbin Pond) / As described in VDH-DSS condemnation 009-142D, 6/15/2020 POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.043
VAP-A34E_ZZZ01A00 / Unsegmented estuaries in A34 / Unsegmented portion of the watershed. POTMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.199

Potomac Mesohaline Embayments

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
32.129		

Potomac Mesohaline Embayments

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
32.129		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Naturally Occurring Organic Acids; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Potomac and Shenandoah River Basins

Cause Group Code: POTTF-DO-BAY Potomac Tidal Fresh Embayments

Cause Location: Includes all waters in the tidal fresh portion of the Potomac River (POTTF).

Cause City/County: Alexandria; Arlington County; Fairfax County; Prince William County; Stafford County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: An open water assessment of dissolved oxygen values during the summer season showed that segment POTTF was not supporting. The POTTF was 0.01 percent above CFD. The segment is considered impaired for the aquatic life use.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010 (Fed IDs 40920, 40921, 40922).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A12E_FOU01A00 / Four Mile Run / Segment includes the tidal waters of Four Mile Run; from rivermile 1.46 downstream until the confluence with the Potomac River, at the state line. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.050
VAN-A12E_POT01A16 / Potomac River / Segment includes all tidal Virginia water adjacent to Alexandria, from Second Street to King Street. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2016	L	0.047
VAN-A13E_HFF01A06 / Hooff Run / Segment contains the tidal portion of Hooff Run; begins at the Alexandria National Cemetery and continues downstream until the confluence with Hunting Creek. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.003
VAN-A13E_HUT01A02 / Hunting Creek / Segment includes all tidal waters of Hunting Creek; beginning at the Route 241 (Telegraph Road) bridge crossing and continuing downstream until the mouth of the embayment, at Jones Point and Belle View. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.529
VAN-A14E_DOU01A00 / Dogue Creek / Segment includes all tidal waters of Dogue Creek, extending from approximately rivermile 2.1 until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.736
VAN-A14E_LIF01A00 / Little Hunting Creek / Segment includes all tidal waters of Little Hunting Creek, extending from approximately rivermile 1.7 downstream until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.250
VAN-A14E_POT01A08 / Potomac River / Segment includes all tidal waters downstream of the mouth of the Hunting Creek embayment, at Jones Point and Belle View. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.848

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A14E_POT02A16 / Potomac River / Segment includes all tidal Virginia water adjacent to Alexandria, from King Street to the DC/MD boundary. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2016	L	0.029
VAN-A15E_ACO01A06 / Accotink Bay / Segment includes tidal waters of Accotink Creek until the confluence with the tidal waters of Pohick Bay/Gunston Cove. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.395
VAN-A15E_POH01A00 / Gunston Cove / Segment extends from rivermile 1.31 in Gunston Cove until the confluence with the Potomac River. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	1.504
VAN-A15E_POH02A00 / Pohick Bay / Segment includes tidal waters of Pohick Creek, from the boundary of watershed A15, and extends until rivermile 1.31 in Gunston Cove. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.450
VAN-A16E_POH01A06 / Pohick Bay / Segment includes tidal waters of Pohick Creek upstream from the boundary of watershed A16. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.461
VAN-A25E_MAE01A16 / Massey Creek / Segment extends from 0.29 rivermile upstream of monitoring station 1aMAE000.21 until the confluence with the tidal waters of Occoquan River within Occoquan Bay. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.065
VAN-A25E_MAU01A12 / Marumsco Creek / Segment includes all the tidal waters of Marumsco Creek from the end of the free-flowing stream to the open Occoquan Bay. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.025
VAN-A25E_NEA01A00 / Neabsco Bay / Segment includes the tidal waters of Neabsco Bay, beginning at rivermile 1.37, downstream until the confluence with Occoquan Bay. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.545
VAN-A25E_NEA20A02 / Neabsco Creek / Segment begins at the upstream limit of the tidal waters on Neabsco Creek and continues downstream until the start of the open waters of Neabsco Bay, approximately 0.8 rivermile upstream from monitoring station 1aNEA000.57. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.182
VAN-A25E_OCC01A04 / Occoquan Bay / Segment extends 0.5 mile around the Coastal 2000 monitoring station 1aOCC000.77, just west of the Potomac Shoreline of Mason Neck State Park. The downstream limit is the state line at the Potomac River. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.720

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_OCC01A10 / Occoquan Bay / Segment includes waters of Occoquan Bay within a 0.5 mile radius of station 1aOCC001.29. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.598
VAN-A25E_OCC01A12 / Occoquan Bay/Belmont Bay / Segment includes waters of Occoquan Bay in a 0.5 mile radius around station 1aOCC000.01 down to the Virginia state line. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.412
VAN-A25E_OCC01B12 / Occoquan Bay / Segment includes waters of Occoquan Bay located approximately 0.5 mile radius around station 1aOCC001.69. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.709
VAN-A25E_OCC01C16 / Occoquan Bay/Belmont Bay / Segment includes waters of Occoquan Bay located approximately 0.5 mile radius around station 1aOCC001.04. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.438
VAN-A25E_OCC02A00 / Occoquan Bay / Segment extends 0.5 mile around the around monitoring station 1aOCC002.47. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.633
VAN-A25E_OCC03A04 / Belmont Bay (Occoquan River) / Segment extends 0.5 mile around Coastal 2000 monitoring station 1aOCC002.62 (coordinates 38.6382, -77.208). Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.286
VAN-A25E_OCC04A02 / Belmont Bay / Segment extends 0.5 mile around the monitoring station 1A0CC-766-ALL (coordinates 38.647, -77.195). Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.412
VAN-A25E_OCC04B08 / Occoquan River / Segment extends from 0.5 rivermile upstream of monitoring station 1aOCC004.52 until 0.5 rivermile downstream of monitoring station 1aOCC003.82. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.561
VAN-A25E_OCC04C18 / Occoquan River / Segment extends from 0.5 rivermile upstream of monitoring station 1aOCC005.16 until 0.5 rivermile downstream of monitoring station 1aOCC005.16. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.104
VAN-A25E_OCC05A02 / Occoquan River / Segment extends from the end of the free-flowing waters to 0.5 rivermile upstream of monitoring station 1aOCC005.16. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.086
VAN-A25E_OCC20A02 / Occoquan Bay/Belmont Bay / Segment includes all waters of the Occoquan and Belmont Bays not included in other delineated segments. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	2.623

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-A25E_OCC30A02 / Occoquan Bay/Belmont Bay / Segment includes all tidal waters in the Occoquan watershed not included in other delineated stream segments. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.126
VAN-A25E_POT01A10 / Potomac River / Segment includes the Potomac River embayment located between Hallowing Point and Sycamore Point. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.633
VAN-A26E_POW01A02 / Powells Creek / Segment extends to a 0.5 mile radius around the ACB station 1aPOW-865-ALL (38.5862, -77.253). Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.229
VAN-A26E_POW01B20 / Powells Creek / Segment extends approximately to a 0.5 mile radius around station 1aPOW000.25. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.527
VAN-A26E_POW02A02 / Powells Creek / Segment extends to a 0.5 mile radius around the ACB station 1aPOW-765-ALL (38.5842, -77.2647). Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.402
VAN-A26E_POW03A20 / Powells Creek / Segment begins at the upstream limit of the tidal waters of Powells Creek and continues downstream to approximately 0.5 rivermile upstream from ACB station 1aPOW-765-ALL (38.5842, -77.2647). Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.136
VAN-A26E_QUA01A10 / Quantico Creek / Segment includes Quantico Creek approximately 0.2 miles upstream of station 1aQUA000.43 to the downstream limit of Quantico Creek at the state line at the Potomac River. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.187
VAN-A26E_QUA01B04 / Quantico Creek / Segment extends to a 0.5-mile radius around station 1aQUA001.09. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.419
VAN-A26E_QUA01C18 / Quantico Creek / Segment includes all tidal waters in Quantico Creek watershed not Segment extends from 0.5 mile downstream of station 1aQUA002.38 to 0.5 mile upstream of station 1aQUA001.09. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.268
VAN-A26E_QUA02A06 / Quantico Creek / Segment extends to an approximate 0.5 mile radius around station 1aQUA002.38. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.209
VAN-A26E_QUA20A10 / Quantico Creek / Segment includes tidal waters in Quantico Creek watershed from the riverine boundary downstream to approximately 0.5 mile upstream of station 1aQUA002.38. Portion of CBP segment POTTF.	4A	Dissolved Oxygen	2014	L	0.023

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Potomac Tidal Fresh Embayments

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	16.859		

Potomac Tidal Fresh Embayments

Migratory Fish Spawning and Nursery	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	16.859		

Potomac Tidal Fresh Embayments

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	16.859		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **APPTF-SAV-BAY** **Appomattox River**

Cause Location: Tidal Appomattox River Estuary

Cause City/County: Chesterfield County; Colonial Heights; Hopewell; Petersburg; Prince George County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Chesapeake Bay Water Quality Standards were adopted during the 2006 cycle. During the 2008 cycle, the Appomattox River Tidal Fresh segment (APPTF) failed the Submerged Aquatic Vegetation acreage requirements, and the water clarity Acreage criteria.

During the 2012 cycle, the Appomattox River Tidal Fresh segment (APPTF) failed the Submerged Aquatic Vegetation acreage requirements, and the water clarity Acreage criteria. But the Bay TMDL was Completed and is Cat 4A.

During the 2014 cycle, the Appomattox River Tidal Fresh segment (APPTF) failed the Submerged Aquatic Vegetation acreage requirements, and the water clarity Acreage criteria. But the Bay TMDL was Completed and is Cat 4A.

During the 2016 cycle, the Appomattox River Tidal Fresh segment (APPTF) failed the Submerged Aquatic Vegetation acreage requirements, and the water clarity Acreage criteria. But the Bay TMDL was Completed and is Cat 4A.

During the 2018, 2020 and 2022 cycle, the Appomattox River Tidal Fresh segment (APPTF) failed the Submerged Aquatic Vegetation acreage requirements, and the water clarity Acreage remained impaired due to no new data. But the Bay TMDL was Completed and is Cat 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15E_APP01A98 / Lower Appomattox River/Ashton Creek / The estuarine Appomattox River from the fall line to river mile 6.49. APPTF. Virginia Scenic River	4A	Aquatic Plants (Macrophytes)	2006	L	0.507
VAP-J15E_APP02A98 / Appomattox River / The estuarine portion of the Appomattox River from The confluence of Walthall Channel to the end of APPTF. Virginia Scenic River	4A	Aquatic Plants (Macrophytes)	2006	L	1.361
VAP-J15E_APP02B12 / Appomattox River / The estuarine portion of the Appomattox River from the start of PWS at river mile 6.49 to the confluence of Walthall Channel APPTF. Virginia Scenic River	4A	Aquatic Plants (Macrophytes)	2006	L	0.703
VAP-J15E_ZZZ01A14 / Unsegmented portion of J15E / HUC: 02080207 JA45	4A	Aquatic Plants (Macrophytes)	2014	L	0.032
VAP-J17E_SFT01D04 / Swift Creek / Tidal Swift Creek from the confluence with Timsbury Creek downstream to the mouth at the Appomattox River APPTF.	4A	Aquatic Plants (Macrophytes)	2006	L	0.087

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17E_ZZZ02A02 / Unsegmented portion in J17E watershed / Unsegmented portion of J17E watershed HUC: 02080207 APPTF	4A	Aquatic Plants (Macrophytes)	2006	L	0.051

Appomattox River

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.74		

Appomattox River

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.74		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **CHKOH-DO-BAY** **Chickahominy River**

Cause Location: The oligohaline Chickahominy River and its tidal tributaries.

Cause City/County: Charles City County; James City County; New Kent County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: During the 2006 cycle, the Chesapeake Bay Water Quality Standards were adopted. The oligohaline Chickahominy River estuary failed the summer 30-day mean dissolved oxygen criteria in the 2022 cycle.

The Chesapeake Bay TMDL was approved on 12/29/2010; therefore, it is Cat. 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_CHK01A00 / Chickahominy River / The Chickahominy River from Walkers Dam to the confluence with Diascund Creek. CHKOH	4A	Dissolved Oxygen	2018	L	1.373
VAP-G08E_CHK02A00 / Chickahominy River / The Chickahominy River from the confluence with Diascund Creek downstream to the James River, excluding 0.5 mile upstream and downstream of station 2CCHK002.40. CHKOH	4A	Dissolved Oxygen	2018	L	5.468
VAP-G08E_CHK02B18 / Chickahominy River / Approximately 0.5 mile upstream and downstream of station 2CCHK002.40 CHKOH	4A	Dissolved Oxygen	2018	L	0.452
VAP-G08E_DSC01A00 / Diascund Creek / Diascund Creek from the Diascund Reservoir dam downstream to the mouth at the Chickahominy River. CHKOH	4A	Dissolved Oxygen	2018	L	0.271
VAP-G08E_GOR01A06 / Gordon Creek / Tidal limit to mouth CHKOH	4A	Dissolved Oxygen	2018	L	0.330
VAP-G08E_MOC01A02 / Morris Creek / The tidal portion of Morris Creek. CHKOH	4A	Dissolved Oxygen	2018	L	0.394
VAP-G08E_THD01A16 / Tomahund Creek / Tidal Tomahund Creek CHKOH	4A	Dissolved Oxygen	2018	L	0.112
VAP-G08E_XAC01A10 / XAC - Chickahominy River, UT / XAC in its entirety CHKOH	4A	Dissolved Oxygen	2018	L	0.017
VAP-G08E_YRM01A04 / Yarmouth Creek / Headwaters to confluence with Little Creek CHKOH	4A	Dissolved Oxygen	2018	L	0.119
VAP-G08E_ZZZ01A14 / Unsegmented estuaries in G08 / Unsegmented portion of watershed JL25 CHKOH	4A	Dissolved Oxygen	2018	L	0.121

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_ZZZ01B14 / Unsegmented estuaries in G08 / Unsegmented portion of watershed JL27 CHKOH	4A	Dissolved Oxygen	2018	L	0.159
VAP-G08E_ZZZ01C14 / Unsegmented estuaries in G08 / Unsegmented portion of watershed JL28 CHKOH	4A	Dissolved Oxygen	2018	L	0.478
VAP-G08E_ZZZ01D14 / Unsegmented estuaries in G08 / Unsegmented portion of watershed JL29 CHKOH	4A	Dissolved Oxygen	2018	L	0.326

Chickahominy River

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
9.618		

Chickahominy River

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
9.618		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Sources; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **EBEMH-DO-BAY** **Eastern Branch, Elizabeth River and Indian River**

Cause Location: This cause encompasses the Eastern Branch of the Elizabeth River, from Broad Creek (RM 4.0) downstream to the confluence with Elizabeth River mainstem, and the entirety of Indian River. CBP segment EBEMH. Located between Tanglewood area to mouth.

Cause City/County: Chesapeake; Norfolk; Virginia Beach

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Uses are impaired based on failure to meet the CBP dissolved oxygen criteria for Open Water - Summer. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BRO01A02 / Broad Creek, Eastern Br. Elizabeth R. / Located between Ingleside and Thomas Corner areas. North shore tributary to Eastern Br. Elizabeth R. Entirety of Broad Creek. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.371
VAT-G15E_EBE01A00 / Eastern Branch, Elizabeth R. - Upper / Located between Carolanne Farms and Tanglewood areas. Upper Eastern Br., from headwaters to confluence of Broad Creek (RM 4.0). CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.377
VAT-G15E_EBE02A06 / Eastern Branch, Elizabeth R. - Lower / From Broad Creek (RM 4.0) downstream to mouth of Elizabeth River mainstem. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	1.015
VAT-G15E_IND01A02 / Indian River - Eastern Branch, Elizabeth R. / Located southwest of Broad Creek. Between Campostella Heights and Tanglewood. Entirety of creek including tribs. CBP segment EBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish harvesting condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.268
VAT-G15E_ZZZ03A08 / Unsegmented estuaries in EBEMH / CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.261

Eastern Branch, Elizabeth River and Indian River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.292		

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Eastern Branch, Elizabeth River and Indian River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Open-Water Aquatic Life			
Dissolved Oxygen - Total Impaired Size by Water Type:	2.292		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **ELIPH-DO-BAY** Chesapeake Bay segment **ELIPH (Elizabeth River Mainstem)**

Cause Location: This cause encompasses the complete CBP segment ELIPH.

Cause City/County: Norfolk; Portsmouth

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. The Aquatic Life and Open-Water Aquatic Life Use for “Rest of Year, ROY” is supporting. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_ELI01A06 / Elizabeth River Mainstem - Upper / From start of mainstem downstream to line between Hospital Pt and Smiths Cr. (Incl. Hague). Segment ELIMHa (downstream Lamberts Pt.). DSS (ADMIN) cond # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.468

Chesapeake Bay segment ELIPH (Elizabeth River Mainstem)

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.468		

Chesapeake Bay segment ELIPH (Elizabeth River Mainstem)

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.468		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G01E-01-BAC James River**

Cause Location: Estuarine James River from the fall line at Mayos Bridge downstream to the Appomattox River.

Cause City/County: Charles City County; Chesterfield County; Henrico County; Hopewell; Prince George County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River from the fall line to the Appomattox River was initially assessed as not supporting of the Recreation Use based on the results of a summer special study in the fall zone. The special study was designed to monitor the effects of summertime rain and combined sewer overflow (CSO) events on water quality in the James River and to monitor the effects of Richmond's CSO abatement efforts. The segment has been included on the Impaired Waters list for fecal coliform since 1996.

During the 2004 and 2006 cycles, the bacteria standard changed to E.coli for those stations with enough data. During the 2008 cycle, the impairment converted solely to E. coli.

The James River and Tributaries - City of Richmond Bacterial TMDL was approved by the EPA on 11/4/2010. The river is considered Category 4A.

Bacteria impairment was noted at multiple stations in the river during the 2020 cycle. The lower portion of the segment showed acceptable levels; however, the segment extent remained unchanged until additional monitoring could confirm in the next cycle.

2-JMS110.30 - 8/65 2-JMS109.16 - 3/10 2-JMS104.16 - 9/63 2-JMS099.30 - 8/64 2-JMS087.11 - 0/1 (W)
 2-JMS087.01 - 5/62 (S)

New bacteria criteria were implemented in the 2022 cycle. The upper portion remains impaired due to geometric mean and STV exceedances at multiple DEQ and citizen monitoring stations. There is insufficient information to assess the criteria in the lower segment; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	4A	Escherichia coli (E. coli)	1996	L	0.239
VAP-G01E_JMS02A02 / James River / The James River from river mile 108.76 to river mile 108.63. JMSTFu	4A	Escherichia coli (E. coli)	1996	L	0.016
VAP-G01E_JMS03A02 / James River / The James River from river mile 108.63 to the confluence with Proctors Creek at river mile 2-JMS097.94. JMSTFu	4A	Escherichia coli (E. coli)	1996	L	1.229
VAP-G02E_JMS01A00 / James River / The James River from Proctors Creek to 5 miles above the old American Tobacco raw water intake. JMSTFu	4A	Escherichia coli (E. coli)	2008	L	0.078
VAP-G02E_JMS02A00 / James River / The James River from 5 miles above the old American Tobacco intake to 5 miles above City Point at Hopewell. JMSTFu	4A	Escherichia coli (E. coli)	2006	L	2.790

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMS02B18 / James River / The James River from 5 miles above City Point at Hopewell to the downstream extent of JMSTFu. JMSTFu	4A	Escherichia coli (E. coli)	2006	L	1.182
VAP-G02E_JMS03A06 / James River / The James River from the upstream extent of JMSTF1 to the downstream extent of PWS. JMSTF1	4A	Escherichia coli (E. coli)	2006	L	0.633

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	6.167		

Sources: Agriculture; Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G01E-02-EBEN James River

Cause Location: Mainstem James River from the previous limit of PWS near Dutch Gap downstream to 5 miles above City Point Hopewell and from Buoy 74 at Brandon Point (rivermile 55.94) to the tidal freshwater/oligohaline boundary at approximately river mile 52.08.

Cause City/County: Charles City County; Chesterfield County; Henrico County; Hopewell; Prince George County; Richmond; Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2012-2016 cycles, the mainstem of the tidal freshwater James River was impaired of the Aquatic Life Use due to an inadequate benthic community based on the Chesapeake Bay Benthic Index of Biological Integrity.

In addition, there was benthic alteration at 2010 Coastal 2000 stations 2CJMS055.04 and 2CJMS084.70, which were considered Category 5A. The source is “possibly cumulative chronic effects of metals and PAHs in the sediment”.

The JMSTFa B-IBI segment met the goal in the 2018 cycle. The impairment was shortened to those areas around the two Coastal 2000 stations. The remainder was partially delisted.

The segment failed again in the 2022 cycle and the extent was expanded again.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	Estuarine Bioassessments	2022	L	0.239
VAP-G01E_JMS02A02 / James River / The James River from river mile 108.76 to river mile 108.63. JMSTFu	5A	Estuarine Bioassessments	2022	L	0.016
VAP-G01E_JMS03A02 / James River / The James River from river mile 108.63 to the confluence with Proctors Creek at river mile 2-JMS097.94. JMSTFu	5A	Estuarine Bioassessments	2022	L	1.229
VAP-G02E_APP01A12 / Appomattox River / Portion of the Appomattox River within CB segment JMSTF1 State Scenic River	5A	Estuarine Bioassessments	2022	L	0.113
VAP-G02E_JMC01A10 / James River - Old Channel (aka Farrar Gut) / The old channel of the James River JMSTFu	5A	Estuarine Bioassessments	2022	L	0.511
VAP-G02E_JMS01A00 / James River / The James River from Proctors Creek to 5 miles above the old American Tobacco raw water intake. JMSTFu	5A	Estuarine Bioassessments	2022	L	0.078
VAP-G02E_JMS02A00 / James River / The James River from 5 miles above the old American Tobacco intake to 5 miles above City Point at Hopewell. JMSTFu	5A	Estuarine Bioassessments	2012	L	2.790

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMS02B18 / James River / The James River from 5 miles above City Point at Hopewell to the downstream extent of JMSTFu. JMSTFu	5A	Estuarine Bioassessments	2022	L	1.182
VAP-G02E_JMS03A06 / James River / The James River from the upstream extent of JMSTF1 to the downstream extent of PWS. JMSTF1	5A	Estuarine Bioassessments	2022	L	0.633
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	5A	Estuarine Bioassessments	2022	L	10.194
VAP-G03E_JMS01B10 / James River / The mainstem of the James River from the confluence with Powell Creek downstream to Queen Creek. JMSTF1	5A	Estuarine Bioassessments	2022	L	3.485
VAP-G04E_JMS01A02 / James River / The James River from the confluence with Queens Creek downstream to Buoy 74 at Brandon Point JMSTF1	5A	Estuarine Bioassessments	2022	L	7.756
VAP-G04E_JMS03A04 / James River / Buoy 74 at Brandon Point (rivermile 55.94) to the tidal freshwater/oligohaline boundary at approximately river mile 52.08. JMSTF1	5A	Estuarine Bioassessments	2012	L	3.756

James River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	31.982		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: G01E-03-PCBFT James River and Various Tributaries

Cause Location: Estuarine James River from the fall line to the Hampton Roads Bridge Tunnel, including several tributaries listed below.

Cause City/County: Charles City County; Chesapeake; Chesterfield County; Colonial Heights; Dinwiddie County; Hampton; Henrico County; Hopewell; Isle Of Wight County; James City County; New Kent County; Newport News; Norfolk; Petersburg; Portsmouth; Prince George County; Richmond; Suffolk; Surry County; Williamsburg

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2002 cycle, the James River from the fall line to Queens Creek was considered not supporting of the Fish Consumption Use due to PCBs in several fish species at multiple DEQ monitoring locations.

During the 2004 cycle, a VDH Fish Consumption Restriction was issued from the fall line to Flowerdew Hundred and the segment was adjusted slightly to match the restriction. In addition, in the 2004 cycle, the Chickahominy River from Walkers Dam to Diascund Creek was assessed as not supporting of the Fish Consumption Use because the DEQ screening value for PCBs was exceeded in three species during 2001 sampling st 2-CHK023.64.

The VDH restriction was extended on 12/13/2004 to stretch from the I-95 bridge downstream to the Hampton Roads Bridge Tunnel and include the tidal portions of the following tributaries: Appomattox River up to Lake Chesdin Dam Bailey Creek up to Route 630 Bailey Bay Chickahominy River up to Walkers Dam Skiffes Creek up to Skiffes Creek Dam Pagan River and its tributary Jones Creek Chuckatuck Creek Nansemond River and its tributaries Bennett Creek and Star Creek Hampton River Willoughby Bay and the Elizabeth R. system (Western, Eastern, and Southern Branches and Lafayette R.) and tributaries St. Julian Creek, Deep Creek, and Broad Creek

The advisory was modified again on 10/10/2006 to add Poythress Run.

The impairments were combined. The TMDL for the lower extended portion is due in 2018.

PCB sampling in 2012 showed exceedances in four species (sp) at 2-JMS087.01, three sp at 2-JMS097.77, four sp at 2-JMS110.00, two sp at 2-PTH000.23, two sp at 2-BLY000.65, three sp at 2-JMS074.44, two sp at 2-JMS066.88, two sp at 2-JMS057.69, and three sp at 2-JMS052.67, among others.

Additional sampling occurred in 2016. The results are as follows:

2-JMS110.00 - 7 sp 2-JMS097.77 - 4 sp 2-JMS074.44 - 4 sp 2-JMS066.88 - 3 sp 2-JMS049.00 - 1 sp 2-CHK002.17 - 2 sp

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	PCBs in Fish Tissue	2002	H	0.239
VAP-G01E_JMS02A02 / James River / The James River from river mile 108.76 to river mile 108.63. JMSTFu	5A	PCBs in Fish Tissue	2002	H	0.016
VAP-G01E_JMS03A02 / James River / The James River from river mile 108.63 to the confluence with Proctors Creek at river mile 2-JMS097.94. JMSTFu	5A	PCBs in Fish Tissue	2002	H	1.229
VAP-G02E_APP01A12 / Appomattox River / Portion of the Appomattox River within CB segment JMSTF1 State Scenic River	5A	PCBs in Fish Tissue	2002	H	0.113

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMS01A00 / James River / The James River from Proctors Creek to 5 miles above the old American Tobacco raw water intake. JMSTFu	5A	PCBs in Fish Tissue	2002	H	0.078
VAP-G02E_JMS02A00 / James River / The James River from 5 miles above the old American Tobacco intake to 5 miles above City Point at Hopewell. JMSTFu	5A	PCBs in Fish Tissue	2002	H	2.790
VAP-G02E_JMS02B18 / James River / The James River from 5 miles above City Point at Hopewell to the downstream extent of JMSTFu. JMSTFu	5A	PCBs in Fish Tissue	2002	H	1.182
VAP-G02E_JMS03A06 / James River / The James River from the upstream extent of JMSTF1 to the downstream extent of PWS. JMSTF1	5A	PCBs in Fish Tissue	2002	H	0.633
VAP-G03E_BLY01A98 / Bailey Creek/Cattail Creek / The tidal portions of Bailey Creek and Cattail Creek. JMSTF1	5A	PCBs in Fish Tissue	2002	H	0.114
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	5A	PCBs in Fish Tissue	2002	H	10.194
VAP-G03E_JMS01B10 / James River / The mainstem of the James River from the confluence with Powell Creek downstream to Queen Creek. JMSTF1	5A	PCBs in Fish Tissue	2002	H	3.485
VAP-G03E_PTH01A00 / Poythress Run / The tidal portion of Poythress Run. JMSTF1	5A	PCBs in Fish Tissue	2008	H	0.002
VAP-G04E_JMS01A02 / James River / The James River from the confluence with Queens Creek downstream to Buoy 74 at Brandon Point JMSTF1	5A	PCBs in Fish Tissue	2006	H	7.756
VAP-G04E_JMS02A02 / James River / The James River from the tidal freshwater/oligohaline boundary at approx. river mile 51.94 to the limit of the PRO watershed (approx. rm 42.7). JMSTF1	5A	PCBs in Fish Tissue	2006	H	20.409
VAP-G04E_JMS03A04 / James River / Buoy 74 at Brandon Point (rivermile 55.94) to the tidal freshwater/oligohaline boundary at approximately river mile 52.08. JMSTF1	5A	PCBs in Fish Tissue	2006	H	3.756
VAP-G08E_CHK01A00 / Chickahominy River / The Chickahominy River from Walkers Dam to the confluence with Diascund Creek. CHKOH	5A	PCBs in Fish Tissue	2004	H	1.373

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_CHK02A00 / Chickahominy River / The Chickahominy River from the confluence with Diascund Creek downstream to the James River, excluding 0.5 mile upstream and downstream of station 2CCHK002.40. CHKOH	5A	PCBs in Fish Tissue	2006	H	5.468
VAP-G08E_CHK02B18 / Chickahominy River / Approximately 0.5 mile upstream and downstream of station 2CCHK002.40 CHKOH	5A	PCBs in Fish Tissue	2006	H	0.452
VAP-J15E_APP01A98 / Lower Appomattox River/Ashton Creek / The estuarine Appomattox River from the fall line to river mile 6.49. APPTF. Virginia Scenic River	5A	PCBs in Fish Tissue	2002	H	0.507
VAP-J15E_APP02A98 / Appomattox River / The estuarine portion of the Appomattox River from The confluence of Walthall Channel to the end of APPTF. Virginia Scenic River	5A	PCBs in Fish Tissue	2002	H	1.361
VAP-J15E_APP02B12 / Appomattox River / The estuarine portion of the Appomattox River from the start of PWS at river mile 6.49 to the confluence of Walthall Channel APPTF. Virginia Scenic River	5A	PCBs in Fish Tissue	2002	H	0.703
VAP-J15R_APP01A12 / Appomattox River / The Appomattox River from the Rohoic Creek to the fall line at the Route 1/301 bridge. Virginia Scenic River	5A	PCBs in Fish Tissue	2006	H	1.950
VAP-J15R_APP01A98 / Appomattox River / The Appomattox River from the Lake Chesdin dam to the confluence of Rohoic Creek	5A	PCBs in Fish Tissue	2006	H	5.580
VAT-G10E_JMS01A06 / James River Mainstem - Chickahominy R. to Hog Point / From confluence with Chickahominy R. coincident with watershed line (RM 48.40) downstream to line between Hog Pt. and mouth College Cr. N shore James R. CBP segment JMSOH. DSS (ADMIN) shellfish condemn # 059-069 A (effective 20141219).	5A	PCBs in Fish Tissue	2006	H	17.843
VAT-G10E_JMS01B08 / James River - Carters Grove Area (G10) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	5A	PCBs in Fish Tissue	2006	H	0.985
VAT-G10E_JMS02A06 / James River - Hog Point Area (Open Shellfish Area) / Triangular area in mainstem around Walnut Point, from Hog Pt. to G11 watershed line. CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 057-069 (effective 20141219).	5A	PCBs in Fish Tissue	2006	H	2.240

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_CKT01A04 / Chuckatuck & Brewers Creeks / South shore trib to James R., confluence upstream of Nansemond R. From headwaters of Brewers and Chuckatuck Creeks downstream to end of SF condemnation at Route 17 Bridge, Carrollton Blvd. Portion of CBP segment JMSMH. DSS shellfish harvesting condemnation # 062-080 (effective 20201015).	5A	PCBs in Fish Tissue	2006	H	0.731
VAT-G11E_CKT02A12 / Chuckatuck Creek and Mouth in James / South shore trib to James R, confluence upstream of Nansemond River. Segment includes DSS OPEN shellfish area from Carrollton Bridge downstream to mouth. Portion of CBP segment JMSMH. DSS OPEN shellfish direct harvesting condemnation # 062-080 (effective 20201015).	5A	PCBs in Fish Tissue	2006	H	0.714
VAT-G11E_JMS01A06 / James River - Gravel Neck to Pagan River / From start of JMSMH salinity boundary (Hog Isl. Cr.) downstream to line between Jail Pt (Mulberry Isle) to Days Pt (mouth Pagan R). CBP segment JMSMH. DSS (OPEN) shellfish condemnation # 059-069 & 058-183(effective 20201113).	5A	PCBs in Fish Tissue	2002	H	40.260
VAT-G11E_JMS01B08 / James River - Hog Island Area [JMSOH area] / From area of Homewood (G11 watershed line) downstream to start of JMSMH salinity boundary (Hog Isl. Cr.). CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	5A	PCBs in Fish Tissue	2006	H	3.846
VAT-G11E_JMS01C08 / James River - Carter Grove Area / Mainstem along north shore, from near Carter Grove. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 059-067 A (effective 20100901).	5A	PCBs in Fish Tissue	2006	H	0.404
VAT-G11E_JMS01D14 / James River - Carters Grove Area (G11) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	5A	PCBs in Fish Tissue	2006	H	1.218
VAT-G11E_JMS02A06 / James River - Jail Point to Hilton Village / Mainstem from line between Jail Pt (Mulberry Isle) to Days Pt (Mouth Pagan R) downstream to line Hilton Village (Newport News)/Kings Creek (Isle of Wight). CBP segment JMSMH. DSS (OPEN) shellfish harvesting condemnation # 061-064 & 058-034 (effective 20201113).	5A	PCBs in Fish Tissue	2006	H	24.697

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS03A06 / James River - Along Lower North Shore / Mainstem along north shore, from Jail Point (Mulberry Isle) downstream to line following Rt. 664. CBP segment JMSMH. Portions of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518) & 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	3.943
VAT-G11E_JMS03B06 / James River - Hilton Beach Area / North shore James R. NW of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	PCBs in Fish Tissue	2006	H	0.110
VAT-G11E_JMS03C06 / James River - Huntington Beach Area / North shore James R. near foot of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	PCBs in Fish Tissue	2006	H	0.008
VAT-G11E_JMS04A06 / James River - Hilton Village to Craney Island / Mainstem from a line between Hilton Village (Newport News)/Kings Creek (Isle of Wight) downstream to the end of DSS (OPEN) shellfish harvesting condemnation # 059-069 (effective 20141219). CBP segment JMSMH.	5A	PCBs in Fish Tissue	2006	H	24.879
VAT-G11E_JMS06A10 / James River - Outside Mouth Streeter & Hoffer Creeks / Mainstem area at Mouth of Streeter & Hoffer Creeks @ SW corner Craney Island. CBP segment JMSMH. DSS (ADMIN) shellfish condemnation # 064-018 A (effective 20080530).	5A	PCBs in Fish Tissue	2006	H	0.156
VAT-G11E_JOG01A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From headwaters to SR 669, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish harvesting (Admin-PROHIBITED) # 061-064 B, D, E, F (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.229
VAT-G11E_JOG02A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From SR 669 to mouth, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 B & M1 (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.102
VAT-G11E_PGN01A08 / Pagan River - Upstream of Chalmers Point / Located in Smithfield area. South shore tributary to James R. From end of tidal water downstream to approx. RM 7.00. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.062

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN01B18 / Pagan River - Upper Middle / Located in Smithfield area. South shore tributary to James R. From downstream of Crook Ln to Unnamed N Trib at Goose Hill Way. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20180530).	5A	PCBs in Fish Tissue	2006	H	0.065
VAT-G11E_PGN01C18 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Middle Pagan segment that Includes Morris Cr ends before Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.058
VAT-G11E_PGN02A08 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. North of Town of Smithfield downstream Azalea Dr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	1.030
VAT-G11E_PGN02B14 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Lower portion from Moonefield Dr to Morris Cr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.162
VAT-G11E_PGN02C18 / Pagan River - Lower SF Open / Located in Smithfield area. South shore tributary to James R. From Morris Creek downstream to River Ave. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.084
VAT-G11E_PGN02D16 / Pagan River - Middle / Located in Smithfield area. South shore tributary on the East shore to James R. Portion near Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting conditionally approved # 061-064 (effective 20201113).	5A	PCBs in Fish Tissue	2006	H	0.020
VAT-G11E_PGN03A10 / Pagan River - Mouth Area / Located in Smithfield area. South shore tributary to James R. From the edge of shellfish condemnation #061-064A to. downstream to mouth. Portion of CBP segment JMSMH. DSS OPEN and conditionally approved shellfish direct harvesting condemnation # 061-064 & S158 (effective 20201113).	5A	PCBs in Fish Tissue	2006	H	0.889
VAT-G11E_SFF02A08 / Skiffes Creek System [Admin Cond] / Located west of Lee Hall area, flows along the James City Co./NN City boundary. From dam downstream to mouth, including tidal tribs. Portion of CBP segment JMSMH. DSS (ADMIN) shellfish direct harvesting condemnation # 059-023 A (effective 20081215).	5A	PCBs in Fish Tissue	2006	H	0.452

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_SFF03A10 / Skiffes Creek - Mouth / Located west of Lee Hall area, flows across the James City Co./NN City boundary. From Goose Island to point on opposite shore. Portion of CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	5A	PCBs in Fish Tissue	2006	H	0.060
VAT-G11E_WIL01A18 / Williams Creek / Located off of North shore tributary to Pagan River. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting ADMIN condemnation # 061-064 C (effective 20200715).	5A	PCBs in Fish Tissue	2006	H	0.060
VAT-G13E_BEN01A04 / Bennett Creek - Tributary to Nansemond R. [No TMDL] / Eastern shore trib. to Nansemond R., near confluence with James R. Bennett Harbor area. From headwaters to mouth, including tidal tributaries. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	5A	PCBs in Fish Tissue	2004	H	0.542
VAT-G13E_NAN01A00 / Nansemond River - Upper / Upper Nansemond River, within city of Suffolk. Extends from most upstream point in river at Lake Meade Dam (RM 19.8) downstream to Rt. 58/460 crossing (RM 15.2). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (effective 20200915).	5A	PCBs in Fish Tissue	2006	H	0.269
VAT-G13E_NAN02A06 / Nansemond River - Upper Middle / Downstream of Suffolk. From Rt 58/460 (RM 15.1) crossing downstream to confluence with the Western Branch Reservoir (RM 11.9). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (20200915).	5A	PCBs in Fish Tissue	2006	H	0.209
VAT-G13E_NAN03A06 / Nansemond River - Lower Middle / In area of Western Branch Reservoir. From confluence with Western Br. (RM 11.8) downstream to Holidays Pt. CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A & C1 (20200915).	5A	PCBs in Fish Tissue	2006	H	2.833
VAT-G13E_NAN04A00 / Nansemond River - Lower [No TMDL] / Nansemond R mouth. From Olds Cove downstream to mouth. CBP segment JMSMH. DSS (OPEN) condemnation 063-046 (effective 20140826) & 063-008 (effective 20170823).	5A	PCBs in Fish Tissue	2006	H	6.303
VAT-G13E_NAN04C10 / Nansemond River - Lower DSS Condemned at Knotts Cr / Nansemond R at confluence Knotts Cr. CBP segment JMSMH. DSS condemnation # 063-046 B (effective 20140826).	5A	PCBs in Fish Tissue	2006	H	0.467

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_STR01A04 / Star & Oyster House Creeks - Tributary to Nansemond R. / Eastern shore tributary to Nansemond R. Adjacent to the Naval Communication station at Driver. From headwaters to confluence with Nansemond R. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	5A	PCBs in Fish Tissue	2006	H	0.046
VAT-G15E_BLM01A22 / Bells Mill Creek - SB Elizabeth R. S. shore tributary / SB Elizabeth R S shore tributary SW of Great Bridge Locks. CBP & BIBI segment SBEMHa. Portion of DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.023
VAT-G15E_BRO01A02 / Broad Creek, Eastern Br. Elizabeth R. / Located between Ingleside and Thomas Corner areas. North shore tributary to Eastern Br. Elizabeth R. Entirety of Broad Creek. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.371
VAT-G15E_DEC01A06 / Deep Creek, Southern Br. Elizabeth R. / South of I-64 crossing of Southern Br. E shore trib to Southern Br. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.209
VAT-G15E_DEC02A18 / Deep Creek, Southern Br. Elizabeth R.- Mouth / South of I-64 crossing of Southern Br. E shore trib to Southern Br. Mouth of Creek North of Interstate 64. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.075
VAT-G15E_EBE01A00 / Eastern Branch, Elizabeth R. - Upper / Located between Carolanne Farms and Tanglewood areas. Upper Eastern Br., from headwaters to confluence of Broad Creek (RM 4.0). CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.377
VAT-G15E_EBE02A06 / Eastern Branch, Elizabeth R. - Lower / From Broad Creek (RM 4.0) downstream to mouth of Elizabeth River mainstem. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	1.015
VAT-G15E_ELI01A06 / Elizabeth River Mainstem - Upper / From start of mainstem downstream to line between Hospital Pt and Smiths Cr. (Incl. Hague). Segment ELIMHa (downstream Lamberts Pt.). DSS (ADMIN) cond # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.468

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_ELI02A06 / Elizabeth River Mainstem - Middle / From a line between Hospital Pt and Smiths Cr down stream to the end of CBP-BIBI segment ELIMHa (downstream of Lamberts Pt.). BIBI segment ELIMHa. CBP segment ELIPH. DSS (ADMIN) condemnation # 056-007 E and A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	4.005
VAT-G15E_ELI03A08 / Elizabeth River Mainstem - Mouth / From start BIBI segment ELIPHa (SE corner Craney Isl. line to east) downstream to mouth (NE corner Craney Isl. east to S Glenwood Pk). BIBI segment ELIPHa. CBP segment ELIPH. DSS (ADMIN) condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	3.445
VAT-G15E_GIL01A10 / Gilligan Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.012
VAT-G15E_GIL02A10 / Gilligan Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.011
VAT-G15E_HAI01A06 / Hampton River / Located between Cherry Acres & East Hampton areas of Hampton, north shore tributary to Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.547
VAT-G15E_JMS01A00 / James River at Hampton Roads Harbor / Mainstem from a line between Lincoln Park and the NW corner of Craney Isl. downstream to mouth at Hampton Roads Tunnel. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	25.540
VAT-G15E_JMS01B06 / James River - King/Lincoln Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.009
VAT-G15E_JMS01C06 / James River - Anderson Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.011

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_JMS05A06 / James River - Newport News Point to NW Corner Craney Isl. / Line following the Rt. 664 crossing mid-river, SW to mid-mouth Nansemond R. to SW tip Craney Isl. Line. The NW line from NW tip Craney Isl. to Lincoln Pk. CBP segment JMSMH. DSS (ADMIN) cond # 056-007 A, B, C (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	3.611
VAT-G15E_JON01A10 / Jones Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.027
VAT-G15E_JON02A10 / Jones Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.017
VAT-G15E_LAF01A06 / Lafayette River - Upper / Located east of Craney Isl. From headwaters (approx. RM 7.5) downstream to past Rt 337 (Hampton Blvd bridge, RM 1.75) near Edgewater Haven. CBP segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	1.743
VAT-G15E_LAF02A06 / Lafayette River - Lower / Located east of Craney Isl. From Rt. 337 (Hampton Blvd bridge, RM 1.75) downstream to the mouth. CBP segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.404
VAT-G15E_MAI01A10 / Mains Cr. - SB Eliz R. E shore Tributary / SB Eliz R. E shore upstream tributary, SE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.013
VAT-G15E_MDM01A10 / Milldam Cr trib S. Br. Elizabeth R. / Tributary to E shore SB Elizabeth R. N of Gilmerton Br. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.071
VAT-G15E_MIG01A10 / Mill Creek, Trib to Hampton Roads Harbor / Mill Creek, north shore tributary to Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.915

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_NMC01A00 / New Mill Creek - Southern Br. Elizabeth R. / Located south of I-64 crossing of Southern Br. Eastern shore trib to Southern Br, downstream of locks. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.082
VAT-G15E_NTN01A10 / Newton Cr trib to SB Eliz R / Tributary to E shore SB Eliz R. NE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.038
VAT-G15E_PAR01A06 / Paradise Creek - Upper, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. No Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.025
VAT-G15E_PAR02A10 / Paradise Creek - Lower, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. With Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.028
VAT-G15E_SBE01A00 / Southern Branch, Elizabeth R. - Upper / South of I-64 crossing. From headwaters @ Great Br Locks downstream to I-64 crossing @ Deep Cr. (RM 6.86). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.636
VAT-G15E_SBE02A06 / Southern Branch, Elizabeth R. - Middle / From I-64 crossing @ Deep Cr. confluence (RM 6.86) downstream to the Jordan Bridge (RM 2.30). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	1.055
VAT-G15E_SBE02B20 / Southern Branch, Elizabeth R. - Middle / Shore along Chesapeake Deep Water Terminal south of Paradise Creek. CBP segment SBEMH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	L	0.015
VAT-G15E_SBE02C22 / Southern Branch, Elizabeth R. - Middle / Buffer of station 2CSBE005.84 outside of Newton Creek tributary. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	L	0.005

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE03A06 / Southern Branch, Elizabeth R. - Lower / North of the Jordan Bridge. From the Jordan Bridge, Rt. 337 (RM 2.30) downstream to the mouth, confluence with the mainstem Elizabeth R. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMIN) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.545
VAT-G15E_STJ01A04 / Saint Julian Creek / Northwest of Gilmerton Bridge. Eastern shore tributary to Southern Br. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.133
VAT-G15E_WBE01A02 / Western Branch, Elizabeth R. - Upper / Located between Stewart Manor and Point Elizabeth areas. From headwaters (RM 8.5) downstream to Sterns Creek (RM 3.5). BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.561
VAT-G15E_WBE02A00 / Western Branch, Elizabeth R. - Lower / Located between the Point Elizabeth and Lovett Point areas. From Sterns Creek confluence (RM 3.5) downstream to the mouth. CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	1.457
VAT-G15E_WLY01A06 / Willoughby Bay [Less Beach Area] / Located adjacent to mouth of James River at Hampton Roads, southeast of Hampton Roads Bridge Tunnel. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	2.476
VAT-G15E_WLY03A06 / Willoughby Bay - Beach Area / Located along the northern shore portion of Willoughby Bay along Willoughby Spit. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.142
VAT-G15E_XFR01A10 / UT to SB Elizabeth R. S shore estuary SE of Mill Cr. / SB Eliz S shore estuary SE of Mill Cr. CBP & BIBI segment SBEMH. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.008
VAT-G15E_XQT01A10 / UT to SB Elizabeth R. N shore creek near Great Bridge Locks / SB Elizabeth R. upstream N shore creek north of Great Bridge Locks. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.045

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_XQU01A10 / SB Eliz N shore creek SW of Mains Cr. / SB Elizabeth R. upstream N shore creek SW of Mains Cr. CBP & BIBI segment SBEMHa. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.020
VAT-G15E_ZZZ02A08 / Unsegmented estuaries in SBEMH / CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	PCBs in Fish Tissue	2006	H	0.058

James River and Various Tributaries

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	248.079		7.53

Sources: Atmospheric Deposition - Toxics; Contaminated Sediments; Source Unknown; Sources Outside State Jurisdiction or Borders

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James River Basin

Cause Group Code: **G01L-01-CHLA** **Falling Creek Reservoir**

Cause Location: Falling Creek Reservoir headwaters to dam

Cause City/County: Chesterfield County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: The lake was subject to historical chronic problems resulting from nutrients and organic loadings. It was listed in 1998 as not supporting the Public Water Supply use and threatened of the ALUS.

During the 2006 cycle, monitoring showed acceptable DO in the epilimnion, but showed depressed DO in the hypolimnion during stratification. The TSIs were:

TSI(CA) = 53 TSI(TP) = 59 TSI(SD) = 63

Although the secchi depth TSI exceeded the limit of 60, the Chlorophyll a and phosphorus TSIs were acceptable (mesotrophic); these are considered more reliable since an elevated secchi depth TSI may be due to inorganic turbidity and not an indication of excessive nutrients. Since the PWS Use for Falling Creek has been removed from the WQS and the TSIs meet acceptable limits the lake should be delisted for PWS. However due to the depressed dissolved oxygen in the bottom, the segment should be classified as Category 4C due to natural stratification; the segment is first listed for DO in 2006.

During the 2008 cycle the lake criteria was developed and the lake is fully supporting for DO and will be DELISTED.

During the 2012 cycle the segment became impaired for DO with a pooled violation rate of 11/60 at stations 2-FAC005.78, and 2-FAC003.85.

There was no new data for the 2014 cycle

During the 2018 cycle station 2-FAC003.85 Chlorophyll a is impaired with an exceedance rate of 2/2

No new data was collected in 2020 and 2022 cycle so the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01L_FAC01A98 / Falling Creek Reservoir / Falling Creek Reservoir	5A	Chlorophyll-a	2018	L	88.38

Falling Creek Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		88.38	

Sources: Non-Point Source

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James River Basin

Cause Group Code: **G01R-01-BAC** Goode Creek

Cause Location: Goode Creek from the confluence with Broad Rock Creek to its mouth at the James River.

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Goode Creek was initially assessed as not supporting the Recreation Use in the 2002 cycle based on sampling at 2-GOD000.07 and at 2-GOD000.77 (Commerce Road).

In the 2006 cycle, E. coli was added as an impairing cause based on exceedances at 2-GOD000.77. During the 2008 cycle, the impairment converted solely to E. coli.

The violation rate was 8/14 in the 2014 cycle at 2-GOD000.77.

The impairment was addressed in the report James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. Goode Creek is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GOD01A00 / Goode Creek / Goode Creek from the confluence with Broad Rock Creek to the James River.	4A	Escherichia coli (E. coli)	2006	L	1.21

Goode Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.21

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-01-PCB** **Goode Creek**

Cause Location: Goode Creek from the confluence with Broad Rock Creek to its mouth at the James River.

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, Goode Creek was impaired of the Fish Consumption Use due to two exceedances of the Human Health - Other Surface Waters WQS for water column PCBs. The samples were collected at 2-GOD000.77 as part of a 2009 source identification study for the VDH PCB advisory in the James River.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GOD01A00 / Goode Creek / Goode Creek from the confluence with Broad Rock Creek to the James River.	5A	Polychlorinated biphenyls (PCBs)	2012	H	1.21

Goode Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.21

Sources: Source Unknown

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James River Basin

Cause Group Code: **G01R-02-BAC** **Almond Creek**

Cause Location: Almond Creek from its headwaters to its tidal limit.

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Almond Creek was initially assessed as not supporting of the Recreation Use support goal in the 1998 cycle based on fecal coliform standard exceedances recorded at the Route 5 bridge (2-ALM000.42). During the 2006 cycle, E. coli was added as an impairment. During the 2008 cycle, the impairment converted to E. coli.

The E. coli violation rate was 3/12 during the 2014 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Almond Creek was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/010; therefore, it is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_ALM01A98 / Almond Creek / Almond Creek from its headwaters to the tidal limit.	4A	Escherichia coli (E. coli)	2006	L	2.11

Almond Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.11

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-02-PCB** **Almond Creek**

Cause Location: Almond Creek from its headwaters to its mouth.

Cause City/County: Henrico County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, Almond Creek was impaired of the Fish Consumption Use due to two exceedances of the Human Health - Other Surface Waters WQS for water column PCBs. The samples were collected in 2009 as part of a source identification study for the PCB advisory in the James River.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_ALM01A98 / Almond Creek / Almond Creek from its headwaters to the tidal limit.	5A	Polychlorinated biphenyls (PCBs)	2012	H	2.11

Almond Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.11

Sources: Source Unknown

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James River Basin

Cause Group Code: **G01R-02-PH** XVO and XVP - Almond Creek, UT

Cause Location: Unnamed tributaries of Almond Creek.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: In 2004, Almond Creek and tributaries XVO and XVP were considered impaired of the Aquatic Life Use due to pH exceedances at 2-ALM000.42 as well as pH exceedances at station located on UTs downstream of the BFI landfill (2-XVO000.10 and 2-XVP000.04).

Although there are numerous exceedances on the tributary, the pH violation rates were acceptable during the 2010 cycle on mainstem Almond Creek; therefore, Almond Creek was partially delisted.

During the 2012 cycle, the exceedance rates were as follows:

2-XVO000.10 - 8/27 (2008 cycle)

2-XVO000.16 - 0/2

2-XVP000.04 - 3/5

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XVO01A08 / XVO - Almond Creek, UT / Headwaters to mouth at Almond Creek	5A	pH	2004	L	0.47
VAP-G01R_XVP01A08 / XVP - Almond Creek, UT / Headwaters to mouth at Almond Creek	5A	pH	2004	L	0.37

XVO and XVP - Almond Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.84

Sources: Landfills; Source Unknown

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James River Basin

Cause Group Code: **G01R-04-BAC** **Falling Creek**

Cause Location: Falling Creek from its headwaters downstream to the extent of backwater at Falling Creek Reservoir.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Falling Creek from its headwaters downstream to Falling Creek Reservoir was initially assessed as not supporting the Recreation Use during the 2006 cycle based on the bacteria exceedances at the Route 651 bridge (2-FAC009.46) and at the Route 720 bridge (2-FAC017.80).

During the 2008 cycle, the impairment converted solely to E. coli. The segment shows a history of exceedances at 2-FAC009.46, 2-FAC012.96 (Rt. 360 bridge), and 2-FAC017.80.

The E. coli impairment on Falling Creek from the Falling Creek Reservoir Dam to the tidal limit was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As this segment is within the watershed, it was considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented during the 2022 cycle. The segment remained impaired at 2-FAC009.46 due to two or more STV exceedances within a 90-day period with <10 samples. Level II monitoring at 2-FAC-72-CWT showed no violations (0/12 - IN); therefore, DEQ follow up monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_FAC02A04 / Falling Creek / Falling Creek from its headwaters to Gregorys Pond dam.	4A	Escherichia coli (E. coli)	2006	L	10.61
VAP-G01R_FAC02B08 / Falling Creek / Falling Creek from Gregorys Pond dam to the confluence with Horners Run	4A	Escherichia coli (E. coli)	2006	L	0.99
VAP-G01R_FAC02C08 / Falling Creek / Falling Creek from Horners Run to the extent of backwater of Falling Creek Reservoir.	4A	Escherichia coli (E. coli)	2006	L	5.40

Falling Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-04-DO** **Falling Creek**

Cause Location: Falling Creek from Gregorys Pond downstream to the confluence with Horners Run.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2008 cycle, this segment of Falling Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/22 at DEQ station 2-FAC012.96, which is located at the Route 360 bridge.

The dissolved oxygen impairment was confirmed in the 2016 cycle with exceedance rates of 5/6 at 2-FAC012.96 and 2/2 at 2-FAC013.25.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_FAC02B08 / Falling Creek / Falling Creek from Gregorys Pond dam to the confluence with Horners Run	5A	Dissolved Oxygen	2008	L	0.99

Falling Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.99

Sources: Dam or Impoundment; Source Unknown

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James River Basin

Cause Group Code: **G01R-05-BAC** **Kingsland Creek**

Cause Location: Kingsland Creek from its headwaters downstream to its mouth at the James River.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Kingsland Creek was assessed as not supporting of the Recreation Use based on E. coli exceedances at the Route 1 bridge (2-KSL002.62). During the 2008 cycle, the violation rate was 4/11.

Kingsland Creek is within the study area for the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As this segment is within the watershed, it is considered nested (Category 4A) and will be addressed during implementation.

Additional monitoring was conducted during the 2016 cycle; the exceedance rate was 7/12 at 2-KSL004.42 (Hopkins Road).

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_KSL01A04 / Kingsland Creek / Headwaters to mouth	4A	Escherichia coli (E. coli)	2006	L	8.55

Kingsland Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.55

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-05-PH** **Kingsland Creek**

Cause Location: Kingsland Creek from its headwaters downstream to its mouth at the James River.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2006 cycle, Kingsland Creek was assessed as not supporting the Aquatic Life Use based on pH exceedances at the Route 1 bridge (2CKSL002.62). The exceedance rate was 3/11 in the 2008 cycle. No additional data has been collected at that station.

A Natural Conditions Assessment was completed in February 2014. The report attributes the impairment to natural conditions and recommends that Kingsland Creek be reclassified as Class VII swampwaters. Due to an error, it remained 5C for the 2014 cycle.

Additional monitoring was conducted during the 2016 cycle. The exceedance rate was 2/13 at 2-KSL004.42 (Hopkins Road); however, the exceedance rate was acceptable at other stations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_KSL01A04 / Kingsland Creek / Headwaters to mouth	5C	pH	2006	L	8.55

Kingsland Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 8.55

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-06-BAC** Gillies Creek

Cause Location: Gillies Creek from its headwaters to its mouth at the James River.

Cause City/County: Henrico County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Gillies Creek was initially assessed as not supporting of the Recreation Use in 2004 based on monitoring at the Government Road Bridge (2-GIL001.00).

During the 2008 cycle, the impairment converted to E. coli.

During the 2020 cycle, the stations had the following violation rates: 2-GIL-GIL03-ACB - 3/5 (tidal) 2-GIL-STN01-ACB - 0/7 2-GIL-GIL02-ACB - 1/6 2-GIL000.42 - 11/26 (2018 cycle) 2-GIL001.00 - 6/12 (2010 cycle) 2-GIL001.77 - 19/27 (2012 cycle) 2-GIL002.84 - 2/12 (2010 cycle)

A Richmond CSO outfall is located on the creek. Gillies Creek was included in the James River and Tributaries - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010. The stream is considered Category 4A.

The TMDL addressed Gillies Creek down to its mouth, however it was later determined that the mouth of Gillies Creek can be slightly tidal influenced. Due to monitoring at 2-GIL-GIL03-ACB in the 2020 cycle, the tidal portion was added to the impairment.

New bacteria were implemented in the 2022 cycle. No additional data has been collected in the riverine portion; therefore, the impairment was carried over. The 2020 data remains impaired at tidal station 2-GIL-GIL003-ACB under the new criteria due to two or more STV exceedances within the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_GIL01A18 / Gillies Creek / Tidal portion of Gillies Creek JMSTFu	4A	Escherichia coli (E. coli)	2020	L	0.001
VAP-G01R_GIL01A04 / Gillies Creek / Headwaters to mainstem	4A	Escherichia coli (E. coli)	2008	L	5.880

Gillies Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.001		5.88

Sources: Agriculture; Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-06-PCB** Gillies Creek

Cause Location: Gillies Creek from its headwaters to its mouth at the James River.

Cause City/County: Henrico County; Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, Gillies Creek was impaired of the Fish Consumption Use due to two exceedances of the Human Health - Other Surface Waters WQS for water column PCBs. The samples were collected at 2-GIL000.42 as part of a 2009 source identification study for the PCB advisory in the James River.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GIL01A04 / Gillies Creek / Headwaters to mainstem	5A	Polychlorinated biphenyls (PCBs)	2012	H	5.88

Gillies Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.88

Sources: Source Unknown

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James River Basin

Cause Group Code: **G01R-06-PH** Gillies Creek

Cause Location: Gillies Creek from its headwaters to its mouth at the James River.

Cause City/County: Henrico County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Gillies Creek was initially assessed as not supporting the Aquatic Life Use in 2004 based on elevated pH at the Government Road Bridge (2-GIL001.00, which was mistakenly called 2-GIL000.42 from 2001 to 2005).

During the 2010 cycle, the pH exceedance rate was 3/25 at 2-GIL001.00, although the other stations within the segment have acceptable pH exceedance rates.

Continued monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GIL01A04 / Gillies Creek / Headwaters to mainstem	5A	pH	2004	L	5.88

Gillies Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.88

Sources: Source Unknown

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James River Basin

Cause Group Code: G01R-07-DO Redwater Creek

Cause Location: Redwater Creek from its headwaters to its mouth at Proctors Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Redwater Creek was assessed as impaired of the Aquatic Life Use in the 2010 cycle due to dissolved oxygen exceedances at 2-RDW000.50 (Route 615 / Coxendale Road.)

The exceedance rate was 3/13 in the 2012 cycle. Two values were extremely low.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_RDW01A06 / Redwater Creek / Headwaters to mouth at Proctors Creek	5C	Dissolved Oxygen	2010	L	2.97

Redwater Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.97

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-08-BAC XSZ - James River, UT (aka No Name Creek)**

Cause Location: UT to James River (a.k.a. No Name Creek) mainstem and tributaries

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: No Name Creek was assessed as not supporting the Recreation Use during the 2004 cycle based on the following fecal coliform exceedance rates:

2/2 at 2-XTC000.08 1/1 at 2-XUH000.01 2/2 at 2-XUI000.01

Additional monitoring was recommended. During the 2008 cycle, E. coli monitoring was conducted at station 2-XSZ001.58, which is located at the Route 1 bridge. The station had an E.coli exceedance rate of 7/13; therefore, the impairment was converted to E.coli.

The exceedance rate was 5/11 during the 2014 cycle.

The stream was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XSZ01A04 / XSZ - James River, UT (aka No Name Creek) / Headwaters to mouth including multiple unnamed tributaries to XSZ	4A	Escherichia coli (E. coli)	2008	L	2.23

XSZ - James River, UT (aka No Name Creek)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.23

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-09-DO XPF - UT to James River**

Cause Location: Ditch to James River through National Battlefield Park

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The ditch was considered impaired of the Aquatic Life use due to dissolved oxygen monitoring by the USGS:

2/4 at 0203853010 (James River Trib 5 at West Boundary at Bellwood, VA)

2/4 at 0203853030 (James River Trib 5 Below Landfill at Bellwood, VA)

The downstream station 020853050 (James River Trib 5 at East Boundary) was acceptable. This station is near station 2-XPF-RICH-08-NPS, which also shows acceptable DO levels.

Additional monitoring was conducted by the DEQ during the 2014 cycle. The dissolved oxygen impairment was confirmed (3/10 at 2CXBD000.15). The exceedance rate at 2CXBD000.38 was insufficient (1/5).

Monitoring at station 2-XPF-RICH-08-NPS, which is co-located with 2CXBD000.15, was acceptable during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XBD01B04 / XBD - UT (dry ditch) to James River / Headwaters to mouth at James River Richmond National Battlefield Park	5C	Dissolved Oxygen	2004	L	0.39

XPF - UT to James River

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.39

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-09-PH** XPF - UT to James River

Cause Location: Ditch to James River through National Battlefield Park

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The ditch was considered impaired of the Aquatic Life use due to pH monitoring by the USGS:

2/4 at 0203853010 (James River Trib 5 at West Boundary at Bellwood, VA)

2/4 at 0203853030 (James River Trib 5 Below Landfill at Bellwood, VA)

The downstream station 020853050 (James River Trib 5 at East Boundary) was acceptable. This station is near station 2-XPF-RICH-08-NPS, which also has acceptable pH.

Additional monitoring was conducted by the DEQ during the 2014 cycle. The dissolved oxygen impairment was confirmed (3/10 at 2CXBD000.15). The exceedance rate at 2CXBD000.38 was insufficient (1/5).

Monitoring at station 2-XPF-RICH-08-NPS, which is co-located with 2CXBD000.15, was acceptable during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XBD01B04 / XBD - UT (dry ditch) to James River / Headwaters to mouth at James River Richmond National Battlefield Park	5C	pH	2004	L	0.39

XPF - UT to James River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.39

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-10-BAC** **Pocoshock Creek**

Cause Location: Pocoshock Creek from its headwaters to its mouth at Falling Creek Reservoir

Cause City/County: Chesterfield County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Pocoshock Creek was considered impaired because of a fecal coliform violation rate of 2/12 at station 2-PSK000.23, which is located at a private road off Bemiss. Additional monitoring was conducted in the 2008 cycle and the impairment converted to E. coli. The violation rates were:

2-PSK000.23 - 3/12 2-PSK003.07 - 3/11 2-PSK006.53 - 3/12

Additional monitoring was conducted at 2-PSK-POC01-ACB, a level III citizen monitoring station, in the 2020 cycle. The exceedance rate was 5/8.

The E. coli impairment on Falling Creek from the Falling Creek Reservoir Dam to the tidal limit was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As Pocoshock Creek is within the watershed, it is considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented in the 2022 cycle. No new bacteria data were collected, however re-evaluation of the 2020 data indicates that the segment would remain impaired due to two or more STV exceedances within the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_PSK01A04 / Pocoshock Creek / Headwaters to mouth at Falling Creek Reservoir	4A	Escherichia coli (E. coli)	2008	L	8.7

Pocoshock Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.7

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-10-BEN** **Pocoshock Creek**

Cause Location: Pocoshock Creek from its headwaters to its mouth at Falling Creek Reservoir

Cause City/County: Chesterfield County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: In the 2020 cycle, Pocoshock Creek was impaired of the Aquatic Life Use due to benthic alteration at 2017 freshwater probabilistic monitoring station 2-PSK006.68.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_PSK01A04 / Pocoshock Creek / Headwaters to mouth at Falling Creek Reservoir	5A	Benthic Macroinvertebrates Bioassessments	2020	L	8.7

Pocoshock Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.7

Sources: Source Unknown

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James River Basin

Cause Group Code: G01R-11-BAC Broad Rock Creek

Cause Location: Broad Rock Creek from its headwaters to its mouth at Goode Creek.

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Broad Rock Creek was assessed as not supporting the Recreation Use based on E. coli exceedances at 2-BDO000.38 (Columbia Street). During the 2008 cycle, the segment remained impaired due to an E. coli violation rate of 2/11 at 2-BDO000.38 and a violation rate of 3/11 at TMDL station 2-BDO000.46, which is located at Route 1. No additional data has been collected.

Broad Rock Creek is a tributary of Goode Creek, which was included in the James River and Tributaries - City of Richmond Bacterial TMDL. The TMDL was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL and is therefore considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_BDO01A06 / Broad Rock Creek / Headwaters to Goode Creek	4A	Escherichia coli (E. coli)	2006	L	3.12

Broad Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.12

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-12-PH** **XYI - Coles Run, UT**

Cause Location: The unnamed tributary XYI from its headwaters to its mouth

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The tributary has been assessed as impaired of the Aquatic Life Use based on a pH exceedance rate of 4/4 at USGS station 0203854210, which is located in the breastworks on the National Battlefield.

Additional data was collected during the 2016 cycle at station 2CXBX001.08. The exceedance rates was 4/4; therefore, the tributary will continue to be listed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XYI01A06 / XYI - Coles Run, UT / Headwaters at breastworks to mouth at Coles Run	5C	pH	2006	L	0.94

XYI - Coles Run, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.94

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-13-BAC** XYA - Almond Creek, UT

Cause Location: UT XYA from its headwaters to its mouth at Almond Creek.

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the segment was assessed as impaired of the Recreation Use due to an E. coli violation rate of 3/11 at TMDL station 2-XYA000.06, which is located at Bickerstaff Road. No additional data has been collected.

The stream is a tributary of Almond Creek, which was included in the James River and Tributaries - City of Richmond Bacterial TMDL. The TMDL was approved by the EPA on 11/4/2010. Although the tributary was not specifically addressed, it will be included in the implementation phase of the TMDL and is therefore considered a nested water (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XYA01A08 / XYA - Almond Creek, UT / Headwaters to mouth at Almond Creek	4A	Escherichia coli (E. coli)	2008	L	1.15

XYA - Almond Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.15

Sources: Agriculture; Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-14-BAC** **Cornelius Creek**

Cause Location: The nontidal portion of Cornelius Creek.

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Cornelius Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 2/10 at TMDL station 2-CEL002.38, which is located at Old Osborne Turnpike.

No additional data has been collected at the original listing station. However, monitoring at 2-CEL001.56 in the 2014 cycle confirmed the impairment (4/12).

Cornelius Creek is within the study area for the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. Although not addressed in the report, the impairment will be addressed during the implementation phase and so is considered a nested water (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_CEL01A04 / Cornelius Creek / Headwaters to tidal limit near James River	4A	Escherichia coli (E. coli)	2008	L	7.23

Cornelius Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.23

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-15-BAC** **Proctors Creek**

Cause Location: The nontidal mainstem of Proctors Creek.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Proctors Creek was initially assessed as impaired of the Recreation Use in the 2008 cycle due to E. coli exceedances at the Route 1 bridge (2-PCT002.46). The violation rate was 4/24 during the 2014 cycle; however, continued monitoring is recommended because there were no recent exceedances.

The stream is within the study area for the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed in the implementation phase; therefore, it is considered a nested water (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. The stream remains impaired due to two or more STV exceedances within the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_PCT01A06 / Proctors Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2008	L	8.27

Proctors Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.27

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-15-BEN** **Proctors Creek**

Cause Location: The nontidal mainstem of Proctors Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Proctors Creek was assessed as impaired of the Aquatic Life Use in the 2010 cycle due to an impaired benthic community at the Route 1 bridge (2-PCT002.46).

Benthics have been collected in 2007, 2008, 2011, and 2019. The stream remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_PCT01A06 / Proctors Creek / Headwaters to tidal limit	5A	Benthic Macroinvertebrates Bioassessments	2010	H	8.27

Proctors Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.27

Sources: Source Unknown

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James River Basin

Cause Group Code: **G01R-16-BAC** **Horners Run**

Cause Location: The mainstem of Horners Run.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Horners Run was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at the Lynchester Drive bridge (2-HAO001.15).

The E. coli impairment on Falling Creek from the Falling Creek Reservoir Dam to the tidal limit was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As this segment is within the watershed, it is considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected and the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_HAO01A08 / Horners Run / Headwaters to mouth at Falling Creek	4A	Escherichia coli (E. coli)	2008	L	2.43

Horners Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.43

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-17-BAC XXN - Falling Creek, UT**

Cause Location: Headwaters to mouth at Falling Creek

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the tributary was assessed as impaired of the Recreation Use due to an E. coli violation rate of 4/12 at 2-XXN000.42, which is located at Route 678, Providence Road West. No additional data has been collected.

The E. coli impairment on Falling Creek from the Falling Creek Reservoir Dam to the tidal limit was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As the stream is within the Falling Creek watershed, it will be considered nested (Category 4A) and will be addressed during implementation.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XXN01A08 / XXN - Falling Creek, UT / Headwaters to mouth at Falling Creek	4A	Escherichia coli (E. coli)	2008	L	2.33

XXN - Falling Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.33

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-18-BAC** Licking Creek

Cause Location: Headwaters to mouth at Falling Creek

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Licking Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 6/11 at 2-LIB000.12, which is located at Barkbridge Road.

The E. coli impairment on Falling Creek from the Falling Creek Reservoir Dam to the tidal limit was addressed in the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As this stream is within the watershed, it is considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected and the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_LIB01A08 / Licking Creek / Headwaters to mouth at Falling Creek	4A	Escherichia coli (E. coli)	2008	L	3.25

Licking Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.25

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-19-BAC** **Stony Run**

Cause Location: Headwaters to mouth at Gillies Creek

Cause City/County: Henrico County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Stony Run was assessed as impaired of the Recreation Use due to an E. coli violation rate of 6/12 at East Richmond Road (2-SNH000.19) and 4/12 at the Route 33 bridge (2-SNH001.31). No additional data has been collected.

Stony Run is a tributary of Gillies Creek, which was included in the James River and Tributaries - City of Richmond Bacterial TMDL. The TMDL was approved by the EPA on 11/4/2010. The stream is considered a nested water (Category 4A) and will be addressed during the implementation phase of the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_SNH01A08 / Stony Run / Headwaters to mouth at Gillies Creek	4A	Escherichia coli (E. coli)	2008	L	3.17

Stony Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.17

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G01R-20-BAC** **Reedy Creek**

Cause Location: Reedy Creek from its headwaters downstream to its mouth at Kingsland Creek.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Reedy Creek was assessed as not supporting of the Recreation Use based on an E. coli exceedance rate of 4/11 at the Route 642 bridge (2-RDK000.77).

Reedy Creek is within the study area for the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. It is considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_RDK01A12 / Reedy Creek / Headwaters to mouth at Kingsland Creek	4A	Escherichia coli (E. coli)	2012	L	3.42

Reedy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.42

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G01R-21-BAC Great Branch

Cause Location: Great Branch from its headwaters to its mouth at Proctors Creek.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Great Branch was impaired of the Recreation Use due to an E. coli exceedance rate of 2/10 at 2-GTB000.46 (Centralia Road). The exceedance rate at 2-GTB000.65 (Rt. 144) was acceptable (1/12); therefore, continued monitoring is recommended.

Great Branch is within the study area for the James River and Tributaries - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. As this segment is within the watershed, it is considered nested (Category 4A) and will be addressed during implementation.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GTB01A12 / Great Branch / Headwaters to mouth at Proctors Creek	4A	Escherichia coli (E. coli)	2016	L	4.38

Great Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.38

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G01R-21-DO Great Branch

Cause Location: Great Branch from its headwaters to its mouth at Proctors Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Great Branch was impaired of the Aquatic Life Use during the 2014 cycle based on a dissolved oxygen exceedance rate of 2/12 at 2-GTB000.65, which is located at Route 144.

The exceedance rate is currently acceptable (0/2); however, additional monitoring was conducted at 2-GTB000.46 (2/10) in the 2016 cycle. Monitoring at upstream Chesterfield Water Trends stations 2-GTB-25-CWT and 2-GTB-62-CWT is insufficient for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_GTB01A12 / Great Branch / Headwaters to mouth at Proctors Creek	5C	Dissolved Oxygen	2014	L	4.38

Great Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.38

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G01R-22-CU** XVP - Almond Creek, UT

Cause Location: Unnamed tributary of Almond Creek.

Cause City/County: Henrico County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Copper/5A

Cause Description: During the 2012 cycle, the tributary was impaired of the Aquatic Life and Wildlife Uses due to exceedances of the acute water quality criteria for dissolved copper in 2008 and 2009 at station 2-XVP000.04.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XVP01A08 / XVP - Almond Creek, UT / Headwaters to mouth at Almond Creek	5A	Copper	2012	L	0.37

XVP - Almond Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:			0.37

XVP - Almond Creek, UT

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:			0.37

Sources: Landfills; Source Unknown

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James River Basin

Cause Group Code: **G01R-22-ZN** XVP - Almond Creek, UT

Cause Location: Unnamed tributary of Almond Creek.

Cause City/County: Henrico County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Zinc/5A

Cause Description: During the 2012 cycle, the tributary was impaired of the Aquatic Life and Wildlife Uses due to exceedances of the acute water quality criteria for dissolved zinc in 2008 and 2009 at station 2-XVP000.04.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01R_XVP01A08 / XVP - Almond Creek, UT / Headwaters to mouth at Almond Creek	5A	Zinc	2012	L	0.37

XVP - Almond Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:			0.37

XVP - Almond Creek, UT

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:			0.37

Sources: Landfills; Source Unknown

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James River Basin

Cause Group Code: G02E-02-CHLA James River

Cause Location: The mainstem of the James River within the Lower Tidal Freshwater Estuary.

Cause City/County: Charles City County; Chesterfield County; Hopewell; Prince George County; Surry County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/4A

Cause Description: The James River from the Appomattox River to the Chickahominy River was originally listed on the 1998 list as fully supporting but threatened of the Aquatic Life Use goal based on chlorophyll a exceedances. During the 1998 cycle, EPA extended the segment upstream to the fall line and downgraded the river to not supporting the Aquatic Life Use, citing nutrient concerns.

A special site-specific chlorophyll standard for the mainstem James River was adopted during the 2008 cycle. The lower tidal freshwater segment exceeds the summer seasonal mean in the 2022 cycle.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, it is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMS03A06 / James River / The James River from the upstream extent of JMSTF1 to the downstream extent of PWS. JMSTF1	4A	Chlorophyll-a	2008	L	0.633
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	4A	Chlorophyll-a	2008	L	10.194
VAP-G03E_JMS01B10 / James River / The mainstem of the James River from the confluence with Powell Creek downstream to Queen Creek. JMSTF1	4A	Chlorophyll-a	2008	L	3.485
VAP-G04E_JMS01A02 / James River / The James River from the confluence with Queens Creek downstream to Buoy 74 at Brandon Point JMSTF1	4A	Chlorophyll-a	2008	L	7.756
VAP-G04E_JMS03A04 / James River / Buoy 74 at Brandon Point (rivermile 55.94) to the tidal freshwater/oligohaline boundary at approximately river mile 52.08. JMSTF1	4A	Chlorophyll-a	2008	L	3.756

James River

Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
25.824		

James River

Open-Water Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
25.824		

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Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G02E-04-PCB James River**

Cause Location: Mainstem James River from the previous limit of PWS near Dutch Gap downstream to the JMSTFu/JMSTFl boundary at the Appomattox River.

Cause City/County: Charles City County; Chesterfield County; Henrico County

Use(s): Fish Consumption; Public Water Supply

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, the segment was impaired of the Fish Consumption Use due to two exceedances of the Human Health Water Quality Criteria for PCBs in water samples collected at 2-JMS087.01. The station was sampled in 2009 and is located at buoy 137.

Additional sampling in 2013 was insufficient for assessment.

Note: the segment extent for the Public Water Supply Use was shortened in the 2018 cycle due to a change in the Virginia Water Quality Standards. It previously extended to 5 miles above the old American Tobacco water intake but now stops 5 miles above City Point in Hopewell. The PCB impairment for the Public Water Supply Use in the upper extent of this segment was partially delisted; however, the segment remains impaired for the Fish Consumption Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMS02A00 / James River / The James River from 5 miles above the old American Tobacco intake to 5 miles above City Point at Hopewell. JMSTFu	5A	Polychlorinated biphenyls (PCBs)	2012	H	2.790
VAP-G02E_JMS02B18 / James River / The James River from 5 miles above City Point at Hopewell to the downstream extent of JMSTFu. JMSTFu	5A	Polychlorinated biphenyls (PCBs)	2012	H	1.182

James River

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
3.972		

James River

Public Water Supply

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
1.182		

Sources: Source Unknown

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James River Basin

Cause Group Code: **G02R-01-BAC** **Fourmile Creek**

Cause Location: Fourmile Creek watershed from its headwaters to the mouth at the James River.

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Fourmile Creek from Deerlick Branch to Griggs Pond was initially considered threatened in 1998 and downgraded to impaired in 2002 due to fecal coliform exceedances. However, the creek was mistakenly included on Attachment A Part 1 " Waters listed on Part 1 of Virginia's October 14, 1998 303(d) Report". The impairment has since expanded.

The watershed was assessed as not supporting of the Recreation Use support goal in the 2008 cycle based on an E. coli standard exceedance rate of 5/22 at the Route 5 bridge (2-FOM003.60). The bacteria impairment converted to E. coli. The bacteria TMDL for the Fourmile Creek watershed was completed and approved by the EPA on 9/20/2004. The segment is assessed as Cat. 4A.

The exceedance rate was 8/12 during the 2016 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted so the impairment is being carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_FOM01A02 / Fourmile Creek / The Fourmile Creek watershed below rivermile 5.57.	4A	Escherichia coli (E. coli)	2006	L	37.00
VAP-G02R_FOM02A06 / Upper Fourmile Creek / Fourmile Creek and tribs upstream of rivermile 5.57	4A	Escherichia coli (E. coli)	2006	L	9.91

Fourmile Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			46.91

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G02R-03-DO Johnson Creek Watershed

Cause Location: Johnson Creek and tributaries from its headwaters to the mouth at the James River

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Johnson Creek was initially assessed as not supporting the Aquatic Life Use goal during the 2004 cycle based on dissolved oxygen exceedances at Route 827 / Allied Road (2-JOD001.19). The exceedance rate was 3/23 in the 2008 cycle.

The segment was extended during 2006 based on monitoring by Chesterfield County.

Extensive monitoring was conducted by the DEQ in the 2016 cycle. Dissolved oxygen was only low at two stations.

0/12 at 2CXBR000.10 1/12 at 2CXBR000.68 0/12 at 2CXBR001.15 4/11 at 2CXBS000.62 (IM) 1/10 at 2CXBS002.85 2/12 at 2-JOD001.19 (IM) 0/15 at 2-JOD001.96 0/12 at 2-JOD002.69 0/12 at 2-JOD003.05 1/12 at 2-JOD004.15 0/12 at 2-JOD005.04

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_JOD01A04 / Johnson Creek / Johnson Creek and tribs from its headwaters to tidal limit	5C	Dissolved Oxygen	2004	L	16.27

Johnson Creek Watershed

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			16.27

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G02R-03-PH** **Johnson Creek Watershed**

Cause Location: Johnson Creek and tributaries from its headwaters to the mouth at the James River

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Johnson Creek was initially assessed as not supporting the Aquatic Life Use goal during the 2004 cycle based on pH exceedances at Route 827 / Allied Road (2-JOD001.19). During the 2008 cycle, the exceedance rate was 11/23.

The segment was extended during 2006 based on monitoring by Chesterfield County.

The segment was extended during 2006 based on monitoring by Chesterfield County. Extensive monitoring was conducted by the DEQ in the 2016 cycle. pH exceedances were widespread.

3/12 at 2CXBR000.10

4/12 at 2CXBR000.68

4/12 at 2CXBR001.15

6/11 at 2CXBS000.62

7/10 at 2CXBS002.85

5/15 at 2-JOD001.19

4/15 at 2-JOD001.96

1/12 at 2-JOD002.69

4/12 at 2-JOD003.05

6/12 at 2-JOD004.15

2/12 at 2-JOD005.04

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_JOD01A04 / Johnson Creek / Johnson Creek and tribs from its headwaters to tidal limit	5C	pH	2004	L	16.27

Johnson Creek Watershed

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			16.27

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **G02R-05-BAC** Crewes Channel

Cause Location: Crewes Channel from its headwaters to its tidal limit

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Crewes Channel was assessed as not supporting the Recreation Use due to an E. coli violation rate of 2/16 at DEQ station 2-CCH000.54, which is located at the Route 5 bridge.

The bacterial TMDL for Crewes Channel was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015; the impairment will be considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted so the impairment is being carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_CCH01A00 / Crewes Channel / Crewes Channel from the headwaters to the tidal limit.	4A	Escherichia coli (E. coli)	2008	L	3.24

Crewes Channel

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.24

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: G02R-07-BAC Western Run

Cause Location: Western Run from its headwaters to its mouth at the confluence with Turkey Island Creek

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Western Run was initially assessed as not supporting the Recreation use goals in the 2006 cycle based on bacteria sampling at the Route 156 bridge:

Fecal coliform exceedance rate of 2/3 at USGS station 0203874275

E. coli exceedance rate of 2/4 at DEQ station 2-WSN000.85

During the 2008 cycle, the bacteria impairment converted solely to E. coli based on an E. coli exceedance rate of 6/16 at 2-WSN000.85.

The bacterial TMDL for Western Run was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015. The impairment will be considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted so the impairment is being carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_WSN01A00 / Western Run / Western Run from its headwaters to the confluence with Turkey Island Creek.	4A	Escherichia coli (E. coli)	2006	L	1.85

Western Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.85

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **G02R-08-BAC** Turkey Island Creek

Cause Location: Turkey Island Creek from its headwaters to the tidal limit.

Cause City/County: Charles City County; Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Turkey Island Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 2-TIC002.69, which is located at Carters Mill Road.

The bacterial TMDL for the Turkey Island Creek watershed was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015; the impairment will be considered nested (Category 4A).

The exceedance rate was 2/12 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted so the impairment is being carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_TIC01A00 / Turkey Island Creek / Turkey Island Creek from Shirley Millpond to the tidal limit.	4A	Escherichia coli (E. coli)	2014	L	1.82
VAP-G02R_TIC01B16 / Turkey Island Creek / Turkey Island Creek from its headwaters to Shirley Millpond.	4A	Escherichia coli (E. coli)	2014	L	7.04

Turkey Island Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.86

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G02R-09-DO** **Roundabout Creek**

Cause Location: Mainstem of Roundabout Creek from its headwaters downstream to the confluence with the tributary at approximately river mile 2.04

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, upper Roundabout Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/12 at 2-ROT003.15, which is located at Kingsland Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_ROT01A00 / Roundabout Creek / Roundabout Creek from its headwaters to the tributary at river mile 2.04	5C	Dissolved Oxygen	2014	L	3.96

Roundabout Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G02R-09-PH** **Roundabout Creek**

Cause Location: Mainstem of Roundabout Creek from its headwaters downstream to the confluence with the tributary at approximately river mile 2.04

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, upper Roundabout Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 2-ROT003.15, which is located at Kingsland Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_ROT01A00 / Roundabout Creek / Roundabout Creek from its headwaters to the tributary at river mile 2.04	5C	pH	2014	L	3.96

Roundabout Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G02R-10-PH** XBE - Roundabout Creek, UT

Cause Location: Headwaters to mouth at Roundabout Creek

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, the tributary was impaired of the Aquatic Life Use due to a pH exceedance rate of 4/10 at 2CXBE000.69, which is located at Wallo Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_XBE01A14 / XBE - Roundabout Creek, UT / Headwaters to mouth at Roundabout Creek	5C	pH	2014	L	1.43

XBE - Roundabout Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.43

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G02R-11-PH** Turkey Island Creek

Cause Location: Turkey Island Creek from its headwaters to Shirley Millpond.

Cause City/County: Charles City County; Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, the upper portion of Turkey Island Creek was assessed as not supporting of the Aquatic Life Use due to a pH violation rate of 5/12 at 2-TIC009.23 (Warriner Road).

Additional monitoring at downstream station 2-TIC002.69 (Carters Mill Road) was acceptable (0/12).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02R_TIC01B16 / Turkey Island Creek / Turkey Island Creek from its headwaters to Shirley Millpond.	5C	pH	2016	L	7.04

Turkey Island Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			7.04

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **G03E-01-BAC** Bailey Creek (tidal), Cattail Creek (tidal)

Cause Location: Segment begins at Bailey Creek fall line and extends downstream to its mouth at the confluence with the James River. The segment includes the tidal portion of Cattail Creek.

Cause City/County: Hopewell; Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Tidal Bailey Creek was initially listed as impaired of the Recreation Use on the 1994 cycle 303(d) list because of excessive exceedances of the fecal coliform standards.

The TMDL was approved by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. The segment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. Tidal Bailey Creek remained impaired due to two or more E. coli exceedances within the same 90-day period with <10 samples at station 2-BLY000.65.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03E_BLY01A98 / Bailey Creek/Cattail Creek / The tidal portions of Bailey Creek and Cattail Creek. JMSTF1	4A	Escherichia coli (E. coli)	1994	L	0.114

Bailey Creek (tidal), Cattail Creek (tidal)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.114		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G03E-01-PCB** **Bailey Creek (tidal), Cattail Creek (tidal)**

Cause Location: Segment begins at Bailey Creek fall line and extends downstream to its mouth at the confluence with the James River. The segment includes the tidal portion of Cattail Creek.

Cause City/County: Hopewell; Prince George County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, tidal Bailey Creek was impaired of the Fish Consumption Use due to two exceedances of the Human Health - Other Surface Waters WQS for water column PCBs. The samples were collected at 2-BLY000.65 as part of a 2009 source identification study for the VDH PCB advisory in the James River.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03E_BLY01A98 / Bailey Creek/Cattail Creek / The tidal portions of Bailey Creek and Cattail Creek. JMSTF1	5A	Polychlorinated biphenyls (PCBs)	2012	H	0.114

Bailey Creek (tidal), Cattail Creek (tidal)

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.114		

Sources: Contaminated Sediments; Source Unknown

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James River Basin

Cause Group Code: G03E-03-PH James River

Cause Location: The mainstem tidal James River from the confluence of the Appomattox River downstream to Powell Creek

Cause City/County: Charles City County; Hopewell; Prince George County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The James River from the Appomattox River downstream to Powells Creek was impaired of the Aquatic Life Use in the 2014 cycle due to elevated pH exceedances at VIMS' continuous monitoring station JMS073.37.

pH exceedance rates are acceptable at other stations within the segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	5A	pH	2014	L	10.194

James River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	10.194		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **G03E-04-BAC James River**

Cause Location: The mainstem tidal James River from the confluence of the Appomattox River downstream to Powells Creek.

Cause City/County: Charles City County; Hopewell; Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River from the Appomattox River downstream to Powells Creek was initially listed as fully supporting but threatened of the Recreation Use during the 1998 cycle and was downgraded to impaired in the 2002 cycle. In 2006, the segment was extended downstream to Queens Creek and E. coli was added as an impairing cause. The impairment converted solely to E. coli in 2008.

The TMDL was approved by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. Because the downstream-most station (2-JMS069.08) had an acceptable rate, the segment was shortened to end at Powell Creek and the TMDL was done for this portion only.

During the 2020 cycle, the violation rates were 7/65 at 2-JMS075.04 & 3/60 (S) at 2-JMS074.44.

New bacteria criteria were implemented in the 2022 cycle. The data were insufficient for assessment; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	4A	Escherichia coli (E. coli)	2006	L	10.194

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	10.194		

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03L-01-DO** **Harrison Lake**

Cause Location: Harrison Lake in its entirety.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: In 2006 the lake is also considered impaired Cat. 5A because the dissolved oxygen violation rate was unacceptable in the epilimnion/nonstratified periods. This was primarily due to DO violations during the September 2004 monitoring when the lake was not stratified.

In 2008 cycle no additional monitoring was collected, the lake nutrient criteria was developed, lake Harrison does not have a true lacustrine zone. The regional biologist recommended that this lake should be removed from the table of lakes to which the nutrient criteria standards apply during the next triennial review.

During the 2010 cycle the segment remained impaired aquatic life with a DO violation rate of 9/36 at station 2-WER000.02.

During the 2012 cycle the segment remained impaired for DO since there has been no new data since the 2010 cycle.

During the 2014 cycle the segment remained impaired for Aquatic life with a DO violation rate of 9/55 at station 2-WER000.02.

During the 2016 cycle the segment remained impaired for DO with a violation rate of 24/67 at station 2-WER000.02.

No new data since 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03L_WER04A06 / Harrison Lake / Harrison Lake located on West Run	5A	Dissolved Oxygen	2006	L	60.16

Harrison Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		60.16	

Sources: Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G03L-01-HGFT** **Harrison Lake**

Cause Location: Harrison Lake in its entirety.

Cause City/County: Charles City County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2-HEC006.22 (C)- 2005 fish tissue had As in 3 species as an observed effect and Hg in 4 species.

VDH Fish Consumption Advisory for kepone

The VDH issued a Fish Consumption Advisory for Harrison Lake on 7/20/2006. No more than 2 meals per month of Redear Sunfish, Largemouth Bass, Chain Pickerel, and Bowfin are recommended due to mercury in fish tissue.

No new data for the 2014, 2016, and 2018 cycle

During the 2020 cycle only Fish Tissue data was collected in 2018 at station 2-HEC006.22 with Hg in 1sp(Chain Pickerel)(1/8)(OE); 2018 FT PCB ok.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03L_WER04A06 / Harrison Lake / Harrison Lake located on West Run	5A	Mercury in Fish Tissue	2008	L	60.16

Harrison Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	60.16	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **G03L-01-PH** **Harrison Lake**

Cause Location: Harrison Lake in its entirety.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: In 2006 Harrison Lake was assessed as not supporting of the Aquatic Life Use based on a pH violation rate of 12/25 at 2-WER000.02.

In 2008 cycle no additional monitoring was collected, the lake nutrient criteria was developed, lake Harrison does not have a true lacustrine zone. The regional biologist recommended that this lake should be removed from the table of lakes to which the nutrient criteria standards apply during the next triennial review.

During the 2010 cycle the segment remained impaired for pH with a violation rate of 33/60 at station 2-WER000.02.

no new data during the 2010 cycle.

During the 2014 cycle the segment remained impaired aquatic life with a pH violation rate of 30/68 at station 2-WER000.02.

During the 2016 cycle the segment remained impaired for pH with a violation rate of 18/67 at station 2-WER000.02.

No new data since 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03L_WER04A06 / Harrison Lake / Harrison Lake located on West Run	5A	pH	2006	L	60.16

Harrison Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		60.16	

Sources: Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G03R-02-ALD** **Bailey Creek**

Cause Location: Segment begins at the headwaters of Bailey Creek and extends downstream to the tidal limit.

Cause City/County: Hopewell; Prince George County

Use(s): Fish Consumption

Causes(s)/VA Category: Aldrin in Fish Tissue/5A

Cause Description: The non-tidal portion of Bailey Creek was assessed in the 2002 cycle as impaired of the Fish Consumption Use goal because of exceedances of the human health screening levels for aldrin in fish tissue at station 2-BLY005.72 in 1997.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_BLY01A98 / Bailey Creek / Bailey Creek from its headwaters to the Route 630 bridge.	5A	Aldrin in Fish Tissue	2002	L	2.84
VAP-G03R_BLY01B22 / Bailey Creek / Bailey Creek from the Route 630 bridge to Manchester Run.	5A	Aldrin in Fish Tissue	2002	L	2.28
VAP-G03R_BLY02A08 / Bailey Creek / Bailey Creek from Manchester Run to the tidal limit.	5A	Aldrin in Fish Tissue	2002	L	1.35

Bailey Creek

Fish Consumption

Aldrin in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.47

Sources: Source Unknown

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James River Basin

Cause Group Code: **G03R-02-BAC** Bailey Creek

Cause Location: Segment begins at the headwaters of Bailey Creek and extends downstream to the tidal limit.

Cause City/County: Hopewell; Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Bailey Creek was initially included on the 303(d) list in 1994 based on water quality monitoring performed at the Route 10 bridge (2-BLY000.65) and historical water quality problems in Bailey Bay. The causes of impairment were excessive DO and fecal coliform standard exceedances recorded at 2-BLY000.65.

A special study was performed in 1997 and 1998 to delineate the area of impact. Riverine Bailey Creek continued to show fecal coliform impairment.

During the 2008 cycle, the bacteria impairment converted to E. coli due to exceedances at 2-BLY003.42 and 2-BLY005.73. The TMDL was adopted by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. The segment is considered Category 4A.

The violation rates during the 2014 cycle were 5/12 (2012 cycle) and 2/12, respectively.

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected so the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_BLY01A98 / Bailey Creek / Bailey Creek from its headwaters to the Route 630 bridge.	4A	Escherichia coli (E. coli)	2008	L	2.84
VAP-G03R_BLY01B22 / Bailey Creek / Bailey Creek from the Route 630 bridge to Manchester Run.	4A	Escherichia coli (E. coli)	2008	L	2.28
VAP-G03R_BLY02A08 / Bailey Creek / Bailey Creek from Manchester Run to the tidal limit.	4A	Escherichia coli (E. coli)	2008	L	1.35

Bailey Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.47

Sources: Agriculture; Industrial Point Source Discharge; Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-02-BEN** Bailey Creek

Cause Location: Segment begins at the headwaters of Bailey Creek and extends downstream to the tidal limit.

Cause City/County: Hopewell; Prince George County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle, Bailey Creek was impaired of the Aquatic Life Use due to an altered benthic community at 2-BLY005.73, which is located at Route 630.

The station was re-sampled in 2019-2020 and remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_BLY01A98 / Bailey Creek / Bailey Creek from its headwaters to the Route 630 bridge.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	2.84
VAP-G03R_BLY01B22 / Bailey Creek / Bailey Creek from the Route 630 bridge to Manchester Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.28
VAP-G03R_BLY02A08 / Bailey Creek / Bailey Creek from Manchester Run to the tidal limit.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	1.35

Bailey Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.47

Sources: Source Unknown

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James River Basin

Cause Group Code: **G03R-02-PCBFT** **Bailey Creek**

Cause Location: Segment begins at the headwaters of Bailey Creek and extends downstream to the tidal limit.

Cause City/County: Hopewell; Prince George County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The non-tidal portion of Bailey Creek was assessed in the 2002 cycle as impaired of the Fish Consumption Use because of exceedances of the human health screening levels for PCBs in fish samples at station 2-BLY005.72 in 1997.

In addition, the VDH has issued a Fish Consumption Advisory for PCBs in Bailey Creek upstream to the Route 630 bridge.

Note: the CGC was changed from G03R-02-PCB to G03R-02-PCBFT in the 2022 cycle to differentiate it from the water column impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_BLY01A98 / Bailey Creek / Bailey Creek from its headwaters to the Route 630 bridge.	5A	PCBs in Fish Tissue	2002	H	2.84
VAP-G03R_BLY01B22 / Bailey Creek / Bailey Creek from the Route 630 bridge to Manchester Run.	5A	PCBs in Fish Tissue	2002	L	2.28
VAP-G03R_BLY02A08 / Bailey Creek / Bailey Creek from Manchester Run to the tidal limit.	5A	PCBs in Fish Tissue	2002	H	1.35

Bailey Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			6.47

Sources: Source Unknown

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James River Basin

Cause Group Code: G03R-03-PCB Poythress Run

Cause Location: Poythress Run from its headwaters to its tidal limit

Cause City/County: Hopewell

Use(s): Aquatic Life; Fish Consumption; Wildlife

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, Poythress Run was impaired of the Fish Consumption Use, Aquatic Life Use, and Wildlife Use due to two water column PCB exceedances of the Human Health - Other Surface Waters WQS and the Aquatic Life/Wildlife WQS. The samples were collected at 2-PTH000.42 as part of a 2009 source identification study for the PCB advisory in the James River. The station is located at Poythress Run at Station Street.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_PTH01A10 / Poythress Run / Headwaters to tidal limit	5A	Polychlorinated biphenyls (PCBs)	2012	H	0.7

Poythress Run

Aquatic Life

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.7

Poythress Run

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.7

Poythress Run

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.7

Sources: Source Unknown

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James River Basin

Cause Group Code: **G03R-04-BAC** **West Run**

Cause Location: West Run from the confluence with East Run downstream to the backwater of Harrison Lake.

Cause City/County: Charles City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, West Run was assessed as not supporting the Recreation Use based on an E. coli exceedance rate of 2/12 at the Route 625 bridge (2-WER001.93.)

The West Run impairment was addressed in the Turkey Island Creek Bacterial TMDL, which was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015; therefore, the impairment is considered Category 4A.

The exceedance rate was 4/12 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_WER03A00 / West Run / West Run from the confluence with East Run downstream to the upstream limits of Harrison Lake.	4A	Escherichia coli (E. coli)	2010	L	1.86

West Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.86

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-04-PH** **West Run**

Cause Location: West Run from the confluence with East Run downstream to the backwater of Harrison Lake.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: West Run was initially assessed as not supporting the Aquatic Life Use in 2004 based on pH exceedances at the Route 625 bridge (2-WER001.93).

During the 2020 cycle, the segment remained impaired (11/27).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_WER03A00 / West Run / West Run from the confluence with East Run downstream to the upstream limits of Harrison Lake.	5C	pH	2004	L	1.86

West Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.86

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G03R-05-PCB** **XYO - Cattail Creek, UT**

Cause Location: The tributary in its entirety.

Cause City/County: Hopewell

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2012 cycle, the tributary was impaired of the Fish Consumption Use due to two water column PCB exceedances of the Human Health - Other Surface Waters WQS. The samples were collected at 2-XYO000.03 as part of a 2009 source identification study for the PCB advisory in the James River. The station is located off South 1st Street.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_XYO01A06 / XYO - Cattail Creek, UT / Headwaters to mouth at Cattail Creek	5A	Polychlorinated biphenyls (PCBs)	2012	H	0.34

XYO - Cattail Creek, UT

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.34

Sources: Source Unknown

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James River Basin

Cause Group Code: **G03R-06-BEN** XUD - West Run, UT

Cause Location: The unnamed tributary XUD in its entirety.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, the unnamed tributary to West Run was assessed as not supporting the Aquatic Life Use based on an impaired benthic community at 2-XUD000.15, a freshwater probabilistic monitoring station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_XUD01A06 / XUD - West Run, UT / Headwaters to mouth at West Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.57

XUD - West Run, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.57

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G03R-06-DO** Upper West Run / East Run Watershed

Cause Location: West Run above the confluence with East Run, East Run, and all tributaries.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Monitoring was conducted in the West Run watershed during the 2016 cycle. The upper portion of the watershed is impaired of the Aquatic Life Use due to widespread dissolved oxygen violations. Exceedance rates were as follows:

0/12 (FS) at 2-ETR000.50

4/12 at 2-ETR003.00

3/12 at 2-SLM001.23

3/12 at 2-WER006.35

2/12 at 2-WER002.89

7/12 at 2-WER004.42

4/12 at 2-WER005.35

5/12 at 2-XUD000.35

0/3 (FS) at 2CSLM002.56

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_WER01A00 / Upper West Run Watershed / West Run from its headwaters to the confluence with East Run and all tributaries within the segment, excluding XUD.	5C	Dissolved Oxygen	2016	L	43.71
VAP-G03R_XUD01A06 / XUD - West Run, UT / Headwaters to mouth at West Run.	5C	Dissolved Oxygen	2016	L	1.57

Upper West Run / East Run Watershed

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		45.28

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G03R-06-PH** Upper West Run / East Run Watershed

Cause Location: West Run above the confluence with East Run, East Run, and all tributaries.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Stream XUD, an unnamed tributary to West Run, was assessed in 2006 as not supporting the Aquatic Life Use based on a pH exceedance rate of 2/2 at 2-XUD000.15, a freshwater probabilistic monitoring station.

Additional monitoring was conducted in the West Run watershed during the 2016 cycle. Due to widespread pH violations, the impairment was extended to the upper portion of the watershed. Exceedance rates in the 2018 cycle were as follows:

5/12 at 2-ETR000.50

5/12 at 2-ETR003.00

6/12 at 2-SLM001.23

0/3 (FS) at 2CSLM002.56

1/12 (FS) at 2-WER006.35

8/12 at 2-WER002.89

7/12 at 2-WER004.42

7/12 at 2-WER005.35

12/12 at 2-XUD000.35

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_WER01A00 / Upper West Run Watershed / West Run from its headwaters to the confluence with East Run and all tributaries within the segment, excluding XUD.	5C	pH	2016	L	43.71
VAP-G03R_XUD01A06 / XUD - West Run, UT / Headwaters to mouth at West Run.	5C	pH	2006	L	1.57

Upper West Run / East Run Watershed

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			45.28

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G03R-07-BAC** **Walls Run**

Cause Location: Walls Run from its headwaters to its mouth at Powells Creek.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Walls Run was initially assessed as not supporting the Recreation Use in 2006 based on E. coli exceedances at 2-WLR000.42, which is located at the Route 10 bridge. During the 2012 cycle, the segment remained impaired due to the following violation rates:

6/25 at 2-WLR000.42 2/12 at 2-WLR002.19 (Route 635) 6/12 at 2-WLR004.46 (Route 646)

However, Walls Run drains to Powell Creek, which was addressed in the James River - Hopewell to Westover Bacterial TMDL. The TMDL was approved by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. Because Powell Creek requires an 86.1% reduction in bacterial loads, Walls Run is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. Walls Run remains impaired due to two or more STV exceedances in the same 90 day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_WLR01A06 / Walls Run / Headwaters to mouth at Powell Creek	4A	Escherichia coli (E. coli)	2006	L	5.85

Walls Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.85

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-08-BAC** **Cattail Creek**

Cause Location: The nontidal portion of Cattail Creek.

Cause City/County: Hopewell

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, nontidal Cattail Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 5/12 at the Route 36 bridge (2-CTC001.42).

The James River - Hopewell to Westover bacterial TMDL was developed and addressed the Bailey Bay/tidal Bailey Creek/tidal Cattail Creek E. coli impairment. The watershed requires a 91.1% percent reduction of E. coli; therefore, the nontidal Cattail Creek impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected so the impairment has been carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_CTC01A00 / Cattail Creek / Cattail Creek from its headwaters to the fall line.	4A	Escherichia coli (E. coli)	2008	L	1.67

Cattail Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.67

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-09-BAC** **Southerly Run**

Cause Location: The mainstem of Southerly Run from its headwaters to its mouth at Bailey Creek.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Southerly Run was assessed as not supporting of the Recreation Use based on an E. coli violation rate of 3/12 at TMDL station 2-SOU000.77, which is located at the Route 646 bridge.

Southerly Run drains to Bailey Creek, which was addressed in the James River - Hopewell to Westover Bacterial TMDL. The TMDL was approved by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. Therefore, Southerly Run is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data has been collected so the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_SOU01A08 / Southerly Run / Headwaters to mouth at Bailey Creek	4A	Escherichia coli (E. coli)	2008	L	2.84

Southerly Run

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.84

Sources: Agriculture; Municipal (Urbanized High Density Area); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-10-BAC** **XXO - Powell Creek, UT**

Cause Location: Headwaters to mouth at Powell Creek.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the tributary was assessed as not supporting of the Recreation Use based on an E. coli exceedance rate of 3/12 at TMDL station 2-XXO000.38, which is located at the Route 666 bridge.

The tributary drains to Powell Creek, which was addressed in the James River - Hopewell to Westover Bacterial TMDL. The TMDL was approved by the EPA on 7/10/2008 and by the SWCB on 4/28/2009. Because Powell Creek requires an 86.1% reduction in bacterial loads, the tributary is considered to be nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_XXO01A08 / XXO - Powell Creek, UT / Headwaters to mouth at Powell Creek	4A	Escherichia coli (E. coli)	2008	L	1.73

XXO - Powell Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.73

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-11-BAC** **Courthouse Creek**

Cause Location: Courthouse Creek from its headwaters to the confluence with Glebe Creek.

Cause City/County: Charles City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Courthouse Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 2-CRT001.00, which is located at the Route 155 bridge.

Courthouse Creek is located within the study area for the Turkey Island Creek and James River Westover Bacterial TMDL, which was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015. The impairment will be addressed during implementation; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_CRT01B00 / Courthouse Creek / Courthouse Creek from its headwaters to the confluence with Glebe Creek.	4A	Escherichia coli (E. coli)	2014	L	4.39

Courthouse Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.39

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G03R-12-PCB** **Bailey Creek**

Cause Location: Nontidal Bailey Creek from its headwaters downstream to the tidal limit.

Cause City/County: Hopewell; Prince George County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2022 cycle, nontidal Bailey Creek was impaired of the Fish Consumption Use due to two exceedances of the water column human health criteria for PCBs at station 2-BLY005.73.

Three additional samples were acceptable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03R_BLY01A98 / Bailey Creek / Bailey Creek from its headwaters to the Route 630 bridge.	5A	Polychlorinated biphenyls (PCBs)	2022	H	2.84
VAP-G03R_BLY01B22 / Bailey Creek / Bailey Creek from the Route 630 bridge to Manchester Run.	5A	Polychlorinated biphenyls (PCBs)	2022	L	2.28
VAP-G03R_BLY02A08 / Bailey Creek / Bailey Creek from Manchester Run to the tidal limit.	5A	Polychlorinated biphenyls (PCBs)	2022	H	1.35

Bailey Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.47

Sources: Source Unknown

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James River Basin

Cause Group Code: **G04E-02-EBEN** **James River**

Cause Location: The mainstem of the James River within the Oligohaline Estuary.

Cause City/County: Charles City County; James City County; Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The oligohaline portion of the James River is impaired for benthics as determined by the Chesapeake Bay B-IBI study.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04E_JMS02A02 / James River / The James River from the tidal freshwater/oligohaline boundary at approx. river mile 51.94 to the limit of the PRO watershed (approx. rm 42.7). JMSOH	5A	Estuarine Bioassessments	2004	L	20.409

James River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	20.408		

Sources: Industrial Point Source Discharge; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **G04E-05-CHLA** **James River**

Cause Location: The mainstem of the James River within segment JMSOHa.

Cause City/County: Charles City County; Isle Of Wight County; James City County; Newport News; Surry County; Williamsburg

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/4A

Cause Description: During the 2022 cycle, JMSOHa failed the summer seasonal chlorophyll a special standard. The spring criteria was met.

The Chesapeake Bay TMDL was approved by the EPA on 12/31/2010; therefore, the segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04E_JMS02A02 / James River / The James River from the tidal freshwater/oligohaline boundary at approx. river mile 51.94 to the limit of the PRO watershed (approx. rm 42.7). JMSOH	4A	Chlorophyll-a	2022	L	20.409
VAT-G10E_JMS01A06 / James River Mainstem - Chickahominy R. to Hog Point / From confluence with Chickahominy R. coincident with watershed line (RM 48.40) downstream to line between Hog Pt. and mouth College Cr. N shore James R. CBP segment JMSOH. DSS (ADMIN) shellfish condemn # 059-069 A (effective 20141219).	4A	Chlorophyll-a	2022	L	17.843
VAT-G10E_JMS01B08 / James River - Carters Grove Area (G10) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	4A	Chlorophyll-a	2022	L	0.985
VAT-G10E_JMS02A06 / James River - Hog Point Area (Open Shellfish Area) / Triangular area in mainstem around Walnut Point, from Hog Pt. to G11 watershed line. CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 057-069 (effective 20141219).	4A	Chlorophyll-a	2022	L	2.240
VAT-G11E_JMS01B08 / James River - Hog Island Area [JMSOH area] / From area of Homewood (G11 watershed line) downstream to start of JMSMH salinity boundary (Hog Isl. Cr.). CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	4A	Chlorophyll-a	2022	L	3.846

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS01D14 / James River - Carters Grove Area (G11) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	4A	Chlorophyll-a	2022	L	1.218

James River

Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)
46.541

Reservoir
(Acres)

River
(Miles)

James River

Open-Water Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)
46.541

Reservoir
(Acres)

River
(Miles)

Sources: Industrial Point Source Discharge; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **G04L-01-BAC** **Sunken Meadow Pond**

Cause Location: Sunken Meadow Pond in its entirety.

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Sunken Meadow Pond was impaired of the Recreation Use during the 2016 cycle due to an E. coli exceedance rate of 2/12 at 2-SKC001.17, which is located at Rt. 626.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04L_SKC01A08 / Sunken Meadow Pond / The pond in its entirety.	5A	Escherichia coli (E. coli)	2016	L	172.86

Sunken Meadow Pond

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		172.86	

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Source Unknown; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G04L-01-DO Sunken Meadow Pond

Cause Location: Sunken Meadow Pond in its entirety.

Cause City/County: Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Sunken Meadow Pond was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 2-SKC001.17, which is located at Rt. 626. The exceedance rate was 3/12 during the 2016 cycle.

Although the segment is a non-significant/non 187 lake, the TSI was not used because guidance states that only nutrient data collected in the lacustrine zone of the lake should be used. The station is located near the backwater of the pond. In previous cycles, the TSIs would have been 50 for chlorophyll a, 61 for total phosphorus, and secchi depth information was not collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04L_SKC01A08 / Sunken Meadow Pond / The pond in its entirety.	5C	Dissolved Oxygen	2010	L	172.86

Sunken Meadow Pond

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		172.86	

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G04R-01-BAC** **Wards Creek**

Cause Location: Wards Creek from the headwaters to its tidal limit.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Wards Creek was assessed as not supporting of the Recreation Use support goal based on an E. coli exceedances at monitoring station 2-WRD005.40, which is located at the Route 10 bridge.

The impairment was addressed in the Turkey Island Creek and James River Westover Bacterial TMDL, which was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015.

However, the exceedance rate was acceptable during the 2016 cycle (3/35) and the stream was delisted (Category 2C.)

It was relisted in the 2018 cycle (Category 4A) due to an exceedance rate of 4/34.

The exceedance rate was 7/34 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The station remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04R_WRD01A00 / Wards Creek / Wards Creek from its headwaters to the tidal limit.	4A	Escherichia coli (E. coli)	2018	L	8.1

Wards Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.1

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G04R-03-MIREX** **Bailey Branch**

Cause Location: Bailey Branch from the headwaters to its tidal limit.

Cause City/County: Surry County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Mirex/5A

Cause Description: During the 2010 cycle, Bailey Branch was assessed as not supporting of the Aquatic Life and Wildlife Uses due to two exceedances of the water quality standard for Mirex in SPMDs at freshwater probabilistic monitoring station 2-BLB002.04.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04R_BLB01A06 / Bailey Branch / Headwaters to tidal limit	5A	Mirex	2010	L	5.69

Bailey Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mirex - Total Impaired Size by Water Type:			5.69

Bailey Branch

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mirex - Total Impaired Size by Water Type:			5.69

Sources: Source Unknown

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James River Basin

Cause Group Code: **G04R-04-BAC** XBB - Upper Chippokes Creek, UT

Cause Location: An unnamed tributary of Upper Chippokes Creek from the headwaters to its tidal limit.

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, the tributary was assessed as not supporting of the Recreation Use based on an E. coli exceedance rate of 2/12 at monitoring station 2CXBB000.62, which is located at the Route 10 bridge.

The tributary is located in the Upper Chippokes Creek watershed, which was addressed in the Turkey Island Creek and James River Westover Bacterial TMDL. The TMDL was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015. The impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04R_XBB01A14 / XBB - Upper Chippokes Creek, UT / Headwaters to mouth	4A	Escherichia coli (E. coli)	2014	L	7.09

XBB - Upper Chippokes Creek, UT

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 7.09

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G04R-05-BAC** **Flowerdew Hundred Creek**

Cause Location: The nontidal portion of Flowerdew Hundred Creek.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the nontidal portion of Flowerdew Hundred Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/7 at 2-FDH004.54, which is located at Route 614 (Wards Creek Road.)

Flowerdew Hundred Creek is located within the study area for the Turkey Island Creek and James River Westover Bacterial TMDL, which was approved by the SWCB on 10/1/2015 and by the EPA on 12/22/2015. The impairment will be addressed during implementation; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G04R_FD01A16 / Flowerdew Hundred Creek / Headwaters to tidal limit.	4A	Escherichia coli (E. coli)	2016	L	3.68

Flowerdew Hundred Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.68

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G05R-01-BEN** Chickahominy River, UT - Unnamed Tributary

Cause Location: Segment consists of the unnamed tributary of the Chickahominy River to which the Tyson Plant discharges.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A; pH/4A

Cause Description: Biological monitoring of the receiving stream identified a moderately impaired benthic community downstream of the Tyson Plant (VPDES Permit No. VA0004031) discharge when compared to the benthic community immediately upstream of the discharge. This resulted in this segment being assessed as impaired of the Clean Water Act's Aquatic Life Use Support Goal for the 1994 305(b) report.

The TMDL study for the watershed was completed during the 2006 cycle. Extensive biological and nutrient monitoring was conducted. The benthic impairment continued and a pH impairment was noted at stations 2-XDD000.32 and 2-XDD000.40. The past phosphorus screening value was exceeded at multiple stations. The past chlorophyll A screening value was exceeded at 2-XDD000.40 and 2-XDD000.32 as well.

The TMDL was approved by the EPA on 8/05/2004 and by the SWCB on 3/15/05. The study attributed the benthic impairment to excess phosphorus and high pH. The allocation was 432.69 lbs./year of phosphorus, divided between Tysons Foods (409.35 lbs./yr) and nonpoint sources (23.34 lbs./year).

The segment remained impaired for benthics as well as pH during the 2016 cycle due to exceedances at 2-XDD000.40 and at 2-XDD000.32. Additional pH sampling in the 2018 cycle at 2-XDD000.40 continued the pH impairment (26/57).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XDD01A98 / XDD - Chickahominy River, UT / An unnamed tributary of the Chickahominy River from the Tysons Plant discharge to the confluence with the Chickahominy.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.18

Chickahominy River, UT - Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.18

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XDD01A98 / XDD - Chickahominy River, UT / An unnamed tributary of the Chickahominy River from the Tysons Plant discharge to the confluence with the Chickahominy.	4A	pH	2006	L	1.18

Chickahominy River, UT - Unnamed Tributary

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.18

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Sources: Industrial Point Source Discharge; Non-Point Source

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James River Basin

Cause Group Code: **G05R-01-NH3** XDD - Chickahominy River, UT

Cause Location: Tyson Plant discharge to mouth

Cause City/County: Hanover County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Ammonia, Un-ionized/5A

Cause Description: Multiple exceedances of the chronic ammonia criteria had been noted in grab samples throughout the stream; therefore, a special study was conducted in July 2005 to investigate the ammonia levels in the stream. Based on the results of the study, the segment was impaired for ammonia because of 6 acute ammonia exceedances each at 2-XDD000.84 and at 2-XDD000.91. A fish kill was noted in the pond.

Although there were no acute ammonia exceedances in the 2014 cycle, there were multiple chronic exceedances at 2-XDD000.32, 2-XDD000.40, 2-XDD000.84, and 2-XDD000.91. The impairment will be carried over, but continued monitoring was recommended.

Additional monitoring was conducted in 2006 at 2-XDD000.84 (no exceedances) and 2-XDD000.40 (one chronic exceedance.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XDD01A98 / XDD - Chickahominy River, UT / An unnamed tributary of the Chickahominy River from the Tysons Plant discharge to the confluence with the Chickahominy.	5A	Ammonia, Un-ionized	2008	L	1.18

XDD - Chickahominy River, UT

Aquatic Life

Ammonia, Un-ionized - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.18

XDD - Chickahominy River, UT

Wildlife

Ammonia, Un-ionized - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.18

Sources: Industrial Point Source Discharge; Non-Point Source

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James River Basin

Cause Group Code: G05R-02-BAC Upham Brook Watershed

Cause Location: Segment begins at the headwaters of Upham Brook and extends downstream to the confluence with the Chickahominy River, including all tributaries.

Cause City/County: Henrico County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Upham Brook has been impaired of the Recreation Use since the 1996 cycle based on violations at DEQ's Ambient Monitoring Station 2-UPM003.53, located at the Brook Road (Rt. 1) bridge over Upham Brook, as well as excessive fecal coliform violation rates at the Richmond Regional PDC special study stations.

The segment was extended in the year 2002 cycle to include the entire watershed. During the 2006 cycle, the bacteria impairment was converted to E. coli based on widespread exceedances in the watershed.

The Upham Brook and Tributaries bacterial TMDL was completed in the 2010 cycle. The report was approved by the EPA on 7/24/2008 and by the SWCB on 4/28/2009. The watershed is considered Category 4A.

The watershed remained impaired during the 2020 cycle (6/12 at 2-UPM001.35, 3/9 at ACB station 2CUPM-UB1-ALL, 3/3 at 2CXXQ-PRC03-CB, 6/16 at 2CJOP-JOR1-ACB, and 10/15 at 2CXXQ-PRC01-ACB). In addition, the violation rate was 3/4 at 2CPRI-PC-ACB in the 2018 cycle.

New bacteria criteria were implemented in the 2022 cycle. Stations 2-UPM001.35, 2CXXQ-PRC01-ACB, 2CXXQ-PRC03-ACB, 2CJOP-JOR1-ACB, and 2CJOP-JB1-HAWQS were impaired due to two or more STV exceedances in a 90 day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_JOP01A14 / Jordans Branch / Headwaters to mouth at Upham Brook	4A	Escherichia coli (E. coli)	2006	L	2.19
VAP-G05R_NTR01A00 / North Run / North Run from Hungary Creek to its mouth at Upham Brook.	4A	Escherichia coli (E. coli)	2006	L	4.24
VAP-G05R_NTR02A06 / North Run / North Run from its headwaters to Hungary Creek.	4A	Escherichia coli (E. coli)	2006	L	3.66
VAP-G05R_UPM01A02 / Upham Brook / Upham Brook from its headwaters to the mouth at the Chickahominy River, excluding Upham Brook from Flippen Creek to the UT above Wilkinson Rd.	4A	Escherichia coli (E. coli)	2006	L	10.99
VAP-G05R_UPM01B08 / Upham Brook / Flippen Creek downstream to UT above Wilkinson Road	4A	Escherichia coli (E. coli)	2006	L	1.16
VAP-G05R_XAR03A06 / XAR - Upham Brook, UT / Headwaters to mouth at Upham Brook.	4A	Escherichia coli (E. coli)	2006	L	1.21
VAP-G05R_XCJ01A16 / XCJ - North Run, UT / Ditch from headwaters to North Run	4A	Escherichia coli (E. coli)	2006	L	0.42
VAP-G05R_XXP01A08 / XXP - Upham Brook, UT / Headwaters to mouth at Upham Brook	4A	Escherichia coli (E. coli)	2006	L	1.47
VAP-G05R_ZZZ01B02 / Upham Brook Tributaries / Upham Brook Watershed	4A	Escherichia coli (E. coli)	2006	L	39.98

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Upham Brook Watershed

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			65.32

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Urban Development in Riparian Buffer; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G05R-03-BAC** **Chickahominy River**

Cause Location: The Chickahominy River from the confluence with UT XDD to the Route 360 bridge.

Cause City/County: Hanover County; Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the segment of the Chickahominy from the unnamed tributary at approximately rivermile 76 downstream to the Route 360 bridge was assessed as not supporting of the Recreation Use due to the following E. coli exceedance rates:

2/12 at 2CCHK071.66 3/12 at 2-CHK067.30

The impairment was extended upstream to the confluence with XDD during the 2014 cycle due to an exceedance rate of 7/37 at 2-CHK076.59, which is located at Route 625. The segment is located within the study area for the Chickahominy River and Tributaries Bacterial TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The upstream bacterial impairment is considered nested.

Subsequent monitoring has indicated impairment at 2-CHK071.75 as well.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the Recreation Use; however, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_CHK01B10 / Chickahominy River / The Chickahominy River from the confluence with the unnamed tributary XDD to the unnamed tributary at approximately rivermile 76	4A	Escherichia coli (E. coli)	2014	L	2.31
VAP-G05R_CHK01C12 / Chickahominy River / The Chickahominy River from the confluence with the unnamed tributary at rivermile 76 to the confluence with Stony Run.	4A	Escherichia coli (E. coli)	2012	L	5.98
VAP-G05R_CHK02A04 / Chickahominy River / Confluence with Stony Run to Route 360 bridge	4A	Escherichia coli (E. coli)	2012	L	8.27

Chickahominy River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.56

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G05R-04-BEN** Chickahominy River

Cause Location: The Chickahominy River from its headwaters to the confluence with unnamed tributary XDD.

Cause City/County: Hanover County; Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: During the 2010 cycle, the segment was assessed as not supporting of the Aquatic Life Use due to an impaired benthic community at station 2-CHK079.23, which is located at the Route 33 bridge.

Additional sampling in 2010, 2012, and 2013 confirmed the impairment at 2-CHK079.23 as well as at station 2-CHK081.80.

The Benthic TMDL was approved by the EPA on 11/7/2013 and by the EPA on 3/28/2014. The segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_CHK01A00 / Chickahominy River / The Chickahominy River from its headwaters to the confluence with the unnamed tributary XDD.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	7.08

Chickahominy River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.08

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Non-Point Source; Sediment Resuspension (Clean Sediment)

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James River Basin

Cause Group Code: **G05R-05-BAC** **Stony Run**

Cause Location: Stony Run from the confluence with Lickinghole Creek downstream to its mouth at the Chickahominy River.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The segment of Stony Run was initially assessed as impaired of the Recreation Use in 2004 because of fecal coliform exceedances at the Route 656 bridge (2-SNF000.04). E. coli monitoring was conducted during the 2010 cycle; the impairment converted to E. coli. The exceedance rate was 5/23 during the 2012 cycle.

The impairment was addressed in the Chickahominy River and Tributaries TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The impairment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. DEQ has not re-sampled; however, the impairment will be carried over. Level II sampling at 2-SNF-STORUN0.04-ACB indicates that E. coli exceedances are still probable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_SNF01A02 / Stony Run / Stony Run from the confluence with Lickinghole Creek downstream to its mouth at the Chickahominy River.	4A	Escherichia coli (E. coli)	2010	L	0.21

Stony Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.21

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G05R-06-DO** **Grassy Swamp Creek**

Cause Location: Grassy Swamp Creek from the pond at rivermile 0.99 to its mouth.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Grassy Swamp Creek was assessed as impaired of the Aquatic Life Use in the 2008 cycle due to dissolved oxygen exceedances at 2-GRC000.96, which is located at the Route 660 bridge.

The exceedance rate was 19/61 in the 2014 cycle. No additional data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_GRC01A04 / Grassy Swamp Creek / Pond downstream to mouth at Chickahominy River	5C	Dissolved Oxygen	2008	L	1.02

Grassy Swamp Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.02

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G05R-07-DO** XDD - Chickahominy River, UT

Cause Location: The unnamed tributary XDD from its headwaters to the Tysons Foods discharge.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The segment was initially assessed as not supporting of the Aquatic Life Use in the 2006 cycle due to dissolved oxygen exceedances at 2-XDD001.23. The impairment is suspected to be caused by low flow conditions potentially exacerbated by the excess phosphorus in the watershed. During the 2014 cycle, the segment had a DO violation rate of 14/38 at 2-XDD001.23.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XDD02A06 / XDD - Chickahominy River, UT / Headwaters to Tysons Foods discharge	5C	Dissolved Oxygen	2006	L	0.56

XDD - Chickahominy River, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.56

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G05R-07-PH** XDD - Chickahominy River, UT

Cause Location: The unnamed tributary XDD from its headwaters to the Tysons Foods discharge.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The segment was initially considered impaired during the 2006 cycle due to pH exceedances at 2-XDD001.23. It was categorized as Category 4A because of the benthic/pH TMDL for the lower portion of the tributary. Since the pH at this station is low, not elevated as at the downstream stations, this impairment should not be considered addressed. Because it was initially impaired in 2006, a TMDL due date of 2018 was assigned.

The violation rate was 29/38 during the 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XDD02A06 / XDD - Chickahominy River, UT / Headwaters to Tysons Foods discharge	5C	pH	2006	L	0.56

XDD - Chickahominy River, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.56

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: G05R-09-BEN North Run

Cause Location: North Run from its headwaters to its mouth.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: North Run from its headwaters to the confluence with Hungary Creek was assessed as not supporting the Aquatic Life Use during the 2008 cycle based on an impaired benthic community at freshwater probabilistic monitoring station 2-NTR005.53, located above Mountain Road.

Additional monitoring occurred at another freshwater probabilistic monitoring station (2-NTR000.23) in 2011. That station also shows benthic impairment; therefore, the impairment was extended to the mouth of North Run.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_NTR01A00 / North Run / North Run from Hungary Creek to its mouth at Upham Brook.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	4.24
VAP-G05R_NTR02A06 / North Run / North Run from its headwaters to Hungary Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	3.66

North Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.9

Sources: Source Unknown

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James River Basin

Cause Group Code: **G05R-09-PH** **North Run**

Cause Location: North Run from its headwaters to the confluence with Hungary Creek.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: North Run from its headwaters to the confluence with Hungary Creek was assessed as not supporting the Aquatic Life Use during the 2006 cycle based on a pH exceedance rate of 3/6 at station 2-NTR005.53, located above Mountain Road.

No additional data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_NTR02A06 / North Run / North Run from its headwaters to Hungary Creek.	5A	pH	2006	L	3.66

North Run

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 3.66

Sources: Source Unknown

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James River Basin

Cause Group Code: **G05R-10-DO** Upham Brook

Cause Location: Upham Brook from Flippen Creek downstream to the confluence with the UT entering above Wilkinson Road

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The segment was assessed as not supporting the Aquatic Life Use in the 2008 cycle based on a dissolved oxygen exceedance rate of 2/12 at Route 301 (2-UPM002.41).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_UPM01B08 / Upham Brook / Flippen Creek downstream to UT above Wilkinson Road	5A	Dissolved Oxygen	2008	L	1.16

Upham Brook

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 1.16
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G05R-11-DO** **XXP - Upham Brook, UT**

Cause Location: The unnamed tributary XXP from its headwaters to its mouth at Upham Brook.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, the tributary was assessed as not supporting of the Aquatic Life Use based on a dissolved oxygen violation rate of 3/12 at TMDL station 2-XXP000.23, which is located at Wilkinson Road.

The exceedance rate was 5/12 during the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XXP01A08 / XXP - Upham Brook, UT / Headwaters to mouth at Upham Brook	5C	Dissolved Oxygen	2008	L	1.47

XXP - Upham Brook, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.47

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G05R-12-BAC** **Upper Stony Run and Tributaries**

Cause Location: Stony Run and its tributaries upstream of the confluence with Lickinghole Creek

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The watershed was monitored during the 2012 cycle due to a downstream bacterial impairment on Stony Run. The watershed shows extensive exceedances throughout and is impaired for the Recreation Use.

3/12 at 2CXAG000.50

2/12 at 2-LKH000.04

1/12 at 2-LKH001.00 (fully supporting)

2/12 at 2-LKH001.46

4/12 at 2-LKH002.42

2/12 at 2-LKH003.42

3/12 at 2-SNF000.23

1/12 at 2-SNF000.87 (fully supporting)

3/12 at 2-SNF001.27

5/11 at 2-SNF001.58

3/12 at 2-SNF003.70

6/10 at 2-SNF005.59

1/10 at 2-SNF006.44 (fully supporting)

2/12 at 2-XOI000.65

The streams are located within the study area for the Chickahominy River and Tributaries Bacterial TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The E. coli impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_SNF02A12 / Stony Run and Tributaries / Upper portion of watershed above confluence of Stony Run and Lickinghole Creek	4A	Escherichia coli (E. coli)	2012	L	39.87

Upper Stony Run and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			39.87

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G05R-13-BEN** Allens Branch

Cause Location: Allens Branch from its headwaters to its mouth.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: During the 2016 cycle, Allens Branch was impaired of the Aquatic Life Use due to benthic alteration at 2-ALL000.19, which was a 2013 probabilistic monitoring station.

The stream is within the study area for the Chickahominy River Benthic TMDL which was approved by the EPA on 11/7/2013 and by the SWCB on 3/28/2014. The segment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_ALL01A14 / Allens Branch / Headwaters to mouth at the Chickahominy River	4A	Benthic Macroinvertebrates Bioassessments	2016	L	3.33

Allens Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.33

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Non-Point Source

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James River Basin

Cause Group Code: **G05R-14-BEN** Jordans Branch

Cause Location: The mainstem of Jordans Branch.

Cause City/County: Henrico County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle, Jordans Branch was impaired of the Aquatic Life Use due to an altered benthic community at freshwater probabilistic monitoring station 2CJOP000.34. Additional monitoring in 2019 confirmed the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_JOP01A14 / Jordans Branch / Headwaters to mouth at Upham Brook	5A	Benthic Macroinvertebrates Bioassessments	2016	H	2.19

Jordans Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.19

Sources: Source Unknown

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James River Basin

Cause Group Code: **G05R-15-DO** X CJ - North Run, UT

Cause Location: Ditch from Lewis Ginter Botanical Garden to North Run.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2020 cycle, the ditch was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 5/46 at citizen monitoring station 2CXCJ-LSE-LSBG, which is located at the Lewis Ginter Botanical Garden driveway.

Monitoring at 2CXCJ-LSM-LSBG was acceptable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XCJ01A16 / X CJ - North Run, UT / Ditch from headwaters to North Run	5C	Dissolved Oxygen	2020	L	0.42

X CJ - North Run, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.42

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G05R-15-PH** **XCJ - North Run, UT**

Cause Location: Ditch from Lewis Ginter Botanical Garden to North Run.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, the ditch was impaired of the Aquatic Life Use due to pH exceedances at citizen monitoring station 2CX CJ-LSE-LSBG, which is located at the Lewis Ginter Botanical Garden driveway.

The exceedance rate was 3/17 during the 2020 cycle.

Monitoring at 2CX CJ-LSM-LSBG was acceptable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XCJ01A16 / XCJ - North Run, UT / Ditch from headwaters to North Run	5C	pH	2016	L	0.42

XCJ - North Run, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.42

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G05R-16-BEN** **Upham Brook**

Cause Location: The mainstem of Upham Brook.

Cause City/County: Henrico County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle, Upham Brook was impaired of the Aquatic Life Use due to an altered benthic community at station 2-UPM003.12.

During the 2016 cycle, Upham Brook was impaired of the Aquatic Life Use due to an altered benthic community at station 2-UPM003.12. Additional monitoring at 2-UPM005.26 in 2020 was also impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_UPM01A02 / Upham Brook / Upham Brook from its headwaters to the mouth at the Chickahominy River, excluding Upham Brook from Flippen Creek to the UT above Wilkinson Rd.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	10.99
VAP-G05R_UPM01B08 / Upham Brook / Flippen Creek downstream to UT above Wilkinson Road	5A	Benthic Macroinvertebrates Bioassessments	2016	H	1.16

Upham Brook

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.15

Sources: Source Unknown

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James River Basin

Cause Group Code: **G05R-17-HAB** XBP - Chickahominy River, UT

Cause Location: Headwaters of tributary to the confluence with Wyndham Lake

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: During the 2022 cycle, the tributary was impaired of the Recreation Use due to a VDH harmful algal bloom advisory. The 2019 advisory lasted 35 days due to elevated microcystin and cylindrospermopsin.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_XBP01B22 / XBP - Chickahominy River, UT / Headwaters to the confluence with Wyndham Lake	5A	Harmful Algal Blooms	2022	L	0.8

XBP - Chickahominy River, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:			0.8

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **G05R-18-DO** North Run

Cause Location: North Run from its headwaters downstream to the confluence with Hungary Creek

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2022 cycle, the upper portion of North Run was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/16 at station 2-NTR004.77, which is located at Woodman Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G05R_NTR02A06 / North Run / North Run from its headwaters to Hungary Creek.	5A	Dissolved Oxygen	2022	L	3.66

North Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.66

Sources: Source Unknown

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James River Basin

Cause Group Code: **G06L-04-TEMP** **Westhaven Lake**

Cause Location: The extent of Westhaven Lake

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: During the 2014 cycle, Westhaven Lake was impaired of the Aquatic Life Use due to a temperature exceedance rate of 3/8 at citizen monitoring station 2-BVR07.00-WH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06L_XBT01A14 / Westhaven Lake / Extent of lake	5A	Temperature	2014	L	15.12

Westhaven Lake

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	15.12	

Sources: Dam or Impoundment

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James River Basin

Cause Group Code: **G06R-01-HG** **Chickahominy River**

Cause Location: Segment begins at the Route 360 bridge over the Chickahominy River, and extends downstream to the Route 156 bridge.

Cause City/County: Hanover County; Henrico County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: During the 2010 cycle, the segment was assessed as not supporting of the Fish Consumption Use due to mercury exceedances in chain pickerel and yellow bullhead catfish during 2005 sampling.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_CHK01A98 / Chickahominy River / The Chickahominy River from the Route 360 bridge downstream to the Route 156 bridge.	5A	Mercury in Fish Tissue	2010	L	7.46

Chickahominy River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption Mercury in Fish Tissue - Total Impaired Size by Water Type:			7.46

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **G06R-02-BAC** Horse Swamp Creek

Cause Location: The mainstem of Horse Swamp Creek.

Cause City/County: Henrico County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Horse Swamp Creek was impaired of the Aquatic Life Use due to an E. coli exceedance rate of 2/3 at citizen monitoring station 2-HRN-HC-ACB.

The stream is located within the study area for the Chickahominy River and Tributaries Bacteria TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/2/2013. The impairment will be addressed during implementation and is therefore considered nested (Category 4A.)

Note: the station has been renamed 2-HRN-HSC01-ACB.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_HRN01A02 / Horse Swamp Creek / The mainstem of Horse Swamp Creek.	4A	Escherichia coli (E. coli)	2020	L	2.81

Horse Swamp Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.81

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G06R-03-BAC White Oak Swamp

Cause Location: White Oak Swamp from White Oak Swamp Creek downstream to its mouth at the Chickahominy River.

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: White Oak Swamp is assessed not supporting of the Recreation use support goal based on E. coli standard exceedances recorded at 2-WOS002.69. The segment had initially been considered impaired for fecal coliform but converted to E. coli during the 2006 cycle. The Bacteria TMDL for White Oak Swamp was completed and approved by the EPA on 9/20/2004.

During the 2010 cycle, the segment remained impaired with an E. coli exceedance rate of 6/18 at 2-WOS002.69; therefore, White Oak is considered a Cat. 4A water for bacteria.

Only one additional sample has been collected by the DEQ, which is insufficient for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_WOS01A98 / White Oak Swamp / White Oak Swamp from White Oak Swamp Creek to its mouth at the Chickahominy River.	4A	Escherichia coli (E. coli)	2006	L	6.69

White Oak Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.69

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G06R-05-DO** Powwhite Creek

Cause Location: Powwhite Creek below Gaines Millpond.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Powwhite Creek below Gaines Millpond was impaired of the Aquatic Life Use due to dissolved oxygen exceedances at 2-PWH002.12, which is located at Route 156. Natural conditions are suspected, however the dam should be investigated.

The exceedance rate was 2/14 in the 2016 cycle. Other stations within the segment had insufficient data for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_PWH01A02 / Powwhite Creek / Powwhite Creek from Gaines Millpond dam downstream to its mouth at the Chickahominy River.	5C	Dissolved Oxygen	2014	L	2.14

Powwhite Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.14

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G06R-06-PH** Beaverdam Creek

Cause Location: Beaverdam Creek from its headwaters to the confluence with tributary XBT.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Beaverdam Creek was assessed as not supporting of the Aquatic Life Use based on a pH standard exceedance rate of 3/4 at USGS station 02042433.

During the 2008 cycle, monitoring at DEQ station 2-BEV002.00 at the Route 156 bridge, only slightly upstream of the USGS station, had an acceptable exceedance rate of 0/11; therefore continued monitoring was recommended.

During the 2014 cycle, monitoring was conducted at 2-BEV002.00 as well as 2-BEV-RICH01-NPS, which is a National Park Service station. The NPS station had an acceptable violation rate (0/31), however the DEQ station was 3/26; therefore, the segment remained impaired.

During the 2016 cycle, widespread monitoring was conducted by the DEQ and the National Park Service. Although the majority of stations had acceptable pH, the upstream-most station, 2-BEV006.75 continued to have pH exceedances (7/13). The segment was shortened to end at tributary XBT and the downstream portion was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_BEV01B16 / Beaverdam Creek / Beaverdam Creek from its headwaters to the confluence with tributary XBT.	5C	pH	2004	L	2.68

Beaverdam Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.68

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G06R-07-PH** **Boatswain Creek**

Cause Location: Boatswain Creek from its headwaters to its mouth at the Chickahominy River.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Boatswain Creek was assessed as not supporting of the Aquatic Life Use during the 2008 cycle based on pH standard exceedance rates of 3/4 at USGS station 0204243830, 2/4 at USGS station 0204243790, and 7/15 at DEQ station 2-BTS002.62.

During the 2012 cycle, the exceedance rate at 2-BTS002.62 was 4/11. Monitoring at new National Park Service station 2-BTS-RICH-03-NPS was inconclusive (1/8).

During the 2014 cycle, the pH exceedance rate was acceptable (2/31) at 2-BTS-RICH-03-NPS; however, there was no additional monitoring at any of the other stations. Boatswain Creek remained impaired in the 2014 cycle until further monitoring could be conducted.

In the 2020 cycle, the creek remains impaired due to an exceedance rate of 5/12 at 2-BTS002.62 (2016 cycle) and 5/41 at 2-BTS-RICH-03-NPS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_BTS01A02 / Boatswain Creek / Boatswain Creek from its headwaters to its mouth at the Chickahominy River.	5C	pH	2004	L	3.76

Boatswain Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.76

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: G06R-11-PH Bloody Run

Cause Location: Bloody Run from its headwaters to the its mouth at Gaines Millpond.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Bloody Run was assessed as not supporting of the Aquatic Life Use during the 2004 cycle based on pH exceedance rates of 4/4 at USGS stations 0204243610 and 0204243650.

Additional monitoring was conducted during the 2016 cycle. Monitoring at National Park Service station 2-BDY-RICH-04-NPS, which is co-located with the previous USGS station 0204243650, had a pH violation rate of 33/51. DEQ station 2-BDY000.58 had an exceedance rate of 12/12.

During the 2020 cycle, the exceedance rate at 2-BDY-RICH-04-NPS was 28/42.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_BDY01A04 / Bloody Run / Headwaters to mouth at Gaines Millpond.	5C	pH	2004	L	1.16

Bloody Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.16

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G06R-12-BAC** Beaverdam Creek

Cause Location: Beaverdam Creek from its headwaters to its mouth.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Beaverdam Creek was initially assessed as not supporting the Recreation Use in the 2006 cycle based on E. coli exceedances at the Route 156 bridge (2-BEV002.00). During the 2012 cycle, the exceedance rate was 3/14.

The impairment was addressed in the Chickahominy River and Tributaries Bacterial TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013.

Monitoring by citizen monitoring groups in the 2018 cycle confirmed the impairments (3/13 at 2-BEV-BDC1-HCSWCD, and 4/13 at 2-BEV-BDC2-HCSWCD).

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted; therefore, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_BEV01A00 / Beaverdam Creek / Beaverdam Creek from XBT to its mouth at the Chickahominy River.	4A	Escherichia coli (E. coli)	2006	L	4.97
VAP-G06R_BEV01B16 / Beaverdam Creek / Beaverdam Creek from its headwaters to the confluence with tributary XBT.	4A	Escherichia coli (E. coli)	2006	L	2.68

Beaverdam Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.65

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G06R-13-BAC** Boatswain Creek

Cause Location: Boatswain Creek from its headwaters to its mouth at the Chickahominy River.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Boatswain Creek was initially assessed as not supporting of the Recreation Use during the 2006 cycle based on E. coli exceedances at 2-BTS002.62, located at the Watt House driveway.

The exceedance rate was 3/12 during the 2012 cycle.

The impairment was addressed in the Chickahominy River and Tributaries Bacterial TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_BTS01A02 / Boatswain Creek / Boatswain Creek from its headwaters to its mouth at the Chickahominy River.	4A	Escherichia coli (E. coli)	2006	L	3.76

Boatswain Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.76

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G06R-14-BAC** Chickahominy River

Cause Location: Segment begins at the Route 360 bridge over the Chickahominy River, and extends downstream to the Route 156 bridge.

Cause City/County: Hanover County; Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the segment was considered not supporting of the Recreation Use due to E. coli exceedances at 2-CHK062.57, which is located at the Route 360 bridge.

The impairment was addressed in the Chickahominy River and Tributaries Bacterial TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013.

The exceedance rates were 9/36 at 2-CHK062.57 and 5/12 at 2-CHK055.04 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The segment remained impaired due to two or more exceedances within a 90 day period at DEQ stations 2-CHK055.04 and 2-CHK062.57 and citizen monitoring station 2-CHK-C05-JRA as well as geometric mean exceedances at 2-CHK-C05-JRA.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_CHK01A98 / Chickahominy River / The Chickahominy River from the Route 360 bridge downstream to the Route 156 bridge.	4A	Escherichia coli (E. coli)	2008	L	7.46

Chickahominy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.46

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G06R-15-BAC** **Chickahominy River**

Cause Location: The Chickahominy River from the Route 156 bridge downstream to the confluence with Toe Ink Swamp at river mile 43.07.

Cause City/County: Charles City County; Hanover County; Henrico County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the Chickahominy River from the Route 156 bridge downstream to the confluence with Toe Ink Swamp at river mile 43.07 was impaired of the Recreation Use due to an E.coli exceedance rate of 3/11 at 2-CHK049.59, which is located at the Route 60 bridge.

The segment is within the study area for the Chickahominy River and Tributaries Bacterial TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G06R_CHK02A02 / Chickahominy River / The Chickahominy River from the Route 156 bridge downstream to the Hanover/Henrico/New Kent county line.	4A	Escherichia coli (E. coli)	2016	L	2.85
VAP-G06R_CHK02A14 / Chickahominy River / The Chickahominy River from the Hanover/Henrico/New Kent county line downstream to the confluence with Toe Ink Swamp at river mile 43.07.	4A	Escherichia coli (E. coli)	2016	L	8.93

Chickahominy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.78

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G07L-01-DO** **Chickahominy Lake**

Cause Location: Chickahominy Lake in its entirety.

Cause City/County: Charles City County; New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2014 cycle the segment became impaired for aquatic life with a DO pooled violation rate of 29/166 at stations 2-CHK025.15, 2-CHK026.94, 2-CHK029.54.

During the 2020 cycle the Lake remained impaired for DO with exceedances at stations 2-CHK025.15 (9/69) and 2-CHK026.94 (7/58).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07L_CHK01A00 / Chickahominy Lake / Chickahominy Lake from Walkers Dam to the extent of backwater	5A	Dissolved Oxygen	2002	L	1050.47

Chickahominy Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		1050.47	

Sources: Natural Sources

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James River Basin

Cause Group Code: **G07L-01-HGFT** **Chickahominy Lake**

Cause Location: Chickahominy Lake in its entirety.

Cause City/County: Charles City County; New Kent County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The VDH issued a Fish Consumption Advisory for Chickahominy Lake on 7/20/2006. No more than 2 meals per month of Largemouth Bass, Chain Pickerel, and Bowfin are recommended due to mercury in fish tissue.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07L_CHK01A00 / Chickahominy Lake / Chickahominy Lake from Walkers Dam to the extent of backwater	5A	Mercury in Fish Tissue	2008	L	1050.47

Chickahominy Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1050.47	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **G07R-01-BAC** **Collins Run**

Cause Location: Collins Run from the headwaters downstream to rivermile 0.99

Cause City/County: Charles City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Collins Run from its headwaters downstream to rivermile 0.99 was assessed as not supporting of the Recreation Use in 2002 because of fecal coliform exceedances at two confined animal feeding operation special study locations, 2-CNR001.16 and 2-CNR001.54 (Route 614 bridge).

The impairment converted to E. coli in the 2010 cycle.

During the 2012 cycle, the exceedance rates were as follows: 1/12 at 2-CNR001.54 (fully supporting) 2/12 at 2-CNR001.58 4/12 at 2-CNR002.69

Collins Run was addressed in the Chickahominy River and Tributaries Bacterial TMDL report, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013; therefore, it is considered Category 4A.

Monitoring in the 2020 cycle at 2-CNR001.54 showed impairment (7/12). New bacteria criteria were implemented in the 2022 cycle. A review of the previous cycle's data at 2-CNR001.54 indicates that the monitoring would have been insufficient for assessment; however, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_CNR01A00 / Collins Run / Collins Run from the headwaters downstream to rivermile 0.99	4A	Escherichia coli (E. coli)	2010	L	4.5

Collins Run

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 4.5

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G07R-01-DO** **Collins Run**

Cause Location: Collins Run from the headwaters downstream to rivermile 0.99

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Collins Run from its headwaters downstream to rivermile 0.99 was assessed as not supporting of the Aquatic Life Use in the 2010 cycle because of a dissolved oxygen violation rate of 4/6 at 2-CNR002.69, which is located at the Route 155 bridge.

The exceedance rate was 4/12 during the 2012 cycle. Downstream stations 2-CNR001.54 and 2-CNR001.58 were acceptable (0/12.)

Additional monitoring was conducted during the 2016 cycle at 2-CNR002.69. The segment remained impaired for dissolved oxygen (2/18).

Station 2-CNR001.54 remained acceptable in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_CNR01A00 / Collins Run / Collins Run from the headwaters downstream to rivermile 0.99	5C	Dissolved Oxygen	2010	L	4.5

Collins Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.5

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G07R-01-PH** **Collins Run**

Cause Location: Collins Run from the headwaters downstream to rivermile 0.99

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Collins Run from its headwaters downstream to rivermile 0.99 was assessed as not supporting of the Aquatic Life Use in the 2012 cycle because of pH violation rates of 3/12 at 2-CNR002.69 (Route 155) and 2/12 at 2-CNR001.58.

Additional monitoring was conducted during the 2016 cycle at 2-CNR002.69. The segment remained impaired for pH (4/18).

Station 2-CNR001.54 is acceptable (0/12).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_CNR01A00 / Collins Run / Collins Run from the headwaters downstream to rivermile 0.99	5C	pH	2012	L	4.5

Collins Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.5

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G07R-02-DO** Rumley Marsh

Cause Location: Rumley Marsh from XWS to Old Forge Pond. Below Old Forge Pond, the stream name is Jones Run.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Special studies conducted in Rumley Marsh and Jones Run in 1994 identified summertime DO exceedances in Rumley Marsh at station 2-RUM002.46.

Rumley Marsh downstream to Old Forge Pond was threatened in 1998 and downgraded in 2002. During the 2008 cycle, additional monitoring was conducted at 2-RUM004.38, which is located at the Route 617 bridge. The monitoring confirmed the impairment. In addition, station 2-RUM002.46 had a violation rate of 5/6 and station 2-RUM005.54 was 1/6 (IN).

During the 2014 cycle, the dissolved oxygen exceedance rates were as follows:

18/30 at 2-RUM002.46

11/27 at 2-RUM004.38 (2012)

3/12 at 2-RUM005.54

The Natural Conditions Assessment for Low pH and Low Dissolved Oxygen in Rumley Marsh, Pelham Swamp, and Tributaries was completed in January 2012. The report recommended that Rumley Marsh from its headwaters to its confluence with tributary XWS be reclassified as Class VII swampwater; until the WQS could be revised the upper portion was assessed as Category 4C. However, it indicates that the nutrients in lower Rumley Marsh are too high. It is believed that the Chesapeake Bay TMDL will reduce nutrients in nonpoint source runoff.

The upper watershed was reclassified as Class VII swampwaters during the 2018 cycle. Per Virginia's Water Quality Standards (9VAC25-260-50), numeric dissolved oxygen standards only apply to Class VII waters when there is sufficient evidence the narrative criterion is not protective of aquatic life uses. To date, this Class VII water has not exhibited a need for a site-specific DO criterion, so the dissolved oxygen impairment was removed (partial delist) in the upper portion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_RUM01B14 / Rumley Marsh / Rumley Marsh from XWS downstream to Old Forge Pond.	5A	Dissolved Oxygen	2002	L	1.32

Rumley Marsh

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.32

Sources: Non-Point Source

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James River Basin

Cause Group Code: G07R-02-PH Rumley Marsh

Cause Location: Rumley Marsh from XWS to Old Forge Pond. Below Old Forge Pond, the stream name is Jones Run.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2010 cycle, the segment was assessed as not supporting of the Aquatic Life Use due to pH violations at 2-RUM002.46 and 2-RUM005.54. During the 2014 cycle, the pH exceedance rates were as follows:

6/30 at 2-RUM002.46

4/28 at 2-RUM004.38 (2012)

9/12 at 2-RUM005.54

The Natural Conditions Assessment for Low pH and Low Dissolved Oxygen in Rumley Marsh, Pelham Swamp, and Tributaries was completed in January 2012. The report recommends that Rumley Marsh from its headwaters to its confluence with tributary XWS be reclassified as Class VII swampwater; until the WQS could be revised the upper portion was assessed as Category 4C. However, it indicates that the nutrients in lower Rumley Marsh are too high for the current swampwater protocol. It is believed that the Chesapeake Bay TMDL will reduce nutrients in nonpoint source runoff.

The upper Rumley Marsh watershed was reclassified as Class VII swampwaters during the 2018 cycle. Although no additional pH data has been collected, a review of the previous pH data indicates that the upper watershed meets the newly designated Class VII watershed pH criteria of 3.7-8.0 SU. The Class VII portion of the pH impairment was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_RUM01B14 / Rumley Marsh / Rumley Marsh from XWS downstream to Old Forge Pond.	5A	pH	2010	L	1.32

Rumley Marsh

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.32

Sources: Non-Point Source

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James River Basin

Cause Group Code: **G07R-04-BAC** Schiminoe Creek

Cause Location: Schiminoe Creek from its headwaters to its mouth at the Chickahominy River.

Cause City/County: New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Schiminoe Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/12 at 2-SMN001.42, which is located at Route 60.

Schiminoe Creek is located within the study watershed for the Chickahominy River and Tributaries Bacterial TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The E. coli impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_SMN01A00 / Schiminoe Creek / Schiminoe Creek from its headwaters to the mouth at the Chickahominy River.	4A	Escherichia coli (E. coli)	2012	L	6.23

Schiminoe Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.23

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G07R-04-DO** **Schiminoe Creek**

Cause Location: Schiminoe Creek from its headwaters to its mouth at the Chickahominy River.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, Schiminoe Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/12 at 2-SMN001.42, which is located at Route 60.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_SMN01A00 / Schiminoe Creek / Schiminoe Creek from its headwaters to the mouth at the Chickahominy River.	5C	Dissolved Oxygen	2012	L	6.23

Schiminoe Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G07R-04-PH** Schiminoe Creek

Cause Location: Schiminoe Creek from its headwaters to its mouth at the Chickahominy River.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Schiminoe Creek was assessed as not supporting of the Aquatic Life Use due to a pH exceedance rate of 4/12 at 2-SMN001.42, which is located at Route 60.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_SMN01A00 / Schiminoe Creek / Schiminoe Creek from its headwaters to the mouth at the Chickahominy River.	5C	pH	2012	L	6.23

Schiminoe Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G07R-06-DO** XWS - Rumley Marsh, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Rumley Marsh.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2012 cycle, XWS was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/18 at 2-XWS000.85, which is located at the Route 155 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_XWS01A10 / XWS - Rumley Marsh, UT / Headwaters to mouth at Rumley Marsh	5A	Dissolved Oxygen	2012	L	2.18

XWS - Rumley Marsh, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.18

Sources: Non-Point Source

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James River Basin

Cause Group Code: **G07R-06-PH** XWS - Rumley Marsh, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Rumley Marsh.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2012 cycle, XWS was assessed as not supporting of the Aquatic Life Use due to a pH exceedance rate of 4/18 at 2-XWS000.85, which is located at the Route 155 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_XWS01A10 / XWS - Rumley Marsh, UT / Headwaters to mouth at Rumley Marsh	5A	pH	2012	L	2.18

XWS - Rumley Marsh, UT

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.18

Sources: Non-Point Source

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James River Basin

Cause Group Code: **G07R-07-PH** **XAB - Collins Run, UT**

Cause Location: Unnamed tributary from its headwaters to its mouth at Collins Run.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, XAB was assessed as not supporting of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 2-XAB000.15, which is located off of Route 155.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_XAB01A10 / XAB - Collins Run, UT / Headwaters to mouth at Collins Run	5C	pH	2012	L	1.72

XAB - Collins Run, UT

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.72

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G07R-08-BAC** Chickahominy River

Cause Location: The Chickahominy River from the confluence with Possum Run downstream to the limit of backwater for Lake Chickahominy.

Cause City/County: Charles City County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the Chickahominy River from Possum Run to Chickahominy Lake was impaired of the Recreation Use due to E.coli exceedances at 2-CHK035.26, which is located at Route 618.

The segment is within the study area for the Chickahominy River and Tributaries Bacterial TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The impairment is considered nested (Category 4A.)

The exceedance rate was 12/7 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The segment remained impaired due to two or more hits in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_CHK01A00 / Chickahominy River / The Chickahominy River from the confluence with Possum Run at rivermile 41.66 downstream to the upstream limit of Chickahominy Lake.	4A	Escherichia coli (E. coli)	2016	L	11.03

Chickahominy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.03

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G07R-09-BAC** XTH - Chickahominy River, UT

Cause Location: The unnamed tributary XTH in its entirety.

Cause City/County: New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, XTH (UT to the Chickahominy River) was impaired of the Recreation Use due to an E. coli exceedance rate of 7/11 at 2CXTH000.86.

The stream is located within the study area for the Chickahominy River and Tributaries Bacterial TMDL, which was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. The impairment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. A review of the data indicates that the station would remain impaired under the new criteria due to two or more STV exceedances in a 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G07R_XTH01A02 / XTH - Chickahominy River, UT / An unnamed tributary of Chickahominy River in its entirety.	4A	Escherichia coli (E. coli)	2018	L	2.27

XTH - Chickahominy River, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.27

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G08E-01-BAC** Morris Creek

Cause Location: Morris Creek from its tidal limit at river mile 6.67 to its mouth.

Cause City/County: Charles City County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Nontidal Morris Creek was previously assessed as not supporting of the Recreation use support goal based on fecal coliform exceedances recorded at 2-MOC005.97. The segment was listed as threatened in 1998, and then downgraded to impaired during the 2002 cycle. However, EPA mistakenly included it as impaired on the 1998 Consent Decree.

During the 2008 cycle, additional E. coli monitoring was conducted at stations 2-MOC005.97 and 2-MOC010.97. Although the upstream E. coli exceedance rate was acceptable (1/12), the segment remained impaired due to an exceedance rate of 4/17 at 2-MOC005.97. The impairment converted to E. coli.

However, in the 2010 cycle, it was determined that the tidal limit had been incorrectly determined and that the listing station 2-MOC005.97 was tidally influenced. That station was reassessed against the enterococci standard and remained impaired. The segment extent was corrected.

The TMDL was completed for the tidal enterococci impairment and was approved by the EPA on 12/3/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_MOC01A02 / Morris Creek / The tidal portion of Morris Creek. CHKOH	4A	Enterococcus	2010	L	0.394

Morris Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.394		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G08E-01-PH** Morris Creek

Cause Location: Morris Creek from its tidal limit at river mile 6.67 to its mouth.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: Morris Creek was assessed as not supporting of the Aquatic Life use support (ALUS) goal based on water quality monitoring performed at the Route 623 bridge (2-MOC005.97).

During the 2008 cycle, additional monitoring was conducted. The impairment was confirmed with the following violation rates:

3/24 at 2-MOC005.97

pH 3/10 at 2-MOC010.97

However, based on analysis of station 2-MOC005.97 a Natural Conditions Assessment recommends that Morris Creek and its tributaries from the head of tide at river mile 5.97 upstream to its headwaters be reclassified as Class VII swampwaters.

The nontidal watershed above rivermile 5.97 was reclassified during the 2010 cycle and the segment was reassessed against the Class VII pH standard. However, it was determined that the tidal limit is actually located at rivermile 6.67; therefore, the original listing station, 2-MOC005.97, is located in the tidal Morris Creek segment. The violation rate was 7/33 in the 2010 cycle. Since the Natural Condition Report confirmed that the impairment at the station was a natural condition, the tidal portion of Morris Creek is considered Category 4C.

Monitoring at station 2CMOC001.95 was acceptable; therefore, further monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_MOC01A02 / Morris Creek / The tidal portion of Morris Creek. CHKOH	4C	pH	NA	NA	0.394

Morris Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.394		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Sources; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **G08E-02-EBEN** **Chickahominy River**

Cause Location: Approximately 0.5 mile upstream and downstream of station 2CCHK002.40

Cause City/County: Charles City County; James City County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Station 2CCHK002.40 is a Coastal 2000 probabilistic monitoring station. During the 2018 cycle, a 2016 Weight of Evidence assessment performed by DEQ's Central Office indicated benthic alteration which was probably caused by the acute and chronic effects of sediment metals (scenario 1, category 5A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_CHK02B18 / Chickahominy River / Approximately 0.5 mile upstream and downstream of station 2CCHK002.40 CHKOH	5A	Estuarine Bioassessments	2018	L	0.452

Chickahominy River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.452		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G08E-03-BAC** **Diascund Creek**

Cause Location: The tidal Diascund Creek.

Cause City/County: James City County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Diascund Creek from the dam to its mouth was assessed as not supporting of the Recreation Use during the 2010 cycle due to an enterococci exceedance rate of 4/23 at 2-DSC003.19.

Additional monitoring in the 2016 cycle confirmed the impairment (2/11 at 2-DSC003.19 and 5/12 at 2-DSC005.38.)

The impairment was addressed in the Lower Chickahominy River Bacterial TMDL, which was approved by the EPA on 8/11/2017 and the SWCB on 7/19/2017. It is therefore considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_DSC01A00 / Diascund Creek / Diascund Creek from the Diascund Reservoir dam downstream to the mouth at the Chickahominy River. CHKOH	4A	Enterococcus	2010	L	0.271

Diascund Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.271		

Sources: Municipal Point Source Discharges; Non-Point Source

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James River Basin

Cause Group Code: **G08E-07-EBEN** XAC - Chickahominy River, UT

Cause Location: The tidal portion of tributary XAC.

Cause City/County: James City County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Station 2CXAC000.20 is a Coastal 2000 probabilistic monitoring station. During the 2010 cycle, Weight of Evidence assessment performed by DEQ's Central Office indicated benthic alteration which was probably caused by the acute and chronic effects of sediment PAHs and possibly metals (scenario 1, category 5A).

It was resampled in 2018 and was considered Category 3B (insufficient info for assessment), so the segment will remain listed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08E_XAC01A10 / XAC - Chickahominy River, UT / XAC in its entirety CHKOH	5A	Estuarine Bioassessments	2010	L	0.017

XAC - Chickahominy River, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.017		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G08R-02-BAC** Mill Creek

Cause Location: Mill Creek from its headwaters downstream to its tidal limit

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Mill Creek was initially assessed as not supporting of the Recreation Use support goal in 2004 based on a fecal coliform violation rate of 3/13 recorded at 2-MCR002.38.

Additional monitoring was conducted during the 2012 cycle. The impairment converted to E. coli due to an exceedance rate of 2/12.

The impairment was addressed in the Lower Chickahominy River Bacterial TMDL, which was approved by the EPA on 8/11/2017 and the SWCB on 7/19/2017. It is therefore considered a Category 4A water.

The exceedance rate was 4/12 during the 2016 cycle.

New bacteria criteria were implemented in the 2022 cycle. The station was re-sampled once in 2019; however, that data is insufficient for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08R_MCR01A04 / Mill Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2012	L	4.82

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.82

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G08R-04-BAC** **Yarmouth Creek**

Cause Location: The nontidal portion of Yarmouth Creek.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Yarmouth Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 5/24 at 2-YRM004.96, which is located at Rt. 632.

The creek is located within the study area for the Lower Chickahominy River Bacteria TMDL, which was approved by the SWCB on 7/19/2017 and by the EPA on 8/11/2017. The impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No new data were collected but a review of the older data confirms the impairment due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08R_YRM01A12 / Yarmouth Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2020	L	4.09

Yarmouth Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.09

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G08R-04-DO** **Yarmouth Creek**

Cause Location: The nontidal portion of Yarmouth Creek.

Cause City/County: James City County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, Yarmouth Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/12 at 2-YRM004.96, which is located at Rt. 632.

The violation rate was 5/36 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08R_YRM01A12 / Yarmouth Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2012	L	4.09

Yarmouth Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.09

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G08R-05-BAC** Barrows Creek

Cause Location: The nontidal portion of Barrows Creek.

Cause City/County: Charles City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Barrows Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 6/12 at 2-BRW002.50, which is located at Route 615.

The impairment was addressed in the Lower Chickahominy River Bacterial TMDL, which was approved by the EPA on 8/11/2017 and the SWCB on 7/19/2017. It is therefore considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08R_BRW01A14 / Barrows Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2014	L	6.93

Barrows Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.93

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G08R-05-DO** **Barrows Creek**

Cause Location: The nontidal portion of Barrows Creek.

Cause City/County: Charles City County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Barrows Creek was assessed as impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 5/12 at 2-BRW002.50, which is located at Route 615.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G08R_BRW01A14 / Barrows Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2014	L	6.93

Barrows Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 6.93

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: G09L-01-HGFT Diascund Creek Reservoir

Cause Location: Diascund Creek Reservoir entirety

Cause City/County: James City County; New Kent County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The 2010 cycle the segment was impaired for fish consumption use due to Mercury in fish tissue of Bass and Bowfin.

The 2012 cycle the segment was impaired for fish consumption use due to Mercury in fish tissue of Bass and Bowfin.

No new data for the 2014, 2016 and 2018 cycle.

During the 2020 cycle only Fish Tissue data was collected in 2018 with Hg in 2sp (Bowfin, Largemouth Bass).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09L_DSC01A00 / Diascund Creek Reservoir / Diascund Creek Reservoir	5A	Mercury in Fish Tissue	2010	L	1056.13

Diascund Creek Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1056.13	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **G09R-01-BAC** Beaverdam Creek

Cause Location: Beaverdam Creek, a tributary to Diascund Reservoir.

Cause City/County: New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2012 cycle, Beaverdam Creek was impaired of the Recreation Use due to the following exceedance rates:

3/9 at 2-BDM003.16 4/20 at 2-BDM004.12 3/9 at 2-BDM004.60 5/9 at 2-BDM005.70

The impairment was addressed in the Lower Chickahominy River Bacterial TMDL, which was approved by the EPA on 8/11/2017 and the SWCB on 7/19/2017. It is therefore considered a Category 4A water.

Station 2-BDM04.12 was sampled once in the 2022 cycle under the new bacteria criteria; the data was insufficient for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_BDM01A98 / Beaverdam Creek / Beaverdam Creek from its headwaters to the upstream limit of Diascund Reservoir.	4A	Escherichia coli (E. coli)	2012	L	4.34

Beaverdam Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.34

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G09R-01-DO** Beaverdam Creek

Cause Location: Beaverdam Creek, a tributary to Diascund Reservoir.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Beaverdam Creek has been assessed as not supporting of the Aquatic Life use because of dissolved oxygen standard exceedances at the Route 632 bridge (2-BDM004.12). The segment was initially considered fully supporting but threatened in the 1998 cycle, but was downgraded to impaired in the 2002 cycle with a TMDL due date of 2014.

A Natural Conditions Assessment was completed for the Beaverdam Creek watershed on January 2012. The report indicates that the stream is not appropriate for Class VII designation because of excess nutrients. It is believed that the Chesapeake Bay TMDL will reduce nutrients in the watershed.

Additional monitoring has been conducted throughout the creek. The exceedance rates in the 2016 cycle were as follows: 2/11 at 2-BDM003.16 13/37 at 2-BDM004.12 (2014 cycle) 14/23 at 2-BDM004.60 0/23 at 2-BDM005.70 (fully supporting)

Although the upstream station was fully supporting and is upstream of a swampy area, dark water was seen at this station, so it will remain incorporated with the downstream stations.

In the 2020 cycle, the exceedance rate was 7/12 at 2-BDM004.60.

Additional monitoring was conducted in the 2022 cycle. Dissolved oxygen exceedances rates were 4/10 at 2-BDM004.12 and 0/1 at 2-BDM004.65.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_BDM01A98 / Beaverdam Creek / Beaverdam Creek from its headwaters to the upstream limit of Diascund Reservoir.	5A	Dissolved Oxygen	2002	L	4.34

Beaverdam Creek

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary	Reservoir	River
		(Sq. Miles)	(Acres)	(Miles)
				4.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Non-Point Source

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James River Basin

Cause Group Code: **G09R-01-PH** Beaverdam Creek

Cause Location: Beaverdam Creek, a tributary to Diascund Reservoir.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2012 cycle, Beaverdam Creek was assessed as not supporting of the Aquatic Life use because of pH exceedances.

The exceedance rates in the 2016 cycle were as follows: 2/11 at 2-BDM003.16 2/37 at 2-BDM004.12 (2014 cycle - fully supporting) 5/23 at 2-BDM004.60 2/23 at 2-BDM005.70 (fully supporting)

Although the upstream station was fully supporting and is upstream of a swampy area, dark water was seen at this station, so it will remain incorporated with the downstream stations.

In the 2020 cycle, the exceedance rate was 2/12 at 2-BDM004.60.

Additional monitoring was conducted during the 2022 cycle. pH exceedance rates were 0/10 at 2-BDM004.12 and 0/1 at 2-BDM004.65. Although this is acceptable, the stream will remain impaired due to the previous exceedance rates at other stations within the segment. Continued monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_BDM01A98 / Beaverdam Creek / Beaverdam Creek from its headwaters to the upstream limit of Diascund Reservoir.	5A	pH	2012	L	4.34

Beaverdam Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Non-Point Source

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James River Basin

Cause Group Code: **G09R-02-DO** **Diascund Creek**

Cause Location: Diascund Creek from its headwaters to the Diascund Reservoir.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Diascund Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen violation rate of 4/25 at the Route 628 bridge (2-DSC012.68).

During the 2014 cycle, the exceedance rates were as follows:

5/11 at 2-DSC011.33

1/24 at 2-DSC012.67 (fully supporting)

5/11 at 2-DSC014.53

4/11 at 2-DSC015.32

Additional monitoring was conducted at 2-DSC012.67 during the 2016 cycle. The exceedance rate was acceptable (1/35). The segment will remain impaired due to the previous exceedances at the remaining stations in the stream; however, continued monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_DSC01A00 / Diascund Creek / Diascund Creek from its headwaters to the upstream limit of Diascund Creek Reservoir.	5C	Dissolved Oxygen	2008	L	6.89

Diascund Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.89

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-02-PH** **Diascund Creek**

Cause Location: Diascund Creek from its headwaters to the Diascund Reservoir.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Diascund Creek was assessed as not supporting of the Aquatic Life Use due to pH exceedances. The exceedance rates during the 2014 cycle were as follows:

2/11 at 2-DSC011.33

1/24 at 2-DSC012.67 (fully supporting)

1/11 at 2-DSC014.53 (fully supporting)

2/11 at 2-DSC015.32

Additional monitoring was conducted at 2-DSC012.67 during the 2016 cycle. The exceedance rate was acceptable (1/35). The segment will remain impaired due to the previous exceedances at the remaining stations in the stream; however, continued monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_DSC01A00 / Diascund Creek / Diascund Creek from its headwaters to the upstream limit of Diascund Creek Reservoir.	5C	pH	2012	L	6.89

Diascund Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.89

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-03-DO** XAL - Diascund Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Diascund Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, XAL was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/11 at 2CXAL000.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAL01A12 / XAL - Diascund Creek, UT / Headwaters to mouth at Diascund Creek	5C	Dissolved Oxygen	2012	L	1.23

XAL - Diascund Creek, UT

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 1.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-03-PH** XAL - Diascund Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Diascund Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, XAL was assessed as not supporting of the Aquatic Life Use due to a pH exceedance rate of 2/11 at 2CXAL000.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAL01A12 / XAL - Diascund Creek, UT / Headwaters to mouth at Diascund Creek	5C	pH	2012	L	1.23

XAL - Diascund Creek, UT

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 1.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-04-DO** **XAK - Diascund Creek, UT**

Cause Location: Unnamed tributary from its headwaters to its mouth at Diascund Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, XAK was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/11 at 2CXAK000.08.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAK01A12 / XAK - Diascund Creek, UT / Headwaters to mouth at Diascund Creek	5C	Dissolved Oxygen	2012	L	2.92

XAK - Diascund Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-05-DO** XAJ - Diascund Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Diascund Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, XAJ was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/11 at 2CXAJ000.69.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAJ01A12 / XAJ - Diascund Creek, UT / Headwaters to mouth at Diascund Creek	5C	Dissolved Oxygen	2012	L	2.94

XAJ - Diascund Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.94

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-06-BAC** XAH - Beaverdam Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Beaverdam Creek

Cause City/County: New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, XAH was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/6 at 2CXAH000.35.

The impairment was addressed in the Lower Chickahominy River Bacterial TMDL, which was approved by the EPA on 8/11/2017 and the SWCB on 7/19/2017. It is therefore considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAH01A12 / XAH - Beaverdam Creek, UT / Headwaters to mouth at Beaverdam Creek	4A	Escherichia coli (E. coli)	2012	L	2.23

XAH - Beaverdam Creek, UT

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.23

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G09R-06-DO** XAH - Beaverdam Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Beaverdam Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2012 cycle, XAH was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances at 2CXAH000.35. The exceedance rate was 4/9 during the 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XAH01A12 / XAH - Beaverdam Creek, UT / Headwaters to mouth at Beaverdam Creek	5A	Dissolved Oxygen	2012	L	2.23

XAH - Beaverdam Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.23

Sources: Non-Point Source

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James River Basin

Cause Group Code: G09R-07-DO Wahrani Swamp

Cause Location: Wahrani Swamp from its headwaters to the upstream limit of Diascund Creek Reservoir.

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Wahrani Swamp was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/12 at 2-WAS002.69, which is located at Route 632.

The exceedance rate was 10/20 in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_WAS01A00 / Wahrani Swamp / Wahrani Swamp from its headwaters to the upstream limit of Diascund Creek Reservoir.	5C	Dissolved Oxygen	2014	L	3.66

Wahrani Swamp

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.66

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **G09R-08-DO** XBY - Beaverdam Creek, UT

Cause Location: Unnamed tributary from its headwaters to its mouth at Beaverdam Creek

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2016 cycle, tributary XBY was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/12 at 2CXBY000.19.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G09R_XBY01A16 / XBY - Beaverdam Creek, UT / Headwaters to mouth at Beaverdam Creek.	5A	Dissolved Oxygen	2016	L	1.09

XBY - Beaverdam Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 1.09
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Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G10E-01-BAC** Powhatan Creek/Sandy Bay

Cause Location: This cause encompasses Powhatan Creek/Sandy Bay, from end of tidal waters downstream to the mouth of Sandy Bay. Located North of Jamestown Island area, tributary to the Thorofare embayment. CBP segment JMSOH.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data analyzed with 2 or more STV hits in the same 90-day period with < 10 samples. Previously impaired based on single sample maximum Enterococci standard at station 2-POW000.60 with 18 exc / 33 obs. Bacteria impairment covered under TMDL (36211) for Powhatan Creek/Sandy Bay, EPA approved 4/28/20.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10E_POW01A02 / Powhatan Creek/Sandy Bay / West of Jamestown Island, north shore tributary to the James R. From end of tidal waters downstream to the mouth of Sandy Bay. CBP segment JMSOH. DSS (ADMIN - Prohibited Nonproductive) shellfish condemn # 059-069 A (effective 20141219).	4A	Enterococcus	1998	L	0.204

Powhatan Creek/Sandy Bay

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.204		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G10E-03-BAC** Mill Creek

Cause Location: This cause encompasses Mill Creek, from the end of tidal waters downstream to the mouth. Located North of Jamestown Island area, tributary to the Thorofare embayment. CBP segment JMSOH.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data from stations 2-MIC000.03 with 2 or more STV hits in the same 90-day period with < 10 samples per 90-day period. Previously impaired with single sample maximum standard. Bacteria impairment covered under TMDL (36211) for Powhatan Creek/Sandy Bay, EPA approved 4/28/2009. TMDL ID = VAT-G10E-03. Related to Entero impairment in adjacent Powhatan Cr.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10E_MIC01A00 / Mill Creek / North of Jamestown Island area, tributary to the Thorofare embayment. From end of tidal waters downstream to the mouth. CBP segment JMSOH. DSS (ADMIN - Prohibited Nonproductive) shellfish condemn # 059-069 A (effective 20141219).	4A	Enterococcus	1998	L	0.075

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.075		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G10E-05-EBEN** James River (Oligohaline)

Cause Location: This cause encompasses a portion of the James River Oligohaline segment from Sandy Bay to Hog Island Creek

Cause City/County: Isle Of Wight County; James City County; Newport News; Surry County; Williamsburg

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use is not supporting based on the mainstem of the JMSOH segment does not meet the estuarine benthic assessment for the Chesapeake Bay Benthic Indices of Biological Integrity (B-IBI).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10E_CLG01A06 / College Creek / North shore trib to James R. Located NE of Jamestown Isl. and west of Kingsmill area, in James City Co. From end of tidal waters downstream to mouth. CBP segment JMSOH. DSS (ADMIN Non-Prod) shellfish condemn # 059-069 A (effective 20141219).	5A	Estuarine Bioassessments	2012	L	0.578
VAT-G10E_JMS01A06 / James River Mainstem - Chickahominy R. to Hog Point / From confluence with Chickahominy R. coincident with watershed line (RM 48.40) downstream to line between Hog Pt. and mouth College Cr. N shore James R. CBP segment JMSOH. DSS (ADMIN) shellfish condemn # 059-069 A (effective 20141219).	5A	Estuarine Bioassessments	2004	L	17.843
VAT-G10E_JMS01B08 / James River - Carters Grove Area (G10) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	5A	Estuarine Bioassessments	2004	L	0.985
VAT-G10E_JMS02A06 / James River - Hog Point Area (Open Shellfish Area) / Triangular area in mainstem around Walnut Point, from Hog Pt. to G11 watershed line. CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 057-069 (effective 20141219).	5A	Estuarine Bioassessments	2004	L	2.240
VAT-G11E_JMS01B08 / James River - Hog Island Area [JMSOH area] / From area of Homewood (G11 watershed line) downstream to start of JMSMH salinity boundary (Hog Isl. Cr.). CBP segment JMSOH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	5A	Estuarine Bioassessments	2004	L	3.846
VAT-G11E_JMS01D14 / James River - Carters Grove Area (G11) / Mainstem along north shore, Camp Wallace to Carters Grove. Area shoreline upstream of Skiffes Creek. Portion of CBP segment JMSOH. DSS (ADMIN PROHIB) shellfish direct harvesting condemnation # 059-067 A&B (effective 20100901).	5A	Estuarine Bioassessments	2004	L	1.218

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James River (Oligohaline)

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	26.71		

Sources: Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G10E-06-BAC** College Creek

Cause Location: This cause encompasses College Creek, from end of tidal waters downstream to mouth (confluence with James River). CB segment JM SOH, located in James City County.

Cause City/County: James City County; Williamsburg

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data from stations 2-CLG000.23 where 2 or more STV exceedances occur in the same 90-day period with less than 10 samples. Previously this station met water quality standards for Enterococci based on the single sample maximum standard with 2 exc / 32 obs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10E_CLG01A06 / College Creek / North shore trib to James R. Located NE of Jamestown Isl. and west of Kingsmill area, in James City Co. From end of tidal waters downstream to mouth. CBP segment JM SOH. DSS (ADMIN Non-Prod) shellfish condemn # 059-069 A (effective 20141219).	5A	Enterococcus	2022	L	0.578

College Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.578		

Sources: Source Unknown

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James River Basin

Cause Group Code: **G10R-01-BAC** College Run

Cause Location: This cause encompasses College Run, from the convergence of the two upstream branches downstream to the confluence with the James River at Cobham Bay. Located north of Chippokes Plantation State Park, tributary to Cobham Bay (Surry County, PRO station).

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/5A

Cause Description: The Recreation Use impairment is retained from previous assessments '02-'08 (2 violates / 8 obs. collected for 2006 IR at station 2-CGE001.41) due to exceedance of the criteria for Fecal Coliform bacteria. No further bacteria data has been collected. Need E.coli data to confirm previous FC impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10R_CGE01A02 / College Run / North of Chippokes Plantation State Park, tributary to Cobham Bay (Surry County, PRO station). Mainstem College Run from convergence of two upstream branches downstream to the confluence with the James River at Cobham Bay. Not including tributaries.	5A	Fecal Coliform	2002	L	2.61

College Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			2.61

Sources: Source Unknown

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James River Basin

Cause Group Code: **G10R-02-BEN** **Powhatan Creek**

Cause Location: This cause encompasses Powhatan Creek, from the confluence with Long Hill Swamp and Chisel Run downstream to the beginning of tidal waters. Located west of the Five Forks area. North of Jamestown Island, north shore tributary to the James River.

Cause City/County: James City County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained for the stream's benthic population as measured by DEQ's Benthic-Macroinvertebrate Bioassessments program at station 2-POW006.77. Benthic data assessment (Spring - 2000 and Fall - 2000) resulted in a moderate impairment rating for this station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10R_POW01A00 / Powhatan Creek / West of the Five Forks area. North of Jamestown Island, north shore tributary to the James R. Powhatan Creek from the confluence with Long Hill Swamp and Chisel Run downstream to the beginning of tidal waters.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	5.36

Powhatan Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.36

Sources: Source Unknown

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James River Basin

Cause Group Code: **G10R-03-BAC** XHC - Dark Swamp, UT

Cause Location: The unnamed tributary XHC in its entirety.

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, the unnamed tributary to Dark Swamp was impaired of the Recreation Use due to an E. coli exceedance rate of 4/17 at 2-XHC000.12, which is located approx. 0.6 miles downstream of the Surry WWTF.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G10R_XHC01A08 / XHC - Dark Swamp, UT / Headwaters to mouth at Dark Swamp	5A	Escherichia coli (E. coli)	2012	L	1.3

XHC - Dark Swamp, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.3

Sources: Agriculture; Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Source Unknown; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G10R-03-DO** XHC - Dark Swamp, UT

Cause Location: The unnamed tributary XHC in its entirety.

Cause City/County: Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2010 cycle, the unnamed tributary to Dark Swamp was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances at 2-XHC000.12, which is located approx. 0.6 miles downstream of the Surry WWTF.

The exceedance rate was 5/22 during the 2012 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G10R_XHC01A08 / XHC - Dark Swamp, UT / Headwaters to mouth at Dark Swamp	5A	Dissolved Oxygen	2010	L	1.3

XHC - Dark Swamp, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.3

Sources: Agriculture; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **G10R-04-BAC** **Unnamed tributary to Mill Creek**

Cause Location: This cause encompasses the Unnamed tributary to Mill Creek. Located N of Lake Powell, between Jamestown Isl. and City of Williamsburg.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired based on E.coli data from Station 2-XZK000.06 that has 2 or more STV hits in the same 90-day period with < 10 samples. The impairment was nested within the Mill Creek tidal recreation impairment in the 2018 IR. EPA approved 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G10R_XZK01A10 / Unnamed tributary to Mill Creek / Unnamed tributary to Mill Creek. Located N of Lake Powell, between Jamestown Isl. and City of Williamsburg. Northeast branch, at confluence of Lake Powell and Mill Creek.	4A	Escherichia coli (E. coli)	2012	L	1.22

Unnamed tributary to Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.22

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G10R-05-BAC** **Dark Swamp**

Cause Location: The nontidal portion of Dark Swamp

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2014 cycle, Dark Swamp was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 4/12 at 2-DRK000.31, which is located at the Route 626 bridge.

New bacteria criteria were implemented in the 2022 cycle. Only one additional data point has been collected and is insufficient for assessment. Therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G10R_DRK01A14 / Dark Swamp / Headwaters to tidal limit	5A	Escherichia coli (E. coli)	2014	L	3.16

Dark Swamp

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.16

Sources: Agriculture; Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Source Unknown; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-01-BAC Warwick River - Middle Tidal Portion

Cause Location: This cause encompasses the Warwick River - Middle Tidal Portion, from approximately Denbigh Landing area downstream to Denbigh Park area. Located in Menchville area of Newport News. CBP segment JMSMH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus having 2 or more STV hits in the same 90-day period with less than 10 samples. Previous impairment based on data exceeding the single sample max criteria (9 viol/ 32 obs) measured at DEQ (AQM) monitoring station @ 2-WWK003.98. Considered NESTED under TMDL (35574) "Warwick River" EPA approved 2/29/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_WWK02A08 / Warwick River - Middle Tidal Portion / Located in Menchville area. From approx. Denbigh Landing area downstream to Denbigh Park area. CBP segment JMSMH. DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A (20090518).	4A	Enterococcus	2008	L	0.075

Warwick River - Middle Tidal Portion

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.075		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-01-SF Chuckatuck Creek System

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Condemnation #062-080 A, 20201015.

Cause City/County: Isle Of Wight County; Suffolk

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS condemnation. EPA approved TMDL 7/9/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_CKT01A04 / Chuckatuck & Brewers Creeks / South shore trib to James R., confluence upstream of Nansemond R. From headwaters of Brewers and Chuckatuck Creeks downstream to end of SF condemnation at Route 17 Bridge, Carrollton Blvd. Portion of CBP segment JMSMH. DSS shellfish harvesting condemnation # 062-080 (effective 20201015).	4A	Fecal Coliform	1998	L	0.731

Chuckatuck Creek System

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.731		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-03-BAC Deep Creek - Lower

Cause Location: This cause encompasses the area located in Menchville area. Tributary to Warwick River. From Warwick Yacht Club downstream to mouth. CBP segment JMSMH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supported based on 2 or more STV hits in the same 90-day period with < 10 samples at station 2-DEP000.26. Previously not supporting based on single sample maximum Enterococci criteria. Bacteria impairment covered under TMDL (34124) 'Deep Creek', EPA approved 2/29/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_DEP01A02 / Deep Creek - Lower / Located in Menchville area. Tributary to Warwick R. From Warwick Yacht Club downstream to mouth. CBP segment JMSMH. DSS (ADMIN) shellfish direct harvesting condemnation # 058-034 A (effective 20090518).	4A	Enterococcus	2006	L	0.1

Deep Creek - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.1		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-05-BAC** **Pagan River - Upper and Middle**

Cause Location: This cause encompasses the Upper and Middle Pagan River - from upper tidal influence downstream past Route 10. South shore tributary to James River. Located in Smithfield area. CBP segment JMSMH.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on failure to meet the Enterococcus bacteria criteria at stations 2-PGN008.4(impaired with 2 or more STV hits in same 90-day period) and 2-PGN006.65 (retain impairment since station has insufficient data to analyze geomean and 1 STV hit in multiple 90-dayperiods) and 2-PGN005.46 (multiple geomean exceedances in any 90-day period).

1998 CD segment for FC (Attachment A, Category 1, Part 1) VAT-G11E-04 & 1998 CD segment for FC & DO (Attachment A, Category 1, Part 1 & Attachment B) VAT-G11E-05.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN01A08 / Pagan River - Upstream of Chalmers Point / Located in Smithfield area. South shore tributary to James R. From end of tidal water downstream to approx. RM 7.00. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Enterococcus	1998	L	0.062
VAT-G11E_PGN01B18 / Pagan River - Upper Middle / Located in Smithfield area. South shore tributary to James R. From downstream of Crook Ln to Unnamed N Trib at Goose Hill Way. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20180530).	4A	Enterococcus	2020	L	0.065
VAT-G11E_PGN01C18 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Middle Pagan segment that Includes Morris Cr ends before Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Enterococcus	2022	L	0.058

Pagan River - Upper and Middle

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.185		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G11E-05-EBEN** Chesapeake Bay segment JMSMHa

Cause Location: This cause encompasses the complete CBP segment JMSMHa.

Cause City/County: Isle Of Wight County; James City County; Newport News; Portsmouth; Suffolk; Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on not meeting the Chesapeake Bay benthics associated with JMSMHa Chesapeake Bay segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS01A06 / James River - Gravel Neck to Pagan River / From start of JMSMH salinity boundary (Hog Isl. Cr.) downstream to line between Jail Pt (Mulberry Isle) to Days Pt (mouth Pagan R). CBP segment JMSMH. DSS (OPEN) shellfish condemnation # 059-069 & 058-183(effective 20201113).	5A	Estuarine Bioassessments	2006	L	40.260
VAT-G11E_JMS01C08 / James River - Carter Grove Area / Mainstem along north shore, from near Carter Grove. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 059-067 A (effective 20100901).	5A	Estuarine Bioassessments	2010	L	0.404
VAT-G11E_JMS02A06 / James River - Jail Point to Hilton Village / Mainstem from line between Jail Pt (Mulberry Isle) to Days Pt (Mouth Pagan R) downstream to line Hilton Village (Newport News)/Kings Creek (Isle of Wight). CBP segment JMSMH. DSS (OPEN) shellfish harvesting condemnation # 061-064 & 058-034 (effective 20201113).	5A	Estuarine Bioassessments	2006	L	24.697
VAT-G11E_JMS03A06 / James River - Along Lower North Shore / Mainstem along north shore, from Jail Point (Mulberry Isle) downstream to line following Rt. 664. CBP segment JMSMH. Portions of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518) & 056-007 A (effective 20120529).	5A	Estuarine Bioassessments	2006	L	3.943
VAT-G11E_JMS03B06 / James River - Hilton Beach Area / North shore James R. NW of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	Estuarine Bioassessments	2006	L	0.110
VAT-G11E_JMS03C06 / James River - Huntington Beach Area / North shore James R. near foot of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	Estuarine Bioassessments	2006	L	0.008

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS04A06 / James River - Hilton Village to Craney Island / Mainstem from a line between Hilton Village (Newport News)/Kings Creek (Isle of Wight) downstream to the end of DSS (OPEN) shellfish harvesting condemnation # 059-069 (effective 20141219). CBP segment JMSMH.	5A	Estuarine Bioassessments	2006	L	24.879
VAT-G11E_JMS06A10 / James River - Outside Mouth Streeter & Hoffer Creeks / Mainstem area at Mouth of Streeter & Hoffer Creeks @ SW corner Craney Island. CBP segment JMSMH. DSS (ADMIN) shellfish condemnation # 064-018 A (effective 20080530).	5A	Estuarine Bioassessments	2010	L	0.156
VAT-G11E_SFF03A10 / Skiffes Creek - Mouth / Located west of Lee Hall area, flows across the James City Co./NN City boundary. From Goose Island to point on opposite shore. Portion of CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	5A	Estuarine Bioassessments	2018	L	0.060
VAT-G11E_TYB01A00 / Tylers Beach Boat Basin / Located in the Bailey Beach area. Adjacent to the James River. Opposite Mulberry Island. NW corner of Burwell Bay. From end of tidal waters downstream to mouth. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 060-206 B (20141231).	5A	Estuarine Bioassessments	2018	L	0.011
VAT-G15E_JMS05A06 / James River - Newport News Point to NW Corner Craney Isl. / Line following the Rt. 664 crossing mid-river, SW to mid-mouth Nansemond R. to SW tip Craney Isl. Line. The NW line from NW tip Craney Isl. to Lincoln Pk. CBP segment JMSMH. DSS (ADMIN) cond # 056-007 A, B, C (effective 20120529).	5A	Estuarine Bioassessments	2010	L	3.611

Chesapeake Bay segment JMSMHA

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	98.137		

Sources: Agriculture; Source Unknown

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James River Basin

Cause Group Code: **G11E-06-BAC** Lawnes Creek (Tributary to James River)

Cause Location: This cause encompasses the entire tidal portion of Lawnes Creek. South shore tributary to James River near Hog Island WMA. Hog Isl. Area, opposite Mulberry Point. From end of tidal waters downstream to mouth. CBP segment JMSMH.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on two or more STV hits in the same 90-day period with less than 10 samples. Previously, the station failed to meet the Enterococcus bacteria instantaneous criteria (9 exc/ 23 obs) at station 2-LAW000.42. Nested in EPA approved SF TMDL 5/6/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_LAW01A00 / Lawnes Creek (Tributary to James River) / South shore tributary to James R. near Hog Island WMA. Hog Isl. area, opposite Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 060-206 A (effective 20141231).	4A	Enterococcus	2010	L	0.291

Lawnes Creek (Tributary to James River)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.291		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-06-SF** Lawnes Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 060-206 A,12/31/2014.

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS condemnation. EPA approved SF TMDL 5/6/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_LAW01A00 / Lawnes Creek (Tributary to James River) / South shore tributary to James R. near Hog Island WMA. Hog Isl. area, opposite Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 060-206 A (effective 20141231).	4A	Fecal Coliform	1998	L	0.291

Lawnes Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.291		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)

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James River Basin

Cause Group Code: G11E-10-SF Pagan River - Middle Lower and Lower

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 061-064 A effective 7/15/2020.

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS shellfish direct harvesting condemnation # 061-064 A (20200715). Bacteria impairment covered under TMDL (35579) VAT-G11E-10-SF, 'Pagan River & Jones Creek', EPA approved 2/12/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN02A08 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. North of Town of Smithfield downstream Azalea Dr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Fecal Coliform	2008	L	1.030
VAT-G11E_PGN02B14 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Lower portion from Moonefield Dr to Morris Cr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Fecal Coliform	2008	L	0.162
VAT-G11E_PGN02C18 / Pagan River - Lower SF Open / Located in Smithfield area. South shore tributary to James R. From Morris Creek downstream to River Ave. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Fecal Coliform	2022	L	0.084

Pagan River - Middle Lower and Lower

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	1.276		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-16-SF** Cypress Creeks

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 061-064, 5/30/2018.

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS condemnation. Bacteria impairment covered under TMDL (35579) approved by EPA 2/12/2008. 1998 CD segment for shellfish (Attachment A, Category 3) VAT-G11E-10.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_CYP01A06 / Cypress Creek / South shore tributary to Pagan R, confluence near Smithfield. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 061-064 (effective 20180530).	4A	Fecal Coliform	1998	L	0.263

Cypress Creeks

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.263		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: G11E-16-SF2 Pagan River - Upper and Upper- Middle

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 061-064 A ,7/15/2020.

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is not supported based on the DSS restricted condemnation # 061-064 A (effective date 7/15/2020). Not covered under TMDL for ‘Pagan River & Jones Creek’, (35579) EPA approved 2/12/2008. However nested since SF impairment is within tidal range of Pagan River & Jones Creek TMDL, newly impaired segments are comparable and all existing sources are accounted for in the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN01A08 / Pagan River - Upstream of Chalmers Point / Located in Smithfield area. South shore tributary to James R. From end of tidal water downstream to approx. RM 7.00. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Fecal Coliform	2008	L	0.062
VAT-G11E_PGN01B18 / Pagan River - Upper Middle / Located in Smithfield area. South shore tributary to James R. From downstream of Crook Ln to Unnamed N Trib at Goose Hill Way. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20180530).	4A	Fecal Coliform	2008	L	0.065
VAT-G11E_PGN01C18 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Middle Pagan segment that Includes Morris Cr ends before Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Fecal Coliform	2008	L	0.058

Pagan River - Upper and Upper- Middle

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.185		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-17-SF Ballard Creek and Bay and Kings Creek- James R. South Shore Tributary

Cause Location: This cause encompasses the south shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. From end of tidal water downstream almost to confluence with James R. CBP segment JMSMH. Portion of DSS shellfish condemnation # 062-164 A (effective 20191015).

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS shellfish condemnation # 062-164 A (effective 20191015). EPA approved Fecal Coliform TMDL 7/2/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_BAL01A06 / Ballard Creek & Bay- James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. From end of tidal water downstream almost to confluence with James R. CBP segment JMSMH. Portion of DSS Restricted # 062-164 (effective 20191015).	4A	Fecal Coliform	1998	L	0.019
VAT-G11E_KIN01A06 / Kings Creek & Bay - James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. CBP segment JMSMH. From end of tidal waters downstream to end of DSS shellfish direct harvesting condemnation # 062-164 (effective 20180912).	4A	Fecal Coliform	2022	L	0.031
VAT-G11E_KIN02A18 / Kings Creek & Bay Mouth- James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. CBP segment JMSMH. Lower Kings Cr to mouth at Ballard Bay # 062-164 (effective 20191015).	4A	Fecal Coliform	2022	L	0.005

Ballard Creek and Bay and Kings Creek- James R. South Shore Tributary

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.055		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-20-BAC James River - Hilton Beach Area**

Cause Location: This cause encompasses the area of north shore James R. NW of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data from the VDH-Beach station VA747818 with multiple geomean exceedances in any 90-day period including multiple swimming advisories.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS03B06 / James River - Hilton Beach Area / North shore James R. NW of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	Enterococcus	2012	L	0.11

James River - Hilton Beach Area

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.11		

Sources: Source Unknown

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James River Basin

Cause Group Code: G11E-20-SF Jones Creek - Tributary to Pagan River

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Condemnation #061-064 B & M1 5/30/2018.

Cause City/County: Isle Of Wight County; Suffolk

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supported by the VDH DSS Shellfish Condemnation # 061-064 B and M1 effective date 20180530. Bacteria impairment covered under TMDL (35579) 'Pagan River & Jones Creek', EPA approved 2/12/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JOG02A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From SR 669 to mouth, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 B & M1 (effective 20200715).	4A	Fecal Coliform	2008	L	0.102

Jones Creek - Tributary to Pagan River

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	0.102		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-21-BAC James River - Huntington Beach Area

Cause Location: This cause encompasses the area north shore James R. near foot of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data from the VDH-Beach station VA747813 with 2 or more STV exceedances in the same 90-day period and multiple short term swimming advisories.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS03C06 / James River - Huntington Beach Area / North shore James R. near foot of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	5A	Enterococcus	2006	L	0.008

James River - Huntington Beach Area

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.008		

Sources: Source Unknown

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James River Basin

Cause Group Code: **G11E-22-BAC** **Pagan River - Middle**

Cause Location: This cause encompasses the area from Morris Creek downstream to River Ave. Located in Smithfield area. South shore tributary to James R. Portion of CBP segment JMSMH.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting with multiple geomean exceedance in any 90-day period. Previously Enterococci data collected at 2-PGN001.19 assessed with the single sample maximum criteria had 1 exc / 29 obs. The Recreation impairment was delisted in the 2018 IR. G11E-22-BAC (2014)

Pagan River & Jones Creek', (35579) EPA approved 2/12/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN02C18 / Pagan River - Lower SF Open / Located in Smithfield area. South shore tributary to James R. From Morris Creek downstream to River Ave. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Enterococcus	2022	L	0.084

Pagan River - Middle

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.084		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11E-23-EBEN Warwick River - Middle-Lower Tidal Portion

Cause Location: This cause encompasses the area located in Menchville area. Tributary to James R. From Denbigh Park to Approx Lucas Cr. Portion of CBP segment JMSMH.

Cause City/County: Newport News

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Aquatic Life Use is not supported based on benthic data assessment from the 2016 WoE station 2-WWk003.20 in 2016. WoE assessment ranked station as 5A with probable chronic effects of cumulative sediment metals. Possibly additional contaminants.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_WWK03B18 / Warwick River - Middle-Lower Tidal Portion / Located in Menchville area. Tributary to James R. From Denbigh Park to Approx. Lucas Cr. Portion of CBP segment JMSMH. DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A (20090518).	5A	Estuarine Bioassessments	2018	L	0.077

Warwick River - Middle-Lower Tidal Portion

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.077		

Sources: Agriculture; Source Unknown

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James River Basin

Cause Group Code: **G11E-24-BAC** Cypress Creek

Cause Location: This cause encompasses the recreation impairment for Cypress Creek a tributary to the Pagan River.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on data collected at station 2-CYP000.47. Enterococci data does not meet the recreation criteria with multiple geomean exceedances and > 10% STV exceedance rate in 90-day period. The impairment is nested within the Pagan River tidal recreation impairment in 2022 IR. The bacteria impairment is covered under TMDL (35579) 'Pagan River & Jones Creek', EPA approved 2/12/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_CYP01A06 / Cypress Creek / South shore tributary to Pagan R, confluence near Smithfield. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 061-064 (effective 20180530).	4A	Enterococcus	2022	L	0.263

Cypress Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.263		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-25-BAC** **Jones Creek - Tributary to Pagan River**

Cause Location: This cause encompasses the area near confluence with James R. From SR 669 to mouth, including tidal tributaries. A South shore trib. to the Pagan R. CBP segment JMSMH.

Cause City/County: Isle Of Wight County; Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supported based on Enterococcus bacteria data from station 2-JOG000.62 with geomean exceedances in any 90-day period and 1 STV exceedance. Previously assessed as supporting the use based on the single sample max criteria (0 exc/ 29 obs).

Bacteria impairment covered under TMDL (35579) 'Pagan River & Jones Creek', EPA approved 2/12/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JOG02A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From SR 669 to mouth, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 B & M1 (effective 20200715).	4A	Enterococcus	2022	L	0.102

Jones Creek - Tributary to Pagan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.102		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G11E-26-SF** **Ragged Island Creek**

Cause Location: Described in VDH Notice and description of Shellfish Condemnation # 062-080 (effective 20171011).

Cause City/County: Isle Of Wight County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/5B

Cause Description: The Shellfishing Use is not supporting based on the Restricted Condemnation 062-080 B effective 10/15/2020. This is a first listing of impairment for shellfish for Ragged Island Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_RIC01A06 / Ragged Island Creek / North shore tributary to James R. on Mulberry Island. Downstream of Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS Restricted shellfish direct harvesting condemnation # 062-080 B (effective 20201015).	5B	Fecal Coliform	2022	L	0.295

Ragged Island Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.295		

Sources: Source Unknown

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James River Basin

Cause Group Code: G11L-01-CU Lee Hall Reservoir

Cause Location: This cause encompasses the entirety of Lee Hall Reservoir. Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall is split by I-64. Newport News PWS.

Cause City/County: Newport News

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Copper/5A

Cause Description: The Aquatic Life Use and Wildlife Uses are impaired based on exceedance of the DEQ copper (acute) criteria as reported from a USGS 2002 special study. Cu exceedances include 0204279210 (4 violates), 0204279224 (1 violates), 0204279230 (4 violates) and 0204279240 (4 violates).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LHR01A08 / Lee Hall Reservoir / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall lower basins south of CSX Railroad. Newport News PWS.	5A	Copper	2004	L	66.49
VAT-G11L_LHR02A20 / Lee Hall Reservoir- Upper, Middle / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall middle and upper is split by I-64. Newport News PWS.	5A	Copper	2004	L	225.65

Lee Hall Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:		292.14	

Lee Hall Reservoir

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:		292.14	

Sources: Municipal (Urbanized High Density Area); Source Unknown

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James River Basin

Cause Group Code: **G11L-01-HG** **Lee Hall Reservoir-Lower**

Cause Location: This cause encompasses the lower basins of Lee Hall Reservoir. Located southeast of Lee Hall area. Northeast of Fort Eustis. Newport News PWS.

Cause City/County: Newport News

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on fish tissue metals data collected from 2005. The Mercury impairment was found in Largemouth Bass.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LHR01A08 / Lee Hall Reservoir / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall lower basins south of CSX Railroad. Newport News PWS.	5A	Mercury in Fish Tissue	2010	L	66.49

Lee Hall Reservoir-Lower

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	66.49	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G11L-01-PCB** **Lee Hall Reservoir-Lower**

Cause Location: This cause encompasses the lower basins of Lee Hall Reservoir. Located southeast of Lee Hall area. Northeast of Fort Eustis. Newport News PWS.

Cause City/County: Newport News

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on fish tissue data collected from 2005. The PCB impairment was found in Carp and Largemouth Bass.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LHR01A08 / Lee Hall Reservoir / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall lower basins south of CSX Railroad. Newport News PWS.	5A	PCBs in Fish Tissue	2010	L	66.49

Lee Hall Reservoir-Lower

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	66.49	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G11L-03-DO** **Lone Star Lake I**

Cause Location: This cause encompasses the entirety of Lone Star Lake I. Upstream impounded portions of Chuckatuck Creek. Pond south and adjacent to Chuckatuck Creek. Water supply system composed of flooded borrow pits. Suffolk PWS component. Butler Lake.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen concentrations below the DEQ minimum allowable instantaneous criteria. Station 2- LSL000.20 has a violation rate of 10.7% (3 violates / 28 obs.). Lone Star Lake I monitoring station 2-LSL000.20 (Butler Lake).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LSL01I06 / Lone Star Lake I (PWS) / Upstream impounded portions of Chuckatuck Creek. Pond south and adjacent to Chuckatuck Creek. Water supply system composed of flooded borrow pits. Suffolk PWS component. Butler Lake.	5A	Dissolved Oxygen	2022	L	33.2

Lone Star Lake I

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		33.2	

Sources: Source Unknown

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James River Basin

Cause Group Code: G11L-05-DO Lee Hall Reservoir

Cause Location: This cause encompasses the entirety of Lee Hall Reservoir. Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall is split by I-64. Newport News PWS.

Cause City/County: Newport News

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Dissolved oxygen is not supporting ALUS based on data at stations 2-LHR001.76 (3 viol/ 29 obs) and 2-LHR002.56 (9 viol/ 25 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LHR01A08 / Lee Hall Reservoir / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall lower basins south of CSX Railroad. Newport News PWS.	5A	Dissolved Oxygen	2008	L	66.49
VAT-G11L_LHR02A20 / Lee Hall Reservoir- Upper, Middle / Located southeast of Lee Hall area. Northeast of Fort Eustis. Lee Hall middle and upper is split by I-64. Newport News PWS.	5A	Dissolved Oxygen	2008	L	225.65

Lee Hall Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	292.14	

Sources: Municipal (Urbanized High Density Area); Source Unknown

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James River Basin

Cause Group Code: **G11L-06-DO** **Scotts Factory Pond**

Cause Location: This cause encompasses the pond in its entirety.

Cause City/County: Isle Of Wight County; James City County; Newport News; Surry County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Dissolved oxygen is impaired based on level III data at station 2ECL-1-IRC with 3 viol/ 8 obs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_SFP01A16 / Scotts Factory Pond / Pond near Champion Swamp near Route 665	5A	Dissolved Oxygen	2016	L	14.83

Scotts Factory Pond

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	14.83	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G11L-07-DO** **Lone Star Lake G**

Cause Location: This cause encompasses Lone Star Lake G "Crane Lake" in its entirety.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Aquatic Life Use is not supported based on DO data collected at station 2-LSL000.04 at Crane Lake with 12 viol / 97 obs. Impairment first listed in 2006 then delisted in 2016 and relisted in 2020 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11L_LSL01G06 / Lone Star Lake G (PWS) / Upstream impounded portions of Chuckatuck Creek. Pond north and adjacent to Chuckatuck Creek. Water supply system composed of flooded borrow pits. Suffolk PWS component. Crane Lake.	5A	Dissolved Oxygen	2006	L	89.65

Lone Star Lake G

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		89.65	

Sources: Source Unknown

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James River Basin

Cause Group Code: G11R-01-BAC Baptist Run

Cause Location: This cause encompasses Baptist Run, this segment begins at outflow of pond upstream of station at Crawford Drive extending downstream to confluence with Great Run and Beaverdam Creek. Located south of Lackey.

Cause City/County: York County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Recreation Use impairment is retained from 2006 Report. The Recreation Use is impaired (2 violates / 2 observations) based on exceedance of the DEQ Fecal Coliform bacteria instantaneous maximum criteria. Recreation bacteria impairment covered under TMDL (34126) VAT-G11R-01 " Fecal Bacteria Total Maximum Daily Load Development for Warwick River - Baptist Run", EPA approved 2/29/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11R_BAP01A04 / Baptist Run / Located S of Lackey and N of Newport News City Reservoir. Segment begins NW (upstream) of Rt 238 extending underneath and downstream to confluence with Great Run and Beaverdam Creek. Runs thru Colonial Natl. Historical Park.	4A	Fecal Coliform	2004	L	3.15

Baptist Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			3.15

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G11R-02-BEN Chuckatuck Creek

Cause Location: This cause encompasses Chuckatuck Creek, from the confluence of unnamed tributary (downstream of Rt 600) downstream to confluence of unnamed tributary (downstream of Rt 602, below BIO station @ 2-CKT005.72).Riverine portion southwest of Longview.

Cause City/County: Isle Of Wight County; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained from previous assessments (2004 - 2006) based on a moderately impaired rating for freshwater benthic bioassessment monitored at DEQ (BIO) benthic assessment monitoring station @ 2-CKT005.72 during Spring & Fall of 1998 - 2000. No more recent benthic monitoring has been conducted with which to revise assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11R_CKT01A04 / Chuckatuck Creek / Riverine portion southwest of Longview and NW of Grave areas. Chuckatuck Creek, from confluence of unnamed trib. branches downstream underneath Rt 602 (below BIO station @ 2-CKT005.72) to junction of N trib. (outflow from pond) downstream of Rt 602	5A	Benthic Macroinvertebrates Bioassessments	2004	L	1.54

Chuckatuck Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.54

Sources: Source Unknown

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James River Basin

Cause Group Code: G11R-03-BAC Champion Swamp

Cause Location: This cause encompasses a portion of Champion Swamp. Located southwest of Town of Smithfield. Western tributary to Cypress Creek. Portion of lower Champion Swamp, from split of stream upstream of State Hwy 620 downstream to the start of tidal waters in downstream Cypress Creek past pipeline marker on topo.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use impairment is retained. The Recreation Use was listed as impaired based on single sample max E.coli standard (2 violates / 4 obs.) collected (10/16/2007 & 5/17/2007) at the DEQ station 2-CPN004.81.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11R_CPN01A00 / Champion Swamp / Located southwest of Town of Smithfield. Western tributary to Cypress Creek. Portion of lower Champion Swamp, from split of stream upstream of State Hwy 620 downstream to the start of tidal waters in downstream Cypress Creek past pipeline marker on topo.	5A	Escherichia coli (E. coli)	2010	L	3.17

Champion Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.17

Sources: Source Unknown

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James River Basin

Cause Group Code: **G11R-04-BAC** **Pagan River (including Wrenns Millpond)**

Cause Location: This cause encompasses Riverine portion of Pagan River beginning at the confluence of Warren Creek and in eastern trib. Proceeding downstream (including Wrenns Millpond) and downstream of pond to confluence with tidal waters.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired based on 2 or more STV hits in the same 90-day period with < 10 samples. Previously the impairment was based on the single sample max criteria with 20 exc / 35 obs. E.coli bacteria data not meeting the applicable criteria monitored at DEQ (AQM) monitoring station 2-PGN010.07. Impairment is nested in the 2018 IR within the Pagan River Bacteria TMDL. New impairment is located within the TMDL watershed boundary. Station 10.07 was used in the model. Land use is consistent with the TMDL watershed landuse. Reductions in the TMDL are adequate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11R_PGN01A04 / Pagan River (including Wrenns Millpond) / Riverine portion of Pagan River beginning at the confluence of Warren Cr. and in eastern trib. proceeding downstream (including Wrenns Millpond) and downstream of pond to confluence with tidal waters.	4A	Escherichia coli (E. coli)	2012	L	1.35

Pagan River (including Wrenns Millpond)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.35

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G12L-01-DO** **Lake Cohoon**

Cause Location: This cause encompasses the entirety of Lake Cohoon. Southeast of Myrtle. West and upstream of Lake Meade, (portion of the headwater impoundment system of the Nansemond River). Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen (9 viol/ 34 obs) data at station 2-LCN000.20.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_LCN01A06 / Lake Cohoon (PWS) / Southeast of Myrtle. West and upstream of Lake Meade (portion of the headwater impoundment system of the Nansemond River). Portion of Portsmouth PWS system.	5A	Dissolved Oxygen	2006	L	454.17

Lake Cohoon

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		454.17	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G12L-02-DO** **Lake Meade**

Cause Location: This cause encompasses the entirety of Lake Meade. Northwest of City of Suffolk. Headwater impoundments of Nansemond River. Downstream receptor of Lakes Cohoon & Kilby. Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen data at stations 2-LMD000.02 (5 viol/ 44 obs) and 2-LMD001.41 (7 viol/ 48 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_LMD01A06 / Lake Meade (PWS) / Northwest of City of Suffolk. Headwater impoundments of Nansemond River. Downstream receptor of Lakes Cohoon & Kilby. Portion of Portsmouth PWS system.	5A	Dissolved Oxygen	2006	L	489.49

Lake Meade

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		489.49	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G12L-03-CHLA** **Speights Run Lake**

Cause Location: This cause encompasses the entirety of Speights Run Lake. Northwest of Suffolk Municipal Airport. Southwest of Lake Kilby. Most southwest branch and upstream of Lake Kilby/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: The Aquatic Life Use is impaired for nutrients, Chla. Speights Run pooled nutrients results are 2 viol / 2 obs for Chla in 2012 and 2015 (IM). There is no algaecide application during assessment years therefore only Chla is assessed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_SPE01A06 / Speights Run - Lake (PWS) / Northwest of Suffolk Municipal Airport. Southwest of Lake Kilby. Most southwest branch and upstream of Lake Kilby/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.	5A	Chlorophyll-a	2010	L	120.88

Speights Run Lake

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		120.88	

Sources: Source Unknown

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James River Basin

Cause Group Code: G12L-03-DO Speights Run Lake

Cause Location: This cause encompasses the entirety of Speights Run Lake. Northwest of Suffolk Municipal Airport. Southwest of Lake Kilby. Most southwest branch and upstream of Lake Kilby/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen (10 viol / 65 obs) data at stations 2-SPE000.17 (4 viol / 33 obs) and 2-SPE001.18 (6 viol / 32 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_SPE01A06 / Speights Run - Lake (PWS) / Northwest of Suffolk Municipal Airport. Southwest of Lake Kilby. Most southwest branch and upstream of Lake Kilby/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.	5A	Dissolved Oxygen	2022	L	120.88

Speights Run Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	120.88	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G12L-04-DO** **Lake Kilby**

Cause Location: This cause encompasses the entirety of Lake Kilby. Northwest of Suffolk Municipal Airport. South of Pitchkettle Creek. Most southwest branch of Lake Kilby/Pitchkettle Creek/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen concentrations below the DEQ minimum allowable instantaneous criteria. Pooled DO data violation rate is 32% (8 violates/ 25 obs.).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_LKK01A06 / Lake Kilby (PWS) / Northwest of Suffolk Municipal Airport. South of Pitchkettle Creek. Most southwest branch of Lake Kilby/Pitchkettle Creek/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.	5A	Dissolved Oxygen	2006	L	200.04

Lake Kilby

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	200.04	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G12L-04-TP** **Lake Kilby**

Cause Location: This cause encompasses the entirety of Lake Kilby. Northwest of Suffolk Municipal Airport. South of Pitchkettle Creek. Most southwest branch of Lake Kilby/Pitchkettle Creek/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Phosphorus, Total/5A

Cause Description: Aquatic Life Use impairment is maintained for nutrients - TP. Lake Kilby pooled TP results: 1 viol/ 2 obs 2015, 2018. TP median yearly values rotate between impairment and therefore not able to delist. TP from 2015 meets criteria however data collected in 2018 does not.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12L_LKK01A06 / Lake Kilby (PWS) / Northwest of Suffolk Municipal Airport. South of Pitchkettle Creek. Most southwest branch of Lake Kilby/Pitchkettle Creek/Lake Meade system (headwater impoundments of Nansemond River). Portion of Portsmouth PWS system.	5A	Phosphorus, Total	2014	L	200.04

Lake Kilby

Aquatic Life	Phosphorus, Total - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			200.04	

Sources: Source Unknown

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James River Basin

Cause Group Code: G12R-01-PH Eley Swamp

Cause Location: This cause encompasses the area located northeast of Myrtle. Segment is south of Rt 460 and traverses the N&W RR line. Segment extends 2.40 mi. upstream and 2.20 mi. downstream from Rt. 607 crossing. Portion of Portsmouth water supply reservoirs.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: The Aquatic Life Use impairment, based on pH concentrations below the allowable DEQ minimum criteria (6.0 SU) from the 1998 303d listing is retained due to lack of more recent data. The Natural Conditions Report for pH was approved in Triennial Review.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G12R_ELE01A00 / Eley Swamp tributary to Lake Cohoon (PWS) / Located northeast of Myrtle. Segment is south of Rt 460 and traverses the N&W RR line. Segment extends 2.40 mi. upstream and 2.20 mi. downstream from Rt. 607 crossing. Portion of Portsmouth water supply reservoirs.	4C	pH	NA	NA	4.8

Eley Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.8

Sources: Natural Sources

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James River Basin

Cause Group Code: G13E-07-PH Shingle Creek - Tributary to Nansemond R.

Cause Location: This cause encompasses the area NE of Suffolk, near Rt 642. From end of tidal waters (0.2 mi upstream of Portsmouth Blvd) downstream to confluence with Nansemond River. CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The Aquatic Life Use is impaired (TMDL ID = VAT-G13E-07) based on a site specific failure to meet the minimum pH criteria.(4.0 SU) at station 2-SGL001.00 (11/32) and 8 / 75 obs at 2SGL-SSC000.24-SUF. Connection of upstream portions with canals associated with the Dismal Swamp may impart low pH waters into this segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_SGL01A00 / Shingle Creek - Tributary to Nansemond R. / NE of Suffolk, near Rt 642. From end of tidal waters (0.2 mi upstream of Portsmouth Blvd) downstream to confluence with Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	5A	pH	2002	L	0.04

Shingle Creek - Tributary to Nansemond R.

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.04		

Sources: Agriculture; Natural Sources; Source Unknown

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James River Basin

Cause Group Code: **G13E-12-BAC** **Bennett Creek, Tributary to Nansemond River**

Cause Location: This cause encompasses from the headwaters to the mouth, including tidal tributaries. Portion of CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained. The impairment is based on exceedance of the instantaneous criteria for Enterococcus bacteria at stations 2-BEN001.42 (4 exc/ 26 obs) and Suffolk Station 2BEN-SBC000.35-SUF (18 exc / 84 obs). Current data at station 2- BEN001.42 evaluated with the revised bacteria criteria is assessed as insufficient based on one STV exceedance in one or multiple 90-day periods with insufficient data to analyze a geomean.

Nested in EPA approved TMDL for SF for Bennett, Bleakhorn and Knotts Creek 6/3/2010. TMDL ID (VAT-G13E-04) and due date (TMDL due date = 2016) same as original FC impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_BEN01A04 / Bennett Creek - Tributary to Nansemond R. [No TMDL] / Eastern shore trib. to Nansemond R., near confluence with James R. Bennett Harbor area. From headwaters to mouth, including tidal tributaries. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Enterococcus	2004	L	0.542

Bennett Creek, Tributary to Nansemond River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.542		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-12-SF Bennett, Bleakhorn and Knotts Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation #063-046 A, 8/26/2014.

Cause City/County: Suffolk

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS shellfish direct harvesting condemnation # 063-046 A (20140826). TMDL ID = VAT-G13E-12. EPA approved SF TMDL for Bleakhorn, Bennetts and Knotts Creek 6/3/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_BEN01A04 / Bennett Creek - Tributary to Nansemond R. [No TMDL] / Eastern shore trib. to Nansemond R., near confluence with James R. Bennett Harbor area. From headwaters to mouth, including tidal tributaries. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Fecal Coliform	1998	L	0.542
VAT-G13E_BHN01A00 / Bleakhorn Creek - Tributary to Nansemond R. Mouth / Western shore trib. to Nansemond R., near confluence with James R. Eclipse area near Crittenden. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 B (20140826).	4A	Fecal Coliform	1998	L	0.014
VAT-G13E_KNC01A00 / Knotts Creek - Tributary to E. shore Nansemond R. / Eastern shore trib. to Nansemond R., near confluence with James R. Belleville and Huntersville areas. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Fecal Coliform	1998	L	0.122

Bennett, Bleakhorn and Knotts Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.677		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G13E-13-BAC** **Nansemond River - Upper and Shingle Cr**

Cause Location: Upper Nansemond River, within city of Suffolk. Extends from most upstream point in river at Lake Meade Dam (RM 19.8) downstream to Rt. 58/460 crossing (RM 15.2). CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus data at station 2-NAN019.14 and 2-SGL001.00 with 2 or more STV hits in the same 90-day period with < 10 samples. The Recreation and Shellfishing Uses are covered under TMDL “Fecal Bacteria Total Maximum Daily Load Development for the Nansemond River Primary Contact Recreation Use and Shellfish Harvesting Use”, April 26, 2006, EPA approved 12/4/06.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_NAN01A00 / Nansemond River - Upper / Upper Nansemond River, within city of Suffolk. Extends from most upstream point in river at Lake Meade Dam (RM 19.8) downstream to Rt. 58/460 crossing (RM 15.2). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Enterococcus	1994	L	0.269
VAT-G13E_SGL01A00 / Shingle Creek - Tributary to Nansemond R. / NE of Suffolk, near Rt 642. From end of tidal waters (0.2 mi upstream of Portsmouth Blvd) downstream to confluence with Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Enterococcus	1994	L	0.040

Nansemond River - Upper and Shingle Cr

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.31		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-13-SF Burnetts Mill Cr, Nansemond R., Shingle Cr, Star and Oyster, Unseg and WB Tribs to Upper Nansemond

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 063-008 A, B C2 (20200915). TMDL (32045)

Cause City/County: Suffolk

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS shellfish condemnation # 063-008 A, B, C2(20200915). TMDL ID = VAT-G13E-13. 1998 CD segment for shellfish (Attachment A, Category 3) VAT-G13E-13.

The Recreation and Shellfish Uses are covered under TMDL “Fecal Bacteria Total Maximum Daily Load Development for the Nansemond River Primary Contact Recreational Use and Shellfish Harvesting Use,” April 26, 2006, EPA approved 12/4/06.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_BML01A06 / Burnetts Mill Creek - Tributary to Upper Nansemond R. / Eastern shore trib. to upper Nansemond R., south of the Nansemond area. Drains the Beamon area. From headwaters to mouth. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (20170823).	4A	Fecal Coliform	1998	L	0.028
VAT-G13E_NAN01A00 / Nansemond River - Upper / Upper Nansemond River, within city of Suffolk. Extends from most upstream point in river at Lake Meade Dam (RM 19.8) downstream to Rt. 58/460 crossing (RM 15.2). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Fecal Coliform	1994	L	0.269
VAT-G13E_NAN02A06 / Nansemond River - Upper Middle / Downstream of Suffolk. From Rt 58/460 (RM 15.1) crossing downstream to confluence with the Western Branch Reservoir (RM 11.9). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (20200915).	4A	Fecal Coliform	1994	L	0.209
VAT-G13E_NAN03A06 / Nansemond River - Lower Middle / In area of Western Branch Reservoir. From confluence with Western Br. (RM 11.8) downstream to Holidays Pt. CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A & C1 (20200915).	4A	Fecal Coliform	1994	L	2.833
VAT-G13E_SGL01A00 / Shingle Creek - Tributary to Nansemond R. / NE of Suffolk, near Rt 642. From end of tidal waters (0.2 mi upstream of Portsmouth Blvd) downstream to confluence with Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Fecal Coliform	1994	L	0.040

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_STR01A04 / Star & Oyster House Creeks - Tributary to Nansemond R. / Eastern shore tributary to Nansemond R. Adjacent to the Naval Communication station at Driver. From headwaters to confluence with Nansemond R. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Fecal Coliform	1998	L	0.046
VAT-G13E_WBN01A06 / Western Branch - Tributary to Nansemond R. / Western shore branch off the Nansemond River south of the Reids Ferry area. Downstream of the Western Branch Reservoir, prior to reaching the Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Fecal Coliform	1998	L	0.106
VAT-G13E_ZZZ01A00 / Unsegmented Estuaries - Upper Nansemond R. / Upper Nansemond River unsegmented tributaries with a DSS condemnation. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A, B (effective 20200915).	4A	Fecal Coliform	1998	L	0.097

Burnetts Mill Cr, Nansemond R., Shingle Cr, Star and Oyster, Unseg and WB Tribs to Upper Nansemond

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
3.629		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-14-SF Nansemond River -Lower at Knotts Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 063-046 A 20140826.

Cause City/County: Suffolk

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the DSS shellfish direct harvesting condemnation present within this segment as described in VDH Notice and Description of Shellfish Condemnation # 063-046 A 201240826. Included in "TMDL Report for Chesapeake Bay Shellfish Waters: Bleakhorn Cr, Bennett Cr, and Knotts Cr Bacterial Impairments in City of Suffolk, VA" EPA approved 6/3/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_NAN04C10 / Nansemond River - Lower DSS Condemned at Knotts Cr / Nansemond R at confluence Knotts Cr. CBP segment JMSMH. DSS condemnation # 063-046 B (effective 20140826).	4A	Fecal Coliform	2010	L	0.467

Nansemond River -Lower at Knotts Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary	Reservoir	River
		(Sq. Miles)	(Acres)	(Miles)
		0.467		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-15-BAC Knotts Creek - Tributary to E. shore Nansemond R.

Cause Location: This area encompasses the Eastern shore trib. to Nansemond R., near confluence with James R. Belleville and Huntersville areas. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained based on the data collected by the City of Suffolk at station 2KNC-SKC000.35-SUF assessed with single sample maximum criteria with 12 exc/ 51 obs.

NESTED within TMDL EPA approved for Shellfish at Knotts, Bleakhorn and Bennetts Creek 6/3/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_KNC01A00 / Knotts Creek - Tributary to E. shore Nansemond R. / Eastern shore trib. to Nansemond R., near confluence with James R. Belleville and Huntersville areas. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Enterococcus	2014	L	0.122

Knotts Creek - Tributary to E. shore Nansemond R.

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.122		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G13E-16-BAC** **Nansemond River - Upper Middle**

Cause Location: This cause encompasses the area downstream of Suffolk. From Rt 58/460 (RM 15.1) crossing downstream to confluence with the Western Branch Reservoir (RM 11.9). CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained based on NONA station data at 2NAN-SNR0013.50-SUF with 37 viol/ 86 obs for Enterococci.

Nested within EPA approved Shellfish TMDL for Bacteria Nansemond R, 12/4/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_NAN02A06 / Nansemond River - Upper Middle / Downstream of Suffolk. From Rt 58/460 (RM 15.1) crossing downstream to confluence with the Western Branch Reservoir (RM 11.9). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (20200915).	4A	Enterococcus	2014	L	0.209

Nansemond River - Upper Middle

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.209		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-17-BAC Nansemond River - Lower Middle

Cause Location: This cause encompasses the area of Western Branch Reservoir. From confluence with Western Br. (RM 11.8) downstream to Holidays Pt. CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (20120801). TMDL (32045)

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained based on data collected at the following stations from the 2020 IR: 2NAN-SNR0011.83-SUF: 33 viol/ 86 obs; 2NAN-SNR007.88-SUF: 14 viol/ 87 obs; 2NAN-SNR008.82-SUF: 15 viol/ 86 obs. The bacteria impairment is nested in EPA approved TMDL for Nansemond R Bacteria TMDL 12/4/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_NAN03A06 / Nansemond River - Lower Middle / In area of Western Branch Reservoir. From confluence with Western Br. (RM 11.8) downstream to Holidays Pt. CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A & C1 (20200915).	4A	Enterococcus	2014	L	2.833

Nansemond River - Lower Middle

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	2.833		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G13E-18-BAC Western Branch - Tributary to Nansemond R.

Cause Location: This cause encompasses the western shore branch off the Nansemond River south of the Reids Ferry area. Downstream of the Western Branch Reservoir, prior to reaching the Nansemond River. CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impairment is retained based on data collected at Station 2WBN-SWB000.30-SUF with 39 viol/ 86 obs. No data to assess in the 2022 IR. Nested in EPA approved Shellfish TMDL Nansemond River 12/4/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_WBN01A06 / Western Branch - Tributary to Nansemond R. / Western shore branch off the Nansemond River south of the Reids Ferry area. Downstream of the Western Branch Reservoir, prior to reaching the Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Enterococcus	2014	L	0.106

Western Branch - Tributary to Nansemond R.

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.106		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G14L-01-DO** **Lake Burnt Mills**

Cause Location: This cause encompasses the entirety of Lake Burnt Mills. West of Chuckatuck. Upper northwest portion of Western Branch Reservoir system. Upstream of Rt 603. Impounded headwaters tributary of the Nansemond River. Portion of Norfolk water supply reservoirs.

Cause City/County: Isle Of Wight County; Norfolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen concentrations below the DEQ minimum allowable instantaneous criteria. Pooled DO exceedance rate 20% (8 violates/ 40 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G14L_NWB01A08 / Lake Burnt Mills / West of Chuckatuck. Upper northwest portion of Western Branch Reservoir system. Upstream of Rt 603. Impounded headwaters tributary of the Nansemond River. Portion of Norfolk water supply reservoirs.	5A	Dissolved Oxygen	2006	L	637.99

Lake Burnt Mills

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	637.99	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G14L-03-DO** **Lake Prince Reservoir**

Cause Location: This cause encompasses the entirety of Lake Prince Reservoir. Northwest of Suffolk, south of Town of Indika. Southwest branch of Western Branch Reservoir system. Upstream of Western Branch Reservoir. Portion of Norfolk water supply reservoirs.

Cause City/County: Isle Of Wight County; Norfolk; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on dissolved oxygen concentrations below the DEQ minimum allowable instantaneous criteria. Pooled DO exceedance rate is 13.5% (10 violates / 74 obs.).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G14L_LPR01A06 / Lake Prince - Reservoir (PWS) / Northwest of Suffolk, south of Town of Indika. Southwest branch of Western Branch Reservoir system. Upstream of Western Branch Reservoir. Portion of Norfolk water supply reservoirs.	5A	Dissolved Oxygen	2006	L	715.37

Lake Prince Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	715.37	

Sources: Source Unknown

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James River Basin

Cause Group Code: **G14R-01-PH** Carbell Swamp - Upper

Cause Location: This cause encompasses the upper portion of Carbell Swamp. Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church). Entire watershed is portion of PWS for City of Norfolk.

Cause City/County: Isle Of Wight County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The Aquatic Life Use impairment is retained based on pH concentrations below the DEQ minimum criteria (6.0 SU) at station 2-CRL004.04.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G14R_CRL01A08 / Carbell Swamp - Upper / Upper portion of swamp. Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church). Entire watershed is portion of PWS for City of Norfolk.	5C	pH	2002	L	2.95

Carbell Swamp - Upper

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.95

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: G14R-02-BAC Carbell Swamp - Lower

Cause Location: This cause encompasses the lower portion of Carbell Swamp. Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church), including confluent trib. at station originating from the NW. Begins at Branch & Joyner Millpond downstream to

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use impairment is retained based on exceedance of the E.coli bacteria instantaneous criteria (5 viol/ 23 obs) as monitored at the DEQ monitoring station 2-CRL001.83 in previous assessment. Their is insufficient data to assess the E.coli data in the current assessment with one STV exceedance in one a 90-day period with insufficient data to analyze geomean. Nested impairment is within existing Bacteria TMDL boundary with comparable sources and similar land use with reductions adequate for entire watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G14R_CRL02A08 / Carbell Swamp - Lower / Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church), including confluent trib. at station originating from the NW. Begins at Branch & Joyner Millpond downstream to joining Lake Prince. Within PWS for City of Norfolk.	4A	Escherichia coli (E. coli)	2010	L	2.88

Carbell Swamp - Lower

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.88

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G14R-02-DO Carbell Swamp - Lower

Cause Location: This cause encompasses the lower portion of Carbell Swamp. Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church). Lower segment of swamp. Entire watershed is portion of PWS for City of Norfolk.

Cause City/County: Isle Of Wight County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on DO concentrations below the DEQ minimum criteria (5 violates /12 obs.) at station 2-CRL001.83.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G14R_CRL02A08 / Carbell Swamp - Lower / Upstream tributary to the northwest branch of Lake Prince (near Holly Grove Church), including confluent trib. at station originating from the NW. Begins at Branch & Joyner Millpond downstream to joining Lake Prince. Within PWS for City of Norfolk.	5A	Dissolved Oxygen	2008	L	2.88

Carbell Swamp - Lower

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.88

Sources: Source Unknown

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James River Basin

Cause Group Code: G15E-01-01-EBEN Deep Creek, Southern Br. Elizabeth R.- Mouth

Cause Location: This cause encompasses the area South of I-64 crossing of Southern Br. E shore trib to Southern Br. Mouth of Creek North of Interstate 64. CBP segment SBEMH. BIBI segment SBEMHa.

Cause City/County: Chesapeake

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Segment listed as impaired in the 2018 IR based on 2016 WoE assessment at station 2-DEC000.58. The WoE analysis collected in 2016 is 5A: IM with high probability of cumulative chronic and acute effects of sediment PAHs and metals. Deep Creek was listed as impaired for benthics in the 2006 IR with CGC G15E-01-01-EBEN and later delisted in the 2012 IR. Station has Cat 5A assessment for both the 2006 and 2016 WoE.

DEQ (C2-2006, 2016) station @ 2-DEC000.58 indicates severe benthic impairment with data collected in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_DEC02A18 / Deep Creek, Southern Br. Elizabeth R.- Mouth / South of I-64 crossing of Southern Br. E shore trib to Southern Br. Mouth of Creek North of Interstate 64. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2018	L	0.075

Deep Creek, Southern Br. Elizabeth R.- Mouth

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.075		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Industrial/Commercial Site Stormwater Discharge (Permitted); Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: G15E-01-01-TCDD Elizabeth River Southern Branch and its tidal tributaries. CBP segment SBEMH.

Cause Location: This cause encompasses the entirety of the Southern Branch Elizabeth River and its tidal tributaries.

Cause City/County: Chesapeake; Norfolk; Portsmouth

Use(s): Fish Consumption

Causes(s)/VA Category: Dioxin (including 2,3,7,8-TCDD)/5A

Cause Description: The Fish Consumption Use is impaired based on the VDH fish consumption advisory within the Southern Branch Elizabeth River and its tidal tributaries for Dioxin in Blue Crab hepatopancreas contamination, issued by the VDH 1/23/09.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BLM01A22 / Bells Mill Creek - SB Elizabeth R. S. shore tributary / SB Elizabeth R S shore tributary SW of Great Bridge Locks. CBP & BIBI segment SBEMHa. Portion of DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.023
VAT-G15E_DEC01A06 / Deep Creek, Southern Br. Elizabeth R. / South of I-64 crossing of Southern Br. E shore trib to Southern Br. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.209
VAT-G15E_DEC02A18 / Deep Creek, Southern Br. Elizabeth R.- Mouth / South of I-64 crossing of Southern Br. E shore trib to Southern Br. Mouth of Creek North of Interstate 64. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.075
VAT-G15E_GIL01A10 / Gilligan Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.012
VAT-G15E_GIL02A10 / Gilligan Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.011
VAT-G15E_JON01A10 / Jones Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.027

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_JON02A10 / Jones Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.017
VAT-G15E_MAI01A10 / Mains Cr. - SB Eliz R. E shore Tributary / SB Eliz R. E shore upstream tributary, SE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.013
VAT-G15E_MDM01A10 / Milldam Cr trib S. Br. Elizabeth R. / Tributary to E shore SB Elizabeth R. N of Gilmerton Br. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.071
VAT-G15E_NMC01A00 / New Mill Creek - Southern Br. Elizabeth R. / Located south of I-64 crossing of Southern Br. Eastern shore trib to Southern Br, downstream of locks. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.082
VAT-G15E_NTN01A10 / Newton Cr trib to SB Eliz R / Tributary to E shore SB Eliz R. NE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.038
VAT-G15E_PAR01A06 / Paradise Creek - Upper, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. No Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.025
VAT-G15E_PAR02A10 / Paradise Creek - Lower, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. With Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.028
VAT-G15E_SBE01A00 / Southern Branch, Elizabeth R. - Upper / South of I-64 crossing. From headwaters @ Great Br Locks downstream to I-64 crossing @ Deep Cr. (RM 6.86). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.636

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Appendix 4 - Fact Sheets for
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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE02A06 / Southern Branch, Elizabeth R. - Middle / From I-64 crossing @ Deep Cr. confluence (RM 6.86) downstream to the Jordan Bridge (RM 2.30). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	1.055
VAT-G15E_SBE02B20 / Southern Branch, Elizabeth R. - Middle / Shore along Chesapeake Deep Water Terminal south of Paradise Creek. CBP segment SBEMH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.015
VAT-G15E_SBE02C22 / Southern Branch, Elizabeth R. - Middle / Buffer of station 2CSBE005.84 outside of Newton Creek tributary. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.005
VAT-G15E_SBE03A06 / Southern Branch, Elizabeth R. - Lower / North of the Jordan Bridge. From the Jordan Bridge, Rt. 337 (RM 2.30) downstream to the mouth, confluence with the mainstem Elizabeth R. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMIN) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.545
VAT-G15E_STJ01A04 / Saint Julian Creek / Northwest of Gilmerton Bridge. Eastern shore tributary to Southern Br. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.133
VAT-G15E_XFR01A10 / UT to SB Elizabeth R. S shore estuary SE of Mill Cr. / SB Eliz S shore estuary SE of Mill Cr. CBP & BIBI segment SBEMH. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.008
VAT-G15E_XQT01A10 / UT to SB Elizabeth R. N shore creek near Great Bridge Locks / SB Elizabeth R. upstream N shore creek north of Great Bridge Locks. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.045
VAT-G15E_XQU01A10 / SB Eliz N shore creek SW of Mains Cr. / SB Elizabeth R. upstream N shore creek SW of Mains Cr. CBP & BIBI segment SBEMHa. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.020

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VAT-G15E_ZZZ02A08 / Unsegmented estuaries in SBEMH / CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Dioxin (including 2,3,7,8-TCDD)	2010	L	0.058
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Elizabeth River Southern Branch and its tidal tributaries. CBP segment SBEMH.

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption			
Dioxin (including 2,3,7,8-TCDD) - Total Impaired Size by Water Type:	3.148		

Sources: Source Unknown; Sources Outside State Jurisdiction or Borders

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: G15E-01-BAC Elizabeth River Mainstem - Middle

Cause Location: From a line between Hospital Pt and Smiths Cr down stream to the end of CBP-BIBI segment ELIMHa (downstream of Lamberts Pt.)

Cause City/County: Norfolk; Portsmouth

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The Aquatic Life Use - Estuarine Bioassessment impairment based on failure to meet a statistical evaluation constituting an un-impacted benthic organism population per CBP (Benthic-BIBI) analysis is retained based on 2012 data. The Elizabeth River mainstem segment BIBI-ELIPHa was assessed as impaired for Aquatic Life Use due to the results of benthic BIBI probabilistic station surveys. The BIBI stressor tool yielded “unknown” as the probable impairment source.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_ELI02A06 / Elizabeth River Mainstem - Middle / From a line between Hospital Pt and Smiths Cr down stream to the end of CBP-BIBI segment ELIMHa (downstream of Lamberts Pt.). BIBI segment ELIMHa. CBP segment ELIPH. DSS (ADMIN) condemnation # 056-007 E and A (effective 20120529).	5A	Enterococcus	2022	L	4.005

Elizabeth River Mainstem - Middle

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	4.005		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: G15E-02-02-BAC Broad Creek, Southern Branch-Lower Middle and Paradise Creek Recreation Impairment

Cause Location: This cause encompasses the Eastern Branch Lower Middle, Broad Creek and Paradise Creek.

Cause City/County: Chesapeake; Norfolk; Portsmouth

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired due to exceedance of two or more STV hits in same 90-day period with less than 10 samples. The Cause Code (G15E-02-02-BAC) relates the bacteria impairments in the lower Eastern & Southern Branches. Bacteria TMDL Development for the Elizabeth River Watershed EPA approved 7/20/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BRO01A02 / Broad Creek, Eastern Br. Elizabeth R. / Located between Ingleside and Thomas Corner areas. North shore tributary to Eastern Br. Elizabeth R. Entirety of Broad Creek. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	4A	Enterococcus	1998	L	0.371
VAT-G15E_PAR01A06 / Paradise Creek - Upper, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. No Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	0.025
VAT-G15E_PAR02A10 / Paradise Creek - Lower, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. With Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	0.028
VAT-G15E_SBE03A06 / Southern Branch, Elizabeth R. - Lower / North of the Jordan Bridge. From the Jordan Bridge, Rt. 337 (RM 2.30) downstream to the mouth, confluence with the mainstem Elizabeth R. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMIN) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	1998	L	0.545

Broad Creek, Southern Branch-Lower Middle and Paradise Creek Recreation Impairment

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.969		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G15E-02-03-BAC** Southern Branch, Elizabeth R. - Lower and Middle

Cause Location: This cause encompasses the southern branch of the Elizabeth River from the mouth upstream to Deep Creek trib and Interstate 64.

Cause City/County: Chesapeake; Portsmouth

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococci data from Stations 2-SBE006.26 and 2-SBE001.98 with 2 or more STV hits in the same 90-day period with less than 10 samples. Previous impairment based on Enterococci data from Stations 2-SBE006.26 (7 exc/ 49 obs) and 2-SBE001.98 (14 exc/ 53 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE02A06 / Southern Branch, Elizabeth R. - Middle / From I-64 crossing @ Deep Cr. confluence (RM 6.86) downstream to the Jordan Bridge (RM 2.30). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2016	L	1.055
VAT-G15E_SBE02B20 / Southern Branch, Elizabeth R. - Middle / Shore along Chesapeake Deep Water Terminal south of Paradise Creek. CBP segment SBEMH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2016	L	0.015
VAT-G15E_SBE02C22 / Southern Branch, Elizabeth R. - Middle / Buffer of station 2CSBE005.84 outside of Newton Creek tributary. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2016	L	0.005

Southern Branch, Elizabeth R. - Lower and Middle

Recreation		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Enterococcus - Total Impaired Size by Water Type:	1.075		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G15E-02-04-EBEN Eastern Branch Elizabeth River, Broad Creek , Indian River, Steamboat Creek and Unsegmented estuaries in EBEMH

Cause Location: This cause encompasses the entirety of the Eastern Branch Elizabeth River and the tribs Broad Creek, Indian River and Steamboat Cr. CBP segment EBEMH.

Cause City/County: Chesapeake; Norfolk; Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: There is insufficient data to assess benthics, therefore the 2010 impairment will be retained. 2010- The Aquatic Life Use was impaired based on failure to meet a statistical evaluation constituting an un-impacted benthic organism population per CBP (Benthic-BIBI) analysis. The benthic source/stressor tool yielded sediment contaminants as the suspected source for the impairment. This segment was previously included (2004 IR) in TMDL ID: VAT-G15E-01-03.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BRO01A02 / Broad Creek, Eastern Br. Elizabeth R. / Located between Ingleside and Thomas Corner areas. North shore tributary to Eastern Br. Elizabeth R. Entirety of Broad Creek. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	5A	Estuarine Bioassessments	2004	L	0.371
VAT-G15E_EBE01A00 / Eastern Branch, Elizabeth R. - Upper / Located between Carolanne Farms and Tanglewood areas. Upper Eastern Br., from headwaters to confluence of Broad Creek (RM 4.0). CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2004	L	0.377
VAT-G15E_EBE02A06 / Eastern Branch, Elizabeth R. - Lower / From Broad Creek (RM 4.0) downstream to mouth of Elizabeth River mainstem. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2004	L	1.015
VAT-G15E_IND01A02 / Indian River - Eastern Branch, Elizabeth R. / Located southwest of Broad Creek. Between Campostella Heights and Tanglewood. Entirety of creek including tribs. CBP segment EBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish harvesting condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2006	L	0.268
VAT-G15E_STM01A10 / Steamboat Creek / South Shore trib to E. Branch. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2006	L	0.058

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VAT-G15E_ZZZ03A08 / Unsegmented estuaries in EBEMH / CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529). 5A Estuarine Bioassessments 2006 L 0.261

Eastern Branch Elizabeth River, Broad Creek , Indian River, Steamboat Creek and Unsegmented estuaries in EBEMH

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	2.35		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G15E-02-05-BAC** **Indian River, tributary of Eastern Branch, Elizabeth River**

Cause Location: This cause encompasses the entirety of the Indian River. Located southwest of Broad Creek. Between Campostella Heights and Tanglewood. Entirety of creek including tribs. CBP segment EBEMH.

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on two or more STV hits in the same 90-day period with less than 10 samples at DEQ (AQM) monitoring station @ 2-IND000.98. Previously station had 23 exc/ 32 obs of the instantaneous criteria for Enterococcus bacteria. . Bacteria TMDL Development for the Elizabeth River Watershed EPA approved 7/20/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_IND01A02 / Indian River - Eastern Branch, Elizabeth R. / Located southwest of Broad Creek. Between Campostella Heights and Tanglewood. Entirety of creek including tribs. CBP segment EBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish harvesting condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2002	L	0.268

Indian River, tributary of Eastern Branch, Elizabeth River

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.268		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G15E-02-06-BAC** Eastern Branch, Elizabeth R. - Lower

Cause Location: This cause encompasses the eastern branch of the Elizabeth River, from the Berkley Bridge to the Broad Creek confluence

Cause City/County: Chesapeake; Norfolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus data at station 2-EBE000.40 with two or more STV hits in the same 90-day period with less than 10 samples. There is insufficient data to assess at station 2-EBE002.98 with one or multiple STV exceedances in one or multiple 90-day period but insufficient data to analyze geomean. Previous impairment based on single sample maximum from station 2-EBE002.98 with 8 excl/47 obs and 2-EBE000.40 7 exc / 54 obs. Station 2-EBE000.40 has rotated on and off impairment between assessment cycles. EPA approved Enterococcus TMDL for Elizabeth River 7/20/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_EBE02A06 / Eastern Branch, Elizabeth R. - Lower / From Broad Creek (RM 4.0) downstream to mouth of Elizabeth River mainstem. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	1.015

Eastern Branch, Elizabeth R. - Lower

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
1.015		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G15E-02-07-BAC** **Eastern Branch, Elizabeth R. - Upper**

Cause Location: This cause encompasses the eastern branch of the Elizabeth River, from headwaters to confluence with Broad Creek.

Cause City/County: Chesapeake; Norfolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting based on CitMon data collected at station 2EBE-LRN13-LRN by the Lynnhaven River Now with 2 exc / 2 obs of Enterococci data outside of the assessment window. The whole AU is listed based on station data, upstream and downstream bacteria impairments. EPA approved 9/30/2010 TMDL for Elizabeth River Watershed, Enterococci.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_EBE01A00 / Eastern Branch, Elizabeth R. - Upper / Located between Carolanne Farms and Tanglewood areas. Upper Eastern Br., from headwaters to confluence of Broad Creek (RM 4.0). CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2020	L	0.377

Eastern Branch, Elizabeth R. - Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.377		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G15E-03-01-EBEN** **Elizabeth River Mainstem**

Cause Location: This cause encompasses the entirety of the Elizabeth River Mainstem. CBP segment SBEMH. BIBI segment ELIMHa.

Cause City/County: Norfolk; Portsmouth

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use is assessed as impaired based on failure to meet a statistical evaluation constituting an un-impacted benthic organism population per CBP (Benthic-BIBI) analysis retained from 2010. The Elizabeth River mainstem segment for BIBI (ELIMHa) was assessed as impaired of the Clean Water Act's Aquatic Life Use Support Goal due to the results of benthic BIBI probabilistic station surveys. The BIBI stressor tool yielded "sediment contaminants" as the probable impairment source.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_ELI01A06 / Elizabeth River Mainstem - Upper / From start of mainstem downstream to line between Hospital Pt and Smiths Cr. (Incl. Hague). Segment ELIMHa (downstream Lamberts Pt.). DSS (ADMIN) cond # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2004	L	0.468
VAT-G15E_ELI02A06 / Elizabeth River Mainstem - Middle / From a line between Hospital Pt and Smiths Cr down stream to the end of CBP-BIBI segment ELIMHa (downstream of Lamberts Pt.). BIBI segment ELIMHa. CBP segment ELIPH. DSS (ADMIN) condemnation # 056-007 E and A (effective 20120529).	5A	Estuarine Bioassessments	2004	L	4.005
VAT-G15E_ELI03A08 / Elizabeth River Mainstem - Mouth / From start BIBI segment ELIPHa (SE corner Craney Isl. line to east) downstream to mouth (NE corner Craney Isl. east to S Glenwood Pk). BIBI segment ELIPHa. CBP segment ELIPH. DSS (ADMIN) condemnation # 056-007 A (effective 20120529).	5A	Estuarine Bioassessments	2010	L	3.445

Elizabeth River Mainstem

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	7.917		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **G15E-03-03-EBEN** **Scott Creek**

Cause Location: This cause encompasses the entirety of Scott Creek

Cause City/County: Norfolk; Portsmouth

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use - Estuarine Bioassessment impairment based on failure to meet a statistical evaluation constituting an un-impacted benthic organism population per CBP (Benthic-BIBI) analysis. The Elizabeth River mainstem segment BIBI-ELIPHa was assessed as impaired of the Clean Water Act's Aquatic Life Use Support Goal due to the results of benthic BIBI probabilistic station surveys. The BIBI stressor tool yielded "unknown" as the probable impairment source.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SCO01A06 / Scott Creek / South shore tributary of Elizabeth River mainstem. Upstream of Pinner Point. CBP segment ELIPH. BIBI segment ELIMHa. Portion of the DSS (ADMINISTRATIVE) shellfish harvesting condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2016	L	0.194

Scott Creek

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.194		

Sources: Source Unknown

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James River Basin

Cause Group Code: G15E-04-01-BAC Western Branch, Elizabeth R. - Upper

Cause Location: This cause encompasses the area located between Stewart Manor and Point Elizabeth areas. From headwaters (RM 8.5) downstream to Sterns Creek (RM 3.5). BIBI segment WBEMHa.

Cause City/County: Chesapeake; Portsmouth

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting based on Enterococcus bacteria data from station 2-WBE004.44 with 2 or more STV hits in the same 90-day period with less than 10 samples. (Previous water quality standard assessment 9 exc / 53 obs. EPA approved TMDL for Enterococcus in Lower and Upper Western Branch Elizabeth River 7/20/2010).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_WBE01A02 / Western Branch, Elizabeth R. - Upper / Located between Stewart Manor and Point Elizabeth areas. From headwaters (RM 8.5) downstream to Sterns Creek (RM 3.5). BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	0.561

Western Branch, Elizabeth R. - Upper

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.561		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **G15E-04-02-BAC** **Western Branch, Elizabeth R. - Lower**

Cause Location: This cause encompasses the main stem of the Elizabeth River from the West Norfolk Bridge (164) to the confluence with Sterns Creek.

Cause City/County: Chesapeake; Portsmouth

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on the Enterococci data from Station 2-WBE002.11 with 2 or more STV hits in the same 90-day period with less than 10 samples. Previous water quality standard assessed 7 exc/ 52 obs.. This segment is included in the Bacteria TMDL Development for the Elizabeth River Watershed EPA approved 7/20/2010. This segment is included in the Bacteria TMDL Development for the Elizabeth River Watershed EPA approved 7/20/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_WBE02A00 / Western Branch, Elizabeth R. - Lower / Located between the Point Elizabeth and Lovett Point areas. From Sterns Creek confluence (RM 3.5) downstream to the mouth. CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	1.457

Western Branch, Elizabeth R. - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.457		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G15E-04-02-EBEN** **Western Branch Elizabeth River and Unsegmented estuaries in WBEMH**

Cause Location: This cause encompasses the entirety of the Western Branch Elizabeth River and its tributaries. CBP segment WBEMH. BIBI segment WBEMHa.

Cause City/County: Chesapeake; Portsmouth

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: There is insufficient data to assess benthics, therefore the 2010 impairment will be retained. 2010- The Aquatic Life Use was impaired based on failure to meet a statistical evaluation constituting an un-impacted benthic organism population per CBP (Benthic-BIBI) analysis (VERSAR-2005). The benthic source/stressor tool yielded sediment contaminants as the suspected source for the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_DPT01A06 / Drum Point Creek - Western Branch, Elizabeth R. / Western shore trib to the Western Br. Entirety of creek including tributaries. Located in the area of Charlton Village to Ahoy Acres. CBP segment WBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	5A	Estuarine Bioassessments	2010	L	0.148
VAT-G15E_WBE01A02 / Western Branch, Elizabeth R. - Upper / Located between Stewart Manor and Point Elizabeth areas. From headwaters (RM 8.5) downstream to Sterns Creek (RM 3.5). BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2006	L	0.561
VAT-G15E_WBE02A00 / Western Branch, Elizabeth R. - Lower / Located between the Point Elizabeth and Lovett Point areas. From Sterns Creek confluence (RM 3.5) downstream to the mouth. CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2010	L	1.457
VAT-G15E_ZZZ04A08 / Unsegmented estuaries in WBEMH / CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2010	L	0.560

Western Branch Elizabeth River and Unsegmented estuaries in WBEMH

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.725		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G15E-05-02-BAC** **Knitting Mill Creek and Lafayette R-Upper**

Cause Location: This cause encompasses the Knitting Mill Creek, a Creek off of Lafayette River near Colonial Place and upper Lafayette River.

Cause City/County: Norfolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained for Knitting Mill Creek with no current data to assess and retained for the upper Lafayette that has insufficient data to assess and analyze the new water quality standards. Bacteria TMDL Development for the Elizabeth River Watershed EPA approved 7/20/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_KMK01A12 / Knitting Mill Creek / Creek off of Lafayette River near Colonial Place. CBP segment ELIPH. BIBI segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2002	L	0.027
VAT-G15E_LAF01A06 / Lafayette River - Upper / Located east of Craney Isl. From headwaters (approx. RM 7.5) downstream to past Rt 337 (Hampton Blvd bridge, RM 1.75) near Edgewater Haven. CBP segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Enterococcus	2006	L	1.743

Knitting Mill Creek and Lafayette R-Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.77		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: G15E-06-01-BAC James River - King/Lincoln Park Beach Area

Cause Location: Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: Enterococcus data is Fully Supporting with Observed Effects - No geomean exceedances and only 1 STV exceedance in one or multiple 90-day periods represented by < 10 samples. Due to the multiple swimming advisories and previously high STV and geomean exceedances within the past 6 years, Recreation use remains impaired. Previous geomean assessments from 2020 (8 viol/ 19 Geo-mean obs) and multiple swimming advisories.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_JMS01B06 / James River - King/Lincoln Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	Enterococcus	2006	L	0.009

James River - King/Lincoln Park Beach Area

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.009		

Sources: Source Unknown

Virginia Department of Environmental Quality
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James River Basin

Cause Group Code: **G15E-06-02-BAC** **James River - Anderson Park Beach Area**

Cause Location: Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH.

Cause City/County: Newport News

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: Enterococcus data is Fully Supporting with Observed Effects - No geomean exceedances and only 1 STV exceedance in one or multiple 90-day periods represented by < 10 samples. Due to the multiple swimming advisories and previously high STV and geomean exceedances within the past 6 years, Recreation use remains impaired. Previous monthly geomean assessment from 2020 (5 viol/ 18 Geo-mean obs) and multiple swimming advisories.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_JMS01C06 / James River - Anderson Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	Enterococcus	2012	L	0.011

James River - Anderson Park Beach Area

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.011		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G15E-06-03-BAC** **Hoffler Creek**

Cause Location: This cause encompasses the entirety of Hoffler Creek. Located along south shore of Hampton Roads Harbor. Entirety of Hoffler Creek. South shore trib to James River west of Craney Isl. (at mouth of Elizabeth R). CBP segment JMSMH.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation impairment is retained for the 2022 cycle. No data collected since 2009 - deactivated trend station. In 2016, there were 2 exc/ 4 obs for enterococcus at station 2-HOF000.44. In 2014, The Recreation Use was assessed as impaired based on exceedance of the instantaneous criteria for Enterococcus bacteria at station 2-HOF000.44 (5 / 12). The impairment was added for the 2008 IR under ID = VAT-G15E-06-03. Hoffler Creek Bacteria TMDL EPA approved 12/14/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_HOF01A06 / Hoffler Creek / Located along south shore of Hampton Roads Harbor. Entirety of Hoffler Cr. South shore trib to James R. west of Craney Isl. (at mouth of Elizabeth R). CBP segment JMSMH. DSS (ADMIN) shellfish harvesting condemnation # 064-018 A (effective 20080530).	4A	Enterococcus	2008	L	0.053

Hoffler Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.053		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G15E-06-04-BAC** **Willoughby Bay - Beach Area**

Cause Location: This cause encompasses the area located along the northern shore portion of Willoughby Bay along Willoughby Spit. CBP segment JMSPH.

Cause City/County: Norfolk

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The Recreation Use is assessed as impaired based on the data from the VDH Beach Monitoring Program Enterococci data, swimming advisories and joint VDH-DEQ assessment review at Captains Quarters VDH station. The station VA862384 has 2 or more STV exceedances in the same 90-day period represented by 10 plus samples, with no geomean exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_WLY03A06 / Willoughby Bay - Beach Area / Located along the northern shore portion of Willoughby Bay along Willoughby Spit. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	Enterococcus	2014	L	0.142

Willoughby Bay - Beach Area

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.142		

Sources: Source Unknown

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James River Basin

Cause Group Code: **G15E-08-EBEN** Willoughby Bay [Less Beach Area]

Cause Location: This cause encompasses the area located adjacent to mouth of James River at Hampton Roads, southeast of Hampton Roads Bridge Tunnel. CBP segment JMSPH.

Cause City/County: Norfolk

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Aquatic Life Use is impaired based on WoE station 2-WLY002.03 assessed as category 5A with probable cumulative effects of sediment metals and PAH contamination.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_WLY01A06 / Willoughby Bay [Less Beach Area] / Located adjacent to mouth of James River at Hampton Roads, southeast of Hampton Roads Bridge Tunnel. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	5A	Estuarine Bioassessments	2018	L	2.476

Willoughby Bay [Less Beach Area]

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.476		

Sources: Agriculture; Source Unknown

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James River Basin

Cause Group Code: **G15E-09-EBEN** **Southern Branch, Elizabeth River - Middle**

Cause Location: This cause encompasses the area located along the shore of the Deep Water Terminal, south of Paradise Creek. CBP segment SBEMH.

Cause City/County: Chesapeake; Portsmouth

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Aquatic Life Use is impaired based on the 2013 2CSBE003.65 WoE evaluation and assessment of the ALU for estuarine benthic communities. The 2013 assessment determined potential causes based on extremely high concentrations of Low Molecular Weight (LMW) PAHs in sediment. Elevated dissolved inorganic phosphorus and slightly depressed bottom DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE02B20 / Southern Branch, Elizabeth R. - Middle / Shore along Chesapeake Deep Water Terminal south of Paradise Creek. CBP segment SBEMH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2020	L	0.015

Southern Branch, Elizabeth River - Middle

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.015		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **G15E-10-EBEN** **Knitting Mill Creek**

Cause Location: This cause encompasses the Creek off of Lafayette River near Colonial Place.

Cause City/County: Norfolk

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Aquatic Life Use is not supporting based on 2020 WoE station 2CKMK000.05 Category 5A based on Scenario 8, water quality, with comment contaminants are not bioavailable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_KMK01A12 / Knitting Mill Creek / Creek off of Lafayette River near Colonial Place. CBP segment ELIPH. BIBI segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2022	L	0.027

Knitting Mill Creek

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.027		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: G15E-11-EBEN Southern Branch, Elizabeth R. - Middle

Cause Location: This cause encompasses the area buffering station 2CSEB005.84 on the Southern Branch of the Elizabeth River near the tributary Newton Creek.

Cause City/County: Chesapeake; Portsmouth

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on WoE data collected at station 2CSEB005.84 in 2020 with a 5A category. Benthics are impaired and the data show strong evidence for pollution induced degradation , Scenario 1.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE02C22 / Southern Branch, Elizabeth R. - Middle / Buffer of station 2CSBE005.84 outside of Newton Creek tributary. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	5A	Estuarine Bioassessments	2022	L	0.005

Southern Branch, Elizabeth R. - Middle

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.004		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **H01R-01-BAC** Reed Creek

Cause Location: The upper limit is the headwaters in the Jefferson National Forest on the Sedalia Quad (intersection of State Routes 638 and 764). The impairment ends at the mouth of Reed Creek on the James River below Big Island, Virginia (Snowden, Sedalia and Big Island Quads).

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Reed Creek Bacteria TMDL Load Duration Study received U.S. EPA approval on 6/21/04 [Fed. ID. 7763 / 21565] and SWCB approval on 12/02/04 for these 1998 303(d) Listed waters for fecal coliform bacteria (formerly 2002 thru 2006 VAW-H01R-01). Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Three stations are located within the 8.83 mile impaired waters (NHD mileage correction from 2002 Listing 12.27 miles). 2-RED000.16 (Off Route 501), the original listing station, and two additional stations 2-RED005.36 (Route 637 Bridge) and 2-RED008.32 (Route 122 Bridge).

2-RED008.22- (Rt. 122 Bridge) There are no additional data within the 2014 or 2016 data windows. 2012 results are one (1300 cfu/100 ml) of three samples in excess of the instantaneous criterion. The 2010 IR finds four of 14 E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion. Values in excess of the criterion range from 350 to 1300 cfu/100 ml. 2008 IR reports five of 17 E.coli samples exceed. Values in excess of the criterion range the same as 2010.

2-RED005.36- (Rt. 637 Bridge) There are no additional data collected since the 2012 data window where three of three samples exceed the instantaneous criterion within the 2012 data window. 2010 E.coli exceedances of the instantaneous criterion are found in 10 of 14 samples. 2008 IR finds E.coli exceedances in 12 of 17 samples.

2-RED000.16- (Off Rt. 501) The 2020 data window finds two of 12 excursions of the 235 cfu/100 ml instantaneous criterion. The 2014 assessment finds six of 12 E.coli observations exceed the instantaneous criterion. E.coli data within the 2012 data window produce two of 12 excursions of the 235 cfu/100 ml instantaneous criterion. Seven of 33 E.coli samples exceed the instantaneous criterion within the 2010 data window. 2008 results in eight of 38 E.coli samples exceeding the instantaneous criterion and the same range as 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H01R_RED01A00 / Reed Creek / Reed Creek mainstem from its mouth on the James River upstream to the intersection of State Routes 638 and 764 (JM02).	4A	Escherichia coli (E. coli)	2004	L	8.83

Reed Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)	8.83
Escherichia coli (E. coli) - Total Impaired Size by Water Type:				

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H01R-01-HG** **James River**

Cause Location: James River from Balcony Falls Dam downstream to Holcomb Rock Dam

Cause City/County: Amherst County; Bedford County; Rockbridge County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2005 fish tissue collections and new Water Quality Standards effective 2/01/10. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov/> for more information about mercury contamination and <http://www.vdh.virginia.gov> for VDH Advisories or Bans.

2-JMS279.41 (Blue Ridge Parkway Bridge) - The initial 2010 303(d) Listing is based on 2005 fish tissue analysis where mercury (Hg) is found in two species; smallmouth bass at 0.46 ppm and largemouth bass at 0.40 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016, 2018, 2020, or 2022 data windows.

2-JMS277.30 - Anecdotal impairment information is found in 2017 fish tissue collections where mercury (Hg) is found in two species exceeding the WQS-based tissue value 0.3 ppm: smallmouth bass (7 fish) at 0.32 ppm; Carp (3 fish) at 0.42 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H01R_JMS01A00 / James River / James River mainstem from the mouth of Wilderness Creek downstream to Holcomb Rock Dam (JM03).	5A	Mercury in Fish Tissue	2010	L	1.37
VAW-H01R_JMS01A04 / James River / The James River from the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") downstream to the mouth of Wilderness Creek (JM03).	5A	Mercury in Fish Tissue	2010	L	0.70
VAW-H01R_JMS02A00 / James River / James River mainstem from the Georgia Pacific outfalls downstream to the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") (JM03).	5A	Mercury in Fish Tissue	2010	L	3.30
VAW-H01R_JMS03A00 / James River / James River mainstem from the mouth of Peters Creek downstream to the Georgia Pacific outfalls on the James River (JM01).	5A	Mercury in Fish Tissue	2010	L	3.05
VAW-H01R_JMS04A00 / James River / James River mainstem from the Balcony Falls Dam (historically located at 37.623, -79.444) near the Maury R. confluence downstream to the mouth of Peters Creek (JM01).	5A	Mercury in Fish Tissue	2010	L	7.42

James River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.84

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Sources: Source Unknown

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James River Basin

Cause Group Code: **H01R-02-BAC** James River

Cause Location: James River mainstem from the Balcony Falls Dam downstream to the mouth of Peters Creek (JM01).

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These waters were previously Listed in 1998 and subsequently de-listed with the 2002 assessment. The Recreational Use impairment returns with the 2014 Integrated Report (IR) due to escherichia coli (E/coli) exceedances of the WQS instantaneous criterion. These waters are addressed in the E. coli TMDL for the James River and Tributaries near Lynchburg, VA which was SWCB approved 7/19/17 and EPA approved 9/27/17 (TMDL ID: 68323).

2-JMS282.28 (Rt. 501 Bridge - S.E. of Glasgow) There are no additional data beyond the 2014 IR. The 2014 IR finds six of 36 E.coli observations exceeding the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 325 to 1225 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H01R_JMS04A00 / James River / James River mainstem from the Balcony Falls Dam (historically located at 37.623, -79.444) near the Maury R. confluence downstream to the mouth of Peters Creek (JM01).	4A	Escherichia coli (E. coli)	2014	L	7.42

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.42

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H01R-03-BAC** **James River**

Cause Location: James River from the mouth of Reed Creek downstream to Holcomb Rock Dam.

Cause City/County: Amherst County; Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These waters were previously 303(d) Listed in 1998 and de-listed with the 2002 assessment. These waters return to impaired waters status with the 2016 Integrated Report (IR) and are Nested in the E. coli TMDL for the James River and Tributaries near Lynchburg, VA which was SWCB approved 7/19/17 and EPA approved 9/27/17 (TMDL ID: 68323).

2-JMS275.75 (Below Big Island) Six of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The 2016 IR finds five of 36 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Excessive values range from 355 to 1750 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H01R_JMS01A00 / James River / James River mainstem from the mouth of Wilderness Creek downstream to Holcomb Rock Dam (JM03).	4A	Escherichia coli (E. coli)	2016	L	1.37
VAW-H01R_JMS01A04 / James River / The James River from the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") downstream to the mouth of Wilderness Creek (JM03).	4A	Escherichia coli (E. coli)	2016	L	0.70
VAW-H01R_JMS02A00 / James River / James River mainstem from the Georgia Pacific outfalls downstream to the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") (JM03).	4A	Escherichia coli (E. coli)	2016	L	3.30

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.37

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H02L-01-TEMP** **Pedlar Lake**

Cause Location: Pedlar Lake

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: Pedlar Lake located in Amherst County is listed for Aquatic Life Use during the 2020 303(d)/305(b) Integrated Report data window.

2-POL017.59 (Pedlar River Reservoir) The reservoir 2022 data window reports 80 of 490 Temperature measurements in excess of the Class V Temperature criterion of 21 C.

2020 data window reports 66 of 386 Temperature measurements in excess of the Class V Temperature criterion of 21 CL. The range of values in excess of the criterion are between 21.08 to 30.54.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H02L_POL01A02 / Pedlar Lake / Pedlar Reservoir from its impounding structure to its backwaters.	5C	Temperature	2020	L	117.75

Pedlar Lake

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			117.75	

Sources: Natural Sources

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James River Basin

Cause Group Code: **H02R-01-BAC** **Pedlar River**

Cause Location: Pedlar River from its mouth on the James River to its confluence with Enchanted Creek.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35014, 12/4/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/07 [Fed. ID.35014] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

Four stations are located within the 16.38 miles of impaired waters. 2-POL000.04(Route 650 Bridge-Amherst County), and three additional stations. 2-POL007.20 (Route 643), 2-POL008.53 (Pedlar River at Route 610), and 2-POL010.11 (Below Route 640 Bridge)

2-POL010.11 (Below Route 640 Bridge) 2018 results are two of 12 samples in excess of the instantaneous criterion. (exceedances were 325 and 1525 cfu/100ml)

2-POL008.53 (Pedlar River at Route 610) 2022 1 or 12 samples exceeds Statistical Threshold Value, IM carries. 2020 results are 1 of 12 samples in excess of the instantaneous criterion, IM carries. 2018 results are three of 23 samples in excess of the instantaneous criterion. (exceedances were 250, 2000, and 3448 cfu/100ml)

2-POL007.20 (Route 643) 2018 results are three of 12 samples in excess of the instantaneous criterion. (exceedances were 375,300,and 700 cfu/100ml)

2-POL000.04(Route 650 Bridge-Amherst County) 2018 results are two of 12 samples in excess of the instantaneous criterion. (exceedances were 1275 and 2187 cfu/100ml)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H02R_POL01A00 / Pedlar River / Pedlar River mainstem from its mouth on the James River upstream to the mouth of Horsley Creek (JM06).	4A	Escherichia coli (E. coli)	2016	L	5.54
VAW-H02R_POL01B14 / Pedlar River / Pedlar River from the mouth of Horsley Creek upstream to the mouth of Little Cedar Creek (JM05).	4A	Escherichia coli (E. coli)	2014	L	1.33
VAW-H02R_POL02A00 / Pedlar River / Pedlar River mainstem from the Little Cedar Creek mouth upstream to the mouth of an unnamed tributary located just downstream of the Rt. 610 crossing and upstream of the Little Dancing Creek mouth (JM05).	4A	Escherichia coli (E. coli)	2006	L	2.53
VAW-H02R_POL03A02 / Pedlar River / Pedlar River mainstem from an unnamed tributary's confluence with the Pedlar River, just downstream of the Rt. 610 crossing upstream to the mouth of Enchanted Creek (JM05).	4A	Escherichia coli (E. coli)	2006	L	7.00

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Pedlar River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.4

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H02R-02-BAC** **Pedlar River, Upper**

Cause Location: Pedlar River from the National Forest boundary upstream to its headwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35014, 12/4/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35014] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

One station is located within the 8.94 miles of impaired waters. 2-POL028.68(FR 76)

2-POL028.68 (FR 76) 2020 Results are 2 of 12 in excess of the instantaneous standard. 2018 results are two of 12 samples in excess of the instantaneous criterion. (exceedances were 325 and 325 cfu/100ml)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H02R_POL07B02 / Pedlar River / Pedlar River mainstem from the boundary of the National Forest upstream to its headwaters (JM04).	4A	Escherichia coli (E. coli)	2016	L	8.94

Pedlar River, Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.94

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H02R-03-TEMP** **Pedlar River**

Cause Location: Pedlar River mainstem (free flowing waters) from the Pedlar Reservoir backwaters upstream; five miles upstream from the Lynchburg City intake, the WQS public water supply (PWS) designation (JM04).

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The initial 2020 assessment window listing for aquatic life use (temperature) is based on two measurements collected during the summer months on Pedlar River within the Tier III section.

2-POL019.63 (Pedlar River upstream of reservoir @ Rt 636) - The 2022 IR finds Temp 'IM' from two of 14 exceedances of the 21°C Class V Water Quality Criterion. The 2020 IR finds Temp 'IM' from two exceedances of the 21°C Class V Water Quality Criterion at 22.1°C (6/15/17) and 25.8°C (7/25/17).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H02R_POL05B02 / Pedlar River / Pedlar River mainstem (free flowing waters) from the Pedlar Reservoir backwaters upstream; five miles upstream from the Lynchburg City intake, the WQS public water supply (PWS) designation (JM04).	5C	Temperature	2020	L	4.89

Pedlar River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.89

Sources: Natural Sources

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James River Basin

Cause Group Code: H03R-01-BAC Blackwater Creek

Cause Location: Blackwater Creek from the confluence of Tomahawk and Burton Creeks to the mouth at the James River.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Blackwater Creek) received U.S. EPA approval on 11/4/07 [Fed. ID.35571] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

Two stations are located within the 10.54 miles of impaired waters: 2-BKW000.40 (Blackwater Creek at Rivermont Ave) and 2-BKW000.40 (Blackwater Creek at Rivermont Ave).

2-BKW000.40 (Blackwater Creek at Rivermont Ave) 2022 results are two of 12 samples in excess of the Statistical Threshold Value. 2020 data window results are four of 12 samples in excess of the instantaneous criterion. 2018 results are four of 12 samples in excess of the instantaneous criterion. (exceedances range from 341 to 6131 cfu/100ml)

2-BKW005.95 (Blackwater Creek at Hill Street [South of Langhorne]) No NEW data in 2022 or 2022 for bacteria. Two of 12 samples in excess of the instantaneous criterion. (exceedances were 325 and 1525 cfu/100ml)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_BKW01A00 / Blackwater Creek / Blackwater Creek mainstem from the confluence of Tomahawk and Burton Creeks downstream to the Blackwater Creek confluence on the James River (JM10).	4A	Escherichia coli (E. coli)	2006	L	10.54

Blackwater Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.54

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-01-BEN** **Blackwater Creek**

Cause Location: Blackwater Creek from the confluence of Tomahawk and Burton Creeks to the mouth at the James River.

Cause City/County: Lynchburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Blackwater Creek was initially impaired for Aquatic Life Use in 2010 due to benthic macroinvertebrate community data collections detailed below.

2-BKW000.40 (Blackwater Creek at Rivermont Ave) Bio impaired ('IM') from three VSCI scores (2011, 2015) averaging 60.3. Habitat assessment scores at this site were low for epifaunal substrate, sediment deposition, bank stability and bank vegetative protection. Blackwater Creek is an urban stream with many non-point sources of pollution, in addition to scouring and high sediment loads during rain events. It has a uniform stream bottom with little instream habitat. 2007 finds Bio 'IM'.

2-BKW004.87 (Blackwater Cr before Ivy Cr confluence) 2022 Cycle: Bio 'IM' from four VSCI scores (2019 IM 17.8; S 51.5; 2018 F 62.2, 2015 S 50.3). Bio 'IM' from three VSCI scores (2011, 2015) averaging 52.1. 2007, 2009-2010 finds Bio - 'IM'. This section of Blackwater Creek has an excellent riparian zone for an urban area, but has poor bank stability, increased embeddedness and sediment deposition, and marginal epifaunal substrate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_BKW01A00 / Blackwater Creek / Blackwater Creek mainstem from the confluence of Tomahawk and Burton Creeks downstream to the Blackwater Creek confluence on the James River (JM10).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	10.54

Blackwater Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.54

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H03R-02-BAC** Fishing Creek

Cause Location: Fishing Creek mainstem from its confluence with the James River upstream to its headwaters.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Fishing Creek) received U.S. EPA approval on 11/4/07 [Fed. ID.35572] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

One station is located within the 6.32 miles of impaired waters: 2-FSG000.85 (Ambient, Lynchburg Area TMDL)(Fishing Creek at Winchester Rd) During the 2016 data window, five of 12 samples were observed in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_FSG01A00 / Fishing Creek / Fishing Creek mainstem from its confluence with the James River upstream to its headwaters (JM11).	4A	Escherichia coli (E. coli)	2008	L	6.32

Fishing Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.32

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-03-BAC** Ivy Creek

Cause Location: Ivy Creek mainstem from its headwaters downstream to its confluence with Blackwater Creek.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Ivy Creek) received U.S. EPA approval on 11/4/07 [Fed. ID.35573] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

2-IVA000.22 (Ivy Creek at Business Rt 501) 2022 data window finds two of 12 samples in excess of the Statistical Threshold Value. Five of 12 samples in excess of the instantaneous criterion during the 2020 data window. The 2016 data window finds two of 12 samples in excess of the instantaneous criterion.

2-IVA005.43 (Peaks View Park - Admore Bridge) Two of 12 samples in excess of the instantaneous criterion during the 2016 data window.

2-IVA006.38 (Ivy Creek at Wigginton Rd) No current data. E.coli impairment carries from 2/12 exceedances from a previous cycle.

2-IVA012.13 (Ivy Creek at Route 662) Five of 12 samples in excess of the instantaneous criterion (excursion range: 250-350 cfu/100ml) during the 2018 data window.

2IVA-MJ-IC-ACB - No current data. One historical [Lv.2] elevated E.coli sample at 300.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_IVA01A00 / Ivy Creek / Ivy Creek mainstem from its headwaters downstream to its confluence with Blackwater Creek (JM09).	4A	Escherichia coli (E. coli)	2008	L	21.45

Ivy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.45

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-03-BEN** Ivy Creek

Cause Location: Ivy Creek mainstem from its headwaters downstream to its confluence with Blackwater Creek.

Cause City/County: Lynchburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Ivy Creek was initially impaired for Aquatic Life Use in 2010 due to benthic macroinvertebrate community data collections detailed below.

2-IVA000.05 (upstream of confluence with Blackwater Cr.) - 2020 Cycle: Bio assessed as impaired ('IM') from two VSCI scores 62.6 (S 2015) & 71.5 (F 2018). Ivy Creek had numerous extreme high flows during 2018. 2018 Cycle: Bio 'IM' from three VSCI samples (2011, 2015) averaging 53. Ivy Creek is an urban stream with obvious dumping of trash and debris, including bricks, tires, and metal objects. The upstream portion of the sample reach has homes, lawns, and construction present up to the edges of the banks. This site was assessed as 'IM' in 2014. During the 2010 data window, Bio 'IM' from 2007 benthic macroinvertebrate community data collection. Ivy Creek had very low flow during the spring 2007 sampling event.

2-IVA005.75 (Peaks View - Tenbury bridge) - Bio Reserve Judgement ('J') from four VSCI scores averaging 58.3 (2011, 2015). Ivy Creek flows through a city park and has high sediment deposition. However, satellite imagery shows that much of the upstream riparian zone is wooded or consists of fields and medium intensity residential areas. In 2015, 2-IVA005.75 had VSCI scores near the assessment threshold with a benthic community indicative of pressure from scour and sediment. In 2014, 2-IVA005.75 was assessed as fully supporting ('FS') but a downstream station (2-IVA000.05) was assessed as 'IM'.

2-IVA012.13 (at Rt. 662) - Bio 'IM' from four VSCI scores (2011, 2015) averaging 49.3. Heavy, fresh sediment deposition noted in stream at time of sampling. Available habitat was heavily embedded in sediment. This watershed is being rapidly developed and will likely degrade further due to increased runoff from new neighborhoods. Sampling in 2007 found Bio 'IM'.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_IVA01A00 / Ivy Creek / Ivy Creek mainstem from its headwaters downstream to its confluence with Blackwater Creek (JM09).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	21.45

Ivy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		21.45

Sources: Source Unknown

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James River Basin

Cause Group Code: **H03R-04-BAC James River**

Cause Location: Holcomb Rock Dam to the Archer Creek confluence.

Cause City/County: Amherst County; Bedford County; Campbell County; Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (James River) received U.S. EPA approval on 11/4/07 [Fed. ID.35014] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

Two stations are located within the 10.53 miles of impaired waters: 2-JMS258.54 and 2-JMS270.84.

2-JMS258.54 (Under Route 29 Bridge - Percivals Island Lot) (2022 data window) Two of 34 samples in excess of the Statistical Threshold Value. (2020 data window) Eight of 34 samples in excess of the instantaneous criterion. (2018) Ten of 34 samples in excess of the instantaneous criterion.

2-JMS270.84 (At Power Plant at Holcomb Rock Dam) (2022 data window) Three of 36 samples in excess of the Statistical Threshold Value. (2020 data window) Five of 36 samples in excess of the instantaneous criterion. (2018 data window) Seven Two of 36 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_JMS01A00 / James River / James River mainstem from the Business Route 29 bridge downstream to the mouth of Williams Run (JM11).	4A	Escherichia coli (E. coli)	2008	L	3.86
VAW-H03R_JMS04A02 / James River / James River mainstem from Reusens dam downstream to Business Route 29 (JM07).	4A	Escherichia coli (E. coli)	2008	L	4.22
VAW-H03R_JMS06A02 / James River / James River mainstem from Holcomb Rock Dam downstream to Reusens Dam (JM07).	4A	Escherichia coli (E. coli)	2014	L	8.26
VAW-H05R_JMS03A00 / James River / James River mainstem from the confluence of Archer Creek downstream to the mouth of Beck Creek (JM13).	4A	Escherichia coli (E. coli)	2020	L	7.71
VAW-H05R_JMS04A00 / James River / James River mainstem from the upper watershed boundary at the confluence of Williams Run downstream to the mouth of Archer Creek (JM13).	4A	Escherichia coli (E. coli)	2008	L	2.68

James River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		26.73

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Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-04-PCB James River, Slate River**

Cause Location: The James River from Big Island dam (below Blue Ridge Parkway) downstream to the I-95 bridge James River Bridge in Richmond including its tributaries Hardware River up to Rt. 6 bridge and Slate River up the Rt. 676 bridge.

Cause City/County: Albemarle County; Amherst County; Appomattox County; Bedford County; Buckingham County; Campbell County; Chesterfield County; Cumberland County; Fluvanna County; Goochland County; Henrico County; Lynchburg; Nelson County; Powhatan County; Richmond

Use(s): Fish Consumption; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/5A; Polychlorinated biphenyls (PCBs)/5A

Cause Description: Fish tissue data are reviewed by the VDH in making an advisory determination. A detailed presentation of the data may be found using an interactive mapping application at <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/>

2-JMS258.54 (Under Route 29 Bridge - Percival Island Lot) Three PCB water column samples collected during the 2020 data window (one excursion >640 pg/L): Dry Weather 222.03 pg/L (7/19/2017), Wet Weather 614.76 pg/L (2/8/2018), and Wet Weather 3215.95 pg/L (WW, 9/17/2018). 2005 four species analyzed - Redhorse sucker exceeds WQS TV of 20 ppb at 55.35 ppb. Remaining species analyzed Flathead catfish at 158.84 ppb, 554.07 ppb, and 29.78 ppb; Gizzard shad at 278.20 ppb; and Channel catfish at 51.01 ppb.

2-JMS213.00 (2005 FT/Sediment) (near Wingina at State Wildlife Management Area) 2005 three species analyzed - Flathead catfish exceeds WQS TV of 20 ppb at 228.28 ppb, 51.66 ppb, and 29.15 ppb. Remaining species analyzed Redhorse sucker at 81.11 ppb; and Channel catfish at 113.99 ppb.

2BJMS182.94 (2014 FT/Sediment) (Hardware River Wildlife Management Area) 2014 three species analyzed - American eel exceeds WQS TV of 20 ppb at 41.92 ppb and 34.98 ppb. Remaining species analyzed Channel catfish at 28.68 ppb; and Flathead catfish at 55.54 ppb and 61.18 ppb.

2-JMS189.31 (2014 FT/Sediment)(DGIF Boat Launch at G.S. below Route 20 Bridge) - Water column PCB samples find no exceedances of the 640 pg/L WQS at 123.57 pg/L (DW, 7/19/2017), 252.40 pg/L (WW, 2/8/2018), and 111.39 pg/L (WW, 8/23/2018). 2014 four species analyzed - American eel exceeds WQS TV of 20 ppb at 35.73 ppb and 38.79 ppb. Remaining species analyzed Flathead catfish at 116.44 ppb, 230.66 ppb, and 41.52 ppb; Gizzard shad at 77.40 ppb; and Carp at 133.62 ppb, 579.34 ppb, and 419.28 ppb.

2-JMS176.63 (2005 FT/Sediment)(Route 15 Bridge) 2005 two species analyzed - Channel catfish exceeds WQS TV of 20 ppb at 92.29 ppb. Remaining species analyzed Carp at 339.35 ppb. 2014 one species was analyzed - carp exceeds WQS TV of 20 ppb at 286.79 ppb.

2-FSG000.85 (Fishing Cr at Winchester Rd) The 2020 data window finds two Wet Weather exceedances of the 640 pg/L water column PCB criterion: 2845 pg/L (2/14/18) and 8907 pg/L (9/17/18).

In addition, the impairment is based on PCB fish tissue value exceedances at multiple stations including 2-JMS166.50, 2-JMS157.28, 2-JMS140.00, 2BJMS118.99, 2-JMS127.50, 2CJMS110.00, 2-SLT000.20, et al. An exceedance of the human health water quality standard for PCBs occurred at stations 2-JMS157.28, 2-JMS140.00, 2-JMS117.35, 2-JMS110.34, 2-BJMS111.17-S, 2-JMS110.44.

VDH Fish Advisory Information - Effective 12/13/04: James River main stem from Big Island dam downstream to the I-95 Bridge in Richmond to include a portion of the Hardware and Slate Rivers. The advisory recommends that no more than two meals/month of the following species be consumed. Gizzard Shad Carp American Eel Flathead Catfish Quillback Carpsucker Visit the VDH website for more details: <https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/fish-consumption-advisory/>

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H22R_SLT03A02 / Slate River / The Slate River from Rt. 676 to a point 5 miles upstream of the Fork Union Sanitary District raw water intake (rivermile 3.88) to the mouth at the James River.	5A	PCBs in Fish Tissue	2008	H	1.00
VAP-H22R_SLT03B20 / Slate River / The Slate River from a point 5 miles upstream of the Fork Union Sanitary District raw water intake (rivermile 3.88) to the mouth at the James River.	5A	PCBs in Fish Tissue	2008	H	2.90
VAP-H33R_JMS01A98 / James River / The James River from its confluence with the Rivanna River at river mile 166.61 downstream to the confluence with Big Lickinghole Creek at river mile 143.35.	5A	PCBs in Fish Tissue	2006	H	23.09
VAP-H38R_JMS01A06 / James River / From Big Lickinghole Creek to start of PWS section	5A	PCBs in Fish Tissue	2006	H	2.36
VAP-H38R_JMS02A04 / James River / James River from the confluence with Mohawk Creek to river mile 137.00	5A	PCBs in Fish Tissue	2006	H	3.75
VAP-H38R_JMS03A06 / James River / Rivermile 137 to rivermile 130.14 in H39	5A	PCBs in Fish Tissue	2006	H	6.95
VAP-H38R_JMS04A06 / James River / Start of PWS section downstream to Mohawk Creek	5A	PCBs in Fish Tissue	2006	H	0.52
VAP-H39R_JMS01A98 / James River / The James River from the confluence with Tuckahoe Creek to the William's Island dam.	5A	PCBs in Fish Tissue	2006	H	7.45
VAP-H39R_JMS01B00 / James River / The James River from river mile 130.14 to river mile 128.14.	5A	PCBs in Fish Tissue	2006	H	2.04
VAP-H39R_JMS02A98 / James River / The James River from the William's Island dam to the Boulevard Bridge.	5A	PCBs in Fish Tissue	2006	H	3.36
VAP-H39R_JMS02B04 / James River / The James River from river mile 128.14 to the confluence with Tuckahoe Creek.	5A	PCBs in Fish Tissue	2006	H	4.37
VAP-H39R_JMS03A98 / James River / The James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge.	5A	PCBs in Fish Tissue	2006	H	2.94
VAP-H39R_JMS03B14 / James River - South Channel / The south channel of the James River from the Belle Island dam to the Brown's Island dam. State Scenic River	5A	PCBs in Fish Tissue	2006	H	0.95
VAV-H14R_JMS01A18 / James River / James River from its confluence with Bishop Creek downstream to its confluence with the Rockfish River.	5A	PCBs in Fish Tissue	2006	H	13.49
VAV-H14R_JMS02A18 / James River / James River from its confluence with the Tye River downstream to its confluence with Bishop Creek.	5A	PCBs in Fish Tissue	2006	H	5.09
VAV-H17R_JMS01A18 / James River / James River from its confluence with Totier Creek downstream to its confluence with the Hardware River.	5A	PCBs in Fish Tissue	2006	H	8.13

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H17R_JMS02A18 / James River / James River from its confluence with Ballinger Creek downstream to its confluence with Totier Creek.	5A	PCBs in Fish Tissue	2006	H	4.82
VAV-H17R_JMS03A18 / James River / James River from its confluence with the Rockfish River downstream to its confluence with Ballinger Creek.	5A	PCBs in Fish Tissue	2006	H	5.74
VAV-H19R_HRD01A00 / Hardware River / Hardware River from the Rt. 6 bridge, downstream to its confluence with the James River.	5A	PCBs in Fish Tissue	2008	H	7.00
VAV-H20R_JMS01A02 / James River / James River from the Hardware River downstream to a point 5 miles above Fork Union Sanitary District raw water intake.	5A	PCBs in Fish Tissue	2006	H	1.98
VAV-H20R_JMS02A02 / James River / The James River from a point 5 miles above Fork Union Sanitary District's raw water intake downstream to its confluence with the Slate River.	5A	PCBs in Fish Tissue	2006	H	2.94
VAV-H20R_JMS02B18 / James River / The James River from its confluence with the Slate River downstream to the Fork Union Sanitary District's raw water intake.	5A	PCBs in Fish Tissue	2006	H	2.16
VAV-H20R_JMS03A02 / James River / The James River from the Fork Union Sanitary District's raw water intake downstream to the confluence with the Rivanna River.	5A	PCBs in Fish Tissue	2006	H	9.25
VAW-H01R_JMS01A00 / James River / James River mainstem from the mouth of Wilderness Creek downstream to Holcomb Rock Dam (JM03).	5A	PCBs in Fish Tissue	2006	H	1.37
VAW-H01R_JMS01A04 / James River / The James River from the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") downstream to the mouth of Wilderness Creek (JM03).	5A	PCBs in Fish Tissue	2006	H	0.70
VAW-H01R_JMS02A00 / James River / James River mainstem from the Georgia Pacific outfalls downstream to the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") (JM03).	5A	PCBs in Fish Tissue	2006	H	3.30
VAW-H01R_JMS03A00 / James River / James River mainstem from the mouth of Peters Creek downstream to the Georgia Pacific outfalls on the James River (JM01).	5A	PCBs in Fish Tissue	2006	H	3.05
VAW-H03R_JMS01A00 / James River / James River mainstem from the Business Route 29 bridge downstream to the mouth of Williams Run (JM11).	5A	PCBs in Fish Tissue	2004	H	3.86
VAW-H03R_JMS04A02 / James River / James River mainstem from Reusens dam downstream to Business Route 29 (JM07).	5A	PCBs in Fish Tissue	2004	H	4.22
VAW-H03R_JMS06A02 / James River / James River mainstem from Holcomb Rock Dam downstream to Reusens Dam (JM07).	5A	PCBs in Fish Tissue	2006	H	8.26

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_JMS01A00 / James River / James River mainstem from the Wreck Island Creek confluence downstream to the watershed boundary at the mouth of Bent Creek (JM17).	5A	PCBs in Fish Tissue	2006	H	6.27
VAW-H05R_JMS02A00 / James River / James River mainstem from the confluence of Stonewall Creek to the Wreck Island Creek mouth on the James River (JM15).	5A	PCBs in Fish Tissue	2006	H	6.78
VAW-H05R_JMS02B14 / James River / James River from the confluence of Beck Creek to the confluence of Stonewall Creek (JM14).	5A	PCBs in Fish Tissue	2014	H	3.05
VAW-H05R_JMS03A00 / James River / James River mainstem from the confluence of Archer Creek downstream to the mouth of Beck Creek (JM13).	5A	PCBs in Fish Tissue	2006	H	7.71
VAW-H05R_JMS04A00 / James River / James River mainstem from the upper watershed boundary at the confluence of Williams Run downstream to the mouth of Archer Creek (JM13).	5A	PCBs in Fish Tissue	2004	H	2.68
VAW-H08R_JMS01A00 / James River / James River from Bent Creek to its confluence with the Tye River (JM20).	5A	PCBs in Fish Tissue	2006	H	9.68

James River, Slate River

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		183.21

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_FSG01A00 / Fishing Creek / Fishing Creek mainstem from its confluence with the James River upstream to its headwaters (JM11).	5A	Polychlorinated biphenyls (PCBs)	2020	H	6.32

James River, Slate River

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.32

James River, Slate River

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.32

Sources: Atmospheric Deposition - Toxics; Contaminated Sediments; Source Unknown

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James River Basin

Cause Group Code: **H03R-05-BAC** **Burton Creek**

Cause Location: Burton Creek from its headwaters to its mouth on Tomahawk Creek.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Burton Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.35017] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

One station is located within the 3.48 miles of impaired waters:

2-BUN001.64 (Off Fort Ave., Below Rub's Rest.) No new data since the 2016 data window where one of 12 samples was found in excess of the instantaneous criterion. One of 12 samples in excess of the instantaneous criterion within the 2014 data window. Ten of 24 samples in excess of the instantaneous criterion during the 2012 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_BUN01A06 / Burton Creek / Burton Creek from its headwaters to the confluence with Tomahawk Creek (JM10).	4A	Escherichia coli (E. coli)	2006	L	3.48

Burton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.48

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-05-BEN** **Burton Creek**

Cause Location: Burton Creek from its headwaters to its mouth on Tomahawk Creek.

Cause City/County: Lynchburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Burton Creek was listed for Aquatic Life Use impairment during the 2006 data window based on benthic macroinvertebrate community data collected at the following station.

2-BUN000.04 - (off Rhonda Rd near Tomahawk Cr. confluence) Bio impaired ('IM') during the 2022 data window from five VSCI Scores: Fall 49.85, S 22.78 (2019); Fall 58.19 (2018); Fall 40.8, S 42.55 (2015). The stream has an urban watershed characterized by unstable banks and fine sediment deposition resulting in poor habitat quality. Previous data window (2018) found Bio 'IM' from four VSCI scores (2011, 2015) averaging 41.8. Biologist noted during 2007 sampling that Burton Creek suffers from heavy algal growth in addition to fine sediments covering the stream bottom. Habitat assessment scores were low for bank stability and bank vegetative protection. An abundance of trash was noted in the stream at the time of sampling.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_BUN01A06 / Burton Creek / Burton Creek from its headwaters to the confluence with Tomahawk Creek (JM10).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.48

Burton Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.48

Sources: Source Unknown

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James River Basin

Cause Group Code: H03R-06-BAC Judith Creek

Cause Location: Judith Creek from its headwaters to the confluence with the James River.

Cause City/County: Bedford County; Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Judith Creek) received U.S. EPA approval on 11/4/07 [Fed. ID.35015] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

Two stations are located within the 11.1 miles of impaired waters: 2-JTH001.52 (Rt. 645 (Trents Ferry Road)) 2016 data window finds one of 12 samples in excess of the instantaneous criterion. One of 12 samples in excess of the instantaneous criterion and three of 27 samples in excess of the instantaneous criterion within the 2014 and 2012 data windows, respectively.

2-JTH006.53 (crossing of 761 & 647 just off 501 past Boonsboro) (2018 data window) Eight of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_JTH01A06 / Judith Creek / Judith Creek from its headwaters to the confluence with the James River (JM07).	4A	Escherichia coli (E. coli)	2006	L	11.09

Judith Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.09

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-06-BEN** **Judith Creek**

Cause Location: Judith Creek from its headwaters to the confluence with the James River.

Cause City/County: Bedford County; Lynchburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The entire length of Judith Creek is impaired for the Aquatic Life Use based on benthic macroinvertebrate community data collection.

2-JTH006.53 (crossing of 761 & 647 just off 501 past Boonsboro) Bio impaired ('IM') from four VSCI scores (2015, 2019) averaging 59.8 during the 2022 data window. Parts of banks were scoured and failing; sediment deposition was impacting habitat. Habitat scores indicate a high probability of stress to aquatic life from lack of available suitable habitat. Bio 'Reserve Judgement ('J') from four VSCI scores (2011, 2015) averaging 66.2 during the 2018 and 2020 data windows. This stream is small and has unstable banks with little vegetative protection. 2008 data was assessed as impaired. This station has shown some improvement in VSCI score. Further monitoring is required.

2-JTH001.52 (Rt. 645, Trents Ferry Rd.) - 2008-2010 Bio fully supporting ('FS').

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_JTH01A06 / Judith Creek / Judith Creek from its headwaters to the confluence with the James River (JM07).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	11.09

Judith Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.09

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H03R-07-BAC** **Tomahawk Creek**

Cause Location: Tomahawk Creek from its headwaters to its confluence with Burton Creek.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River Bacteria TMDL Study (Tomahawk Creek) received U.S. EPA approval on 11/4/07 [Fed. ID.35016] and SWCB approval on 12/04/07 for these 1996 and 2004 303(d) Listed waters for fecal coliform. These waters were incorporated in the E. coli TMDL Development for the James River and Tributaries near Lynchburg, VA located in the Counties of Amherst, Bedford, and Campbell and in the City of Lynchburg (EPA approved 9/27/17, SWCB approved 7/19/17) [TMDL IDs 68321,68326]. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. In 2019, new criterion states that E. coli bacteria shall not exceed a geometric mean of 126 counts/100ml and shall not have greater than a 10% excursion frequency of a statistical threshold value (STV) of 410 counts/100 ml, both in an assessment period of up to 90 days [9VAC25-260-170].

Two stations are located within the 6.06 miles of impaired waters: 2-THK001.31(Tomahawk Cr @ McConneville Rd) 2022 data window: E.coli impairment ('IM') carries. Four of 12 samples in excess of the instantaneous criterion during the 2016 data window.

2-THK002.33 (Tomahawk Cr. @ Graves Mill Rd.) 2022 data window: 'IM' carries. Two of 12 samples in excess of the instantaneous criterion during the 2016 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_THK01A06 / Tomahawk Creek / Tomahawk Creek from its headwaters to its confluence with Burton Creek (JM10).	4A	Escherichia coli (E. coli)	2006	L	6.06

Tomahawk Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.06

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-07-BEN** **Tomahawk Creek**

Cause Location: Tomahawk Creek from its headwaters to its confluence with Burton Creek.

Cause City/County: Lynchburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 2-THK000.03 - 2022 Cycle: Bio 'IM' from three VSCI score of 59 (F 2018); Fall 61.93, Spring 33.02 (2019). 2007,2009 Bio - IM (Tomahawk-off Rhonda Rd near conf-burton) Tomahawk Creek is an urban stream with highly embedded substrate and unstable banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_THK01A06 / Tomahawk Creek / Tomahawk Creek from its headwaters to its confluence with Burton Creek (JM10).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	6.06

Tomahawk Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.06

Sources: Source Unknown

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James River Basin

Cause Group Code: **H03R-08-BAC** **Williams Run**

Cause Location: Williams Run from its confluence with the James River upstream to it headwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:35014, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35014] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

One station is located within the 6.49 miles of impaired waters. 2-WLM002.69 (Ambient)(Williams Run at Route 622 Bridge)

2-WLM002.69 (Ambient)(Williams Run at Route 622 Bridge) 2022: IM carries 2016:Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_WLM01A02 / Williams Run / Williams Run from its confluence with the James River upstream to it headwaters (JM11).	4A	Escherichia coli (E. coli)	2006	L	6.49

Williams Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.49

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-09-BAC** **Dreaming Creek**

Cause Location: Dreaming Creek from its headwaters to its mouth on Burton Creek

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:35017, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35017] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35017, 11/04/2007

One station is located within the 5.04 miles of impaired waters. 2-DMG000.58 (Ambient, Lynchburg Area TMDL)(Dreaming Creek at Graves Mill)

2-DMG000.58 (Ambient, Lynchburg Area TMDL)(Dreaming Creek at Graves Mill) 2022: IM carries. 2016: Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_DMG01A08 / Dreaming Creek / Dreaming Creek from its headwaters to its mouth on Burton Creek (JM10).	4A	Escherichia coli (E. coli)	2008	L	5.04

Dreaming Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.04

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H03R-10-BAC** **Burton Creek, Unnamed Tributary**

Cause Location: Burton Creek, UT from its headwaters to its mouth on Burton Creek.

Cause City/County: Lynchburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:35017, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35017] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35017, 11/04/2007

One station is located within the 3.47 miles of impaired waters. 2-XXA001.43 (Lynchburg Area TMDL)(UT Burton Creek at Harvard Street)

2-XXA001.43 (Lynchburg Area TMDL)(UT Burton Creek at Harvard Street) 2022: IM carries. 2016: Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H03R_XXA01A08 / Burton Creek, Unnamed Tributary / Burton Creek, UT from its headwaters to its mouth on Burton Creek (JM10).	4A	Escherichia coli (E. coli)	2008	L	3.47

Burton Creek, Unnamed Tributary

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.47

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H04R-01-BAC** **Graham Creek**

Cause Location: Graham Creek mainstem from the Graham Creek Reservoir backwaters upstream to its headwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: NESTED 2014:35014, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35014] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

One station is located within the 6.49 miles of impaired waters. 2-GRA002.89 (Ambient)(Route 652 Bridge)

2-GRA002.89 (Ambient)(Route 652 Bridge) Two of three samples of fecal coliform in excess of criterion. No new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H04R_GRA02A02 / Graham Creek / Graham Creek mainstem from the Graham Creek Reservoir backwaters upstream to its headwaters (JM08).	4A	Fecal Coliform	2002	L	5.59

Graham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			5.59

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H04R-02-BAC** Harris Creek

Cause Location: Harris Creek from its confluence with Falling Rock Creek to just upstream of the Amherst County USA secondary water intake.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:35014, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35014] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

One station is located within the 8.33 miles of impaired waters. 2-HAZ010.92 (Ambient)(2018)(Harris Creek at Route 657)

2-HAZ010.92 (Ambient)(2018)(Harris Creek at Route 657) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H04R_HAZ02A08 / Harris Creek / Harris Creek from its confluence with Falling Rock Creek to just upstream of the Amherst County USA secondary water intake (JM08).	4A	Escherichia coli (E. coli)	2008	L	8.33

Harris Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.33

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H05R-01-BAC** **James River**

Cause Location: The confluence with Wreck Island Creek to Tye River

Cause City/County: Amherst County; Appomattox County; Buckingham County; Campbell County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2-JMS229.14 (Ambient, Trend)(2018)(Route 60 at Bent Creek) E. coli - 2022: E.coli 4/34 in the Statistical Threshold Value, 1/1 Exceedance rate in the Geomean. 1/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_JMS01A00 / James River / James River mainstem from the Wreck Island Creek confluence downstream to the watershed boundary at the mouth of Bent Creek (JM17).	5A	Escherichia coli (E. coli)	2010	L	6.27
VAW-H08R_JMS01A00 / James River / James River from Bent Creek to its confluence with the Tye River (JM20).	5A	Escherichia coli (E. coli)	2010	L	9.68

James River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			15.95

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H05R-03-BAC Beaver Creek

Cause Location: Beaver Creek mainstem from its mouth on the James River upstream to an unnamed tributaries mouth at the Rt. 501 Bridge.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:
 2-BCR000.20 (Ambient) E. coli - (2022IR) 2/12 Exceedance Rate (2020IR) 3/12 Exceedance Rate (2010IR) 3/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_BCR01A00 / Beaver Creek / Beaver Creek mainstem from its mouth on the James River upstream to an unnamed tributaries mouth at the Rt. 501 Bridge (JM12).	4A	Escherichia coli (E. coli)	2004	L	8.68

Beaver Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.68

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H05R-04-BAC** **Opossum Creek**

Cause Location: Opossum Creek mainstem from its mouth on the James River upstream to the Rt. 660 crossing.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35014, 12/04/2007

The James River Bacteria TMDL Study received U.S. EPA approval on 11/4/2007 [Fed. ID.35014] and SWCB approval on 12/04/2007 for these 1996 and 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35014, 11/04/2007

One station is located within the 3.17 miles of impaired waters. 2-OPP000.16 (Ambient)(Route 460 Bridge - Campbell County)

2-OPP000.16 (Ambient)(Route 460 Bridge - Campbell County) 2022: IM carries. 2016:Three of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_OPP01A00 / Opossum Creek / Opossum Creek mainstem from its mouth on the James River upstream to the Rt. 660 crossing (JM11).	4A	Escherichia coli (E. coli)	2010	L	3.17

Opossum Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.17

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H05R-05-BAC** **Stonewall Creek**

Cause Location: Stonewall Creek from its headwaters to its mouth on the James River

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Bent Creek, North Creek, Stonewall Creek Walkers Ford Creek, and Wreck Island Creek Bacteria TMDL Study (Stonewall Creek) received U.S. EPA approval on 9/30/2013 [Fed. ID.53774] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53774, 9/30/2013

One station is located within the 9.4 miles of impaired waters. 2-STW001.72 (Ambient) (Stonewall Cr @ rt 605)

2-STW001.72 (Ambient) (Stonewall Cr @ rt 605) 2022: Insufficient Information- No STV exceedances but insufficient data to analyze geomean; IM carries. 2020:Three of 12 samples in excess of the instantaneous criterion. 2016:Six of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_STW01A08 / Stonewall Creek / Stonewall Creek from its headwaters to its mouth on the James River (JM14).	4A	Escherichia coli (E. coli)	2008	L	9.4

Stonewall Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.4

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H05R-06-BAC** Little Beaver Creek

Cause Location: Little Beaver Creek from its headwaters to its mouth on the James River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID: 2-LTJ000.16 (James River TMDL Site) (Little Beaver Creek @ Rte. 662) 2016: E. coli - 3/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_LTJ01A10 / Little Beaver Creek / Little Beaver Creek from its headwaters to its mouth on the Beaver Creek (JM12).	4A	Escherichia coli (E. coli)	2010	L	7.13

Little Beaver Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.13

Sources: Combined Sewer Overflows; Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H05R-08-BAC** Beck Creek

Cause Location: Beck Creek from the confluence of the North and South Forks of Stovall Creek to its mouth.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2-BEK000.10 (Ambient) (Beck Creek, Route 622 Galtsmill Road) No additional data since the 2012 data window.

E. coli - 6/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_BEK01A06 / Beck Creek / Beck Creek from the confluence of the North and South Forks of Stovall Creek to its mouth (JM14).	5A	Escherichia coli (E. coli)	2012	L	6.28

Beck Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.28

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H05R-09-BAC** Partridge Creek

Cause Location: Partridge Creek from its headwaters to the mouth.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2-PDG000.12 (Ambient) (Partridge Creek, Route 622 Galtsmill) No new data since 2012 data window.

E. coli - 5/15 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_PDG01A06 / Partridge Creek / Partridge Creek from its headwaters to the mouth.	5A	Escherichia coli (E. coli)	2012	L	10.41

Partridge Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.41

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H05R-10-BAC** Archer Creek

Cause Location: Archer Creek from its headwaters to its mouth on the James River

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2BACH000.09 (Ambient)(Route 609)

E. coli - 2016 data window: 5/12 Exceedance Rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_ACH01A16 / Archer Creek / Archer Creek from its headwaters to its mouth on the James River (JM13).	5A	Escherichia coli (E. coli)	2016	L	7.47

Archer Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.47

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H05R-11-BAC** Allens Creek

Cause Location: Allens Creek from its headwaters to its mouth on the James River

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2BANC000.09 (Ambient)(Route 622)

E. coli - 2016 data window: 5/12 Exceedance Rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H05R_ANC01A16 / Allens Creek / Allens Creek from its headwaters to the mouth on the James River (JM17).	5A	Escherichia coli (E. coli)	2016	L	7.18

Allens Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.18

Sources: Source Unknown

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James River Basin

Cause Group Code: **H06R-01-BAC** **Wreck Island Creek**

Cause Location: Wreck Island Creek from its headwaters to its mouth on the James River.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Bent Creek, North Creek, Stonewall Creek Walkers Ford Creek, and Wreck Island Creek Bacteria TMDL Study (Wreck Island Creek) received U.S. EPA approval on 9/30/2013 [Fed. ID.53771] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53771, 9/30/2013

Two stations are located within the 19.55 miles of impaired waters.

2-WIC000.40 (Ambient) (Route 605 Bridge, near Riverville)(2018) and 2-WIC012.60 (James River TMDL Monitoring) (Wreck Island Ck @ rt 613)

2-WIC000.40 (Ambient)(Route 605 Bridge, near Riverville) (2022) 2 out of 12 in excess of the Statistical Threshold Value, Insufficient information, IM carries. (2020/2018) Three of 12 samples in excess of the instantaneous criterion; excursions range from 345 to greater than 17,000 cfu/100 ml.

2-WIC012.60 (James River TMDL Monitoring) (Wreck Island Ck @ rt 613) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H06R_WIC01A00 / Wreck Island Creek / Wreck Island Creek mainstem from its mouth on the James River to its confluence with Little Wreck Island Creek.	4A	Escherichia coli (E. coli)	2008	L	9.78
VAW-H06R_WIC02A10 / Wreck Island Creek / Wreck Island Creek from the confluence with Little Wreck Island Creek to its headwaters (JM16).	4A	Escherichia coli (E. coli)	2010	L	9.77

Wreck Island Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.55

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H06R-01-BEN** Phelps Branch

Cause Location: Phelps Branch from the State Route 659 crossing to its mouth on North Creek.

Cause City/County: Appomattox County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Phelps Branch Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 8/16/2013. [Fed. ID.53640] and SWCB approval on 9/30/2013 for this 2010 303(d) Listed impairment to the benthic community.

Station IDs:

2-PLP002.08 (2008 Bio) (100 m downstream of route 659)

IM

Incised stream. Past cattle access likely, though they are currently fenced out of stream. Good riffles but algae covered most rocks. High rate of sediment deposition.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H06R_PLP01A08 / Phelps Branch / Phelps Branch from its headwaters to its mouth on North Creek (JM16).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	2.21

Phelps Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.21

Sources: Clean Sediments

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H06R-02-BAC** North Creek

Cause Location: North Creek from its headwaters to its confluence with Wreck Island Creek.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Bent Creek, North Creek, Stonewall Creek Walkers Ford Creek, and Wreck Island Creek Bacteria TMDL Study (North Creek) received U.S. EPA approval on 9/30/2013 [Fed. ID.53772] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53772, 09/30/2013

One station is located within the 5.87 miles of impaired waters. 2-NOT001.59 (James River TMDL Monitoring) (North Creek @ Rt. 660).

2-NOT001.59 (James River TMDL Monitoring) (North Creek @ Rt. 660) Ten of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H06R_NOT01A10 / North Creek / North Creek from its headwaters to its confluence with Wreck Island Creek (JM16).	4A	Escherichia coli (E. coli)	2010	L	5.88

North Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.88

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H07R-01-BAC** **Bent Creek**

Cause Location: Bent Creek mainstem from its mouth on the James River upstream to its headwaters.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Bent Creek, North Creek, Stonewall Creek Walkers Ford Creek, and Wreck Island Creek Bacteria TMDL Study (Bent Creek) received U.S. EPA approval on 9/30/2013 [Fed. ID.53773] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53773,09/30/2013

One station is located within the 13.82 miles of impaired waters. 2-BTC000.16 (Ambient) (Off Route 26, near confluence with James)

2-BTC000.16 (Ambient)(2018) ((Off Route 26, near confluence with James) -
 2022: Three of 12 samples in excess of the Statistical Threshold Value. 2020: Five of 12 samples in excess of the instantaneous criterion. 2018: Two of 12 samples in excess of the instantaneous criterion. 2016: Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H07R_BTC01A00 / Bent Creek / Bent Creek mainstem from its mouth on the James River upstream to its headwaters (JM18).	4A	Escherichia coli (E. coli)	2008	L	13.83

Bent Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.83

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H08R-01-BAC** Davids Creek

Cause Location: David Creek from the confluence with Stevens Run to the mouth.

Cause City/County: Appomattox County; Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID: 2-DVD000.23 (Ambient)(Davids Creek, Route 605) 2018: E. coli - 5/12 Exceedance Rate.
 2020: E. coli - 7/12 Exceedance Rate. 2018: E. coli - 7/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H08R_DVD01A00 / David Creek / David Creek from the confluence with Stevens Run to the mouth (JM19).	5A	Escherichia coli (E. coli)	2012	L	5.18

Davids Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.18

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H09R-01-BEN Montebello Spring Branch

Cause Location: Montebello Spring Branch from the spring downstream to its confluence with Mill Creek. (Start Mile: .13 End Mile: 0.00 Total Impaired Size: .13 Miles)

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to a severely impaired benthic assessment in 1998 at station 2-MSB000.01. No new data in the 2022 cycle. Initial Listing Date: 1998. This impairment was included in the EPA approved TMDL for Trout Farm watersheds.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_MSB01A00 / Montebello Spring Branch / Montebello Spring Branch from the spring downstream to its confluence with Mill Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.13

Montebello Spring Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.13

Sources: Aquaculture (Permitted); Source Unknown

Virginia Department of Environmental Quality
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James River Basin

Cause Group Code: H09R-01-PH Montebello Spring Branch

Cause Location: Montebello Spring Branch from the spring downstream to its confluence with Mill Creek. (Start Mile: .13 End Mile: 0.00 Total Impaired Size: .13 Miles)

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 2-XXM000.01 (2 excursions of 3 samples for pH in 2008). There was no new data collected at this station in the 2022 cycle. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_MSB01A00 / Montebello Spring Branch / Montebello Spring Branch from the spring downstream to its confluence with Mill Creek.	5A	pH	2004	L	0.13

Montebello Spring Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.13

Sources: Aquaculture (Permitted); Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H09R-02-BAC** **Hat Creek**

Cause Location: Hat Creek from the headwaters downstream to its confluence with the Tye River. (Start Mile: 9.52 End Mile: 0.00 Total Impaired Size: 9.52 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 2-HAT000.14 (2022 cycle, new WQS: remains impaired with two or more STV hits in the same 90-day period with less than 10 samples). Initial Listing Date: 2004. This impairment is included in the EPA Approved Tye River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_HAT01A04 / Hat Creek / Hat Creek from the headwaters downstream to its confluence with the Tye River.	4A	Escherichia coli (E. coli)	2010	L	9.52

Hat Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.52

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H09R-02-BEN** **Hat Creek**

Cause Location: Hat Creek from the headwaters downstream to its confluence with the Tye River. (Start Mile: 9.52 End Mile: 0.00 Total Impaired Size: 9.52 Miles)

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-HAT000.14 (Impaired for VSCI). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_HAT01A04 / Hat Creek / Hat Creek from the headwaters downstream to its confluence with the Tye River.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	9.52

Hat Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.52

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H09R-03-BAC** **Tye River**

Cause Location: Tye River from its confluence with Hat Creek downstream to its confluence with the James River.

Cause City/County: Amherst County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 2-TYE020.67 (2022 new WQS-Impaired with a geomean exceedance in any 90-day period); 2-TYE008.77 (2022 new WQS-Impaired with two or more STV hits in the same 90-day period with less than 10 samples); and 2-TYE000.30 (2022 new WQS- Impaired- 2 STV hits in the same 90-day period with less than 10 samples). Initial Listing Date: 2004. This impairment is included in the EPA Approved Tye River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_TYE01A00 / Tye River / Tye River from its confluence with Piney River downstream to its confluence with the Buffalo River.	4A	Escherichia coli (E. coli)	2008	L	8.24
VAV-H09R_TYE02A00 / Tye River / Tye River from its confluence with Hat Creek downstream to its confluence with Piney River.	4A	Escherichia coli (E. coli)	2006	L	8.40
VAV-H13R_TYE01A00 / Tye River / Tye River from its confluence with the Buffalo River downstream to its confluence with the James River.	4A	Escherichia coli (E. coli)	2022	L	7.65

Tye River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			24.29

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H09R-04-TEMP** Tye River

Cause Location: Tye River from its confluence with North & South Fork Tye River downstream to its confluence with Silver Creek.

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the Class V Temperature WQS at station: 2-TYE032.15 (2 exceedances of 11 samples). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_TYE04A04 / Tye River / Tye River from its confluence with North & South Fork Tye River downstream to its confluence with Silver Creek.	5A	Temperature	2022	L	4.1

Tye River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.1

Sources: Source Unknown

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James River Basin

Cause Group Code: **H09R-05-BEN** **Black Creek**

Cause Location: Black Creek from the headwaters downstream to its confluence with the Tye River. (Start Mile: 1.96 End Mile: 0.00 Total Impaired Size: 1.96 Miles)

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station 2-BKC001.43 and 2-BKC001.55 (Impaired for VSCI), no new data 2022. Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H09R_BKC01A14 / Black Creek / Black Creek from the headwaters downstream to its confluence with the Tye River.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	1.96

Black Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.96

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H10R-01-BAC** **Piney River**

Cause Location: Piney River from a point 13.40 miles upstream of the Tye River downstream to its confluence with the Tye River. (Start Mile: 13.40 End Mile: 0.00 Total Impaired Size: 13.40 Miles)

Cause City/County: Amherst County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 2-PNY005.29 listing station: 2022 cycle- two STV hits in the same 90-day period with less than 10 samples (new bacteria WQS analysis) and 2-PNY003.06 2020 cycle- three exceedances out of 12 samples.. Initial Listing Date: 2008 This segment was lengthened in 2010. This segment is included in the EPA Approved Tye River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H10R_PNY01A00 / Piney River / Piney River from the USGS gaging station downstream to its confluence with the Tye River.	4A	Escherichia coli (E. coli)	2008	L	5.29
VAV-H10R_PNY02A00 / Piney River / Piney River from its confluence with Indian Creek downstream to the USGS gaging station.	4A	Escherichia coli (E. coli)	2008	L	1.61
VAV-H10R_PNY03A04 / Piney River / Piney River from a point 13.4 miles upstream of the Tye River downstream to its confluence with Indian Creek.	4A	Escherichia coli (E. coli)	2010	L	6.50

Piney River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.4

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H11L-01-BAC** **Stonehouse Creek Reservoir**

Cause Location: Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

2-SHS001.00 (Lake Station) 2022: One STV exceedances but insufficient data to analyze geomean. Impairment carries. 2020: E.coli 3/14 Exceedance Rate Note: The initial listing date was in 2020 based on the instantaneous 235 WQS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_SHS01A02 / Stonehouse Creek Reservoir / Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.	5A	Escherichia coli (E. coli)	2020	L	33.54

Stonehouse Creek Reservoir

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		33.54	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H11L-01-DO** **Stonehouse Creek Reservoir**

Cause Location: Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID:

2-SHS001.00 (Lake Station) 2022:DO - 5/43 Exceedance Rate 2020: DO - 4/35 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_SHS01A02 / Stonehouse Creek Reservoir / Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.	5A	Dissolved Oxygen	2008	L	33.54

Stonehouse Creek Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		33.54	

Sources: Dam or Impoundment; Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H11L-01-PH** **Stonehouse Creek Reservoir**

Cause Location: Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Station ID:

2-SHS001.00 (Lake Station) 2022: pH - 7/39 Exceedance Rate 2020: pH - 7/33 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_SHS01A02 / Stonehouse Creek Reservoir / Stonehouse Creek Reservoir from its impounding structure upstream to its backwaters.	5A	pH	2006	L	33.54

Stonehouse Creek Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		33.54	

Sources: Dam or Impoundment; Source Unknown

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James River Basin

Cause Group Code: **H11L-02-BAC Thrashers Creek Reservoir**

Cause Location: Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID: 2-TRH000.40 2022: E.coli - Two STV exceedances but insufficient data to analyze geomean. Impairment carries. 2020: E.coli 2/14 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_TRH01A02 / Thrashers Creek Reservoir / Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.	5A	Escherichia coli (E. coli)	2020	L	31.95

Thrashers Creek Reservoir

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		31.95	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H11L-02-CHLA** **Thrashers Creek Reservoir**

Cause Location: Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: Station ID: 2-TRH000.40 (Lake Station) 2022: Chlorophyll a - 2/2 Samples (90% Calculated over 2 Sample Yrs) 2020: Chlorophyll a - 2/2 Samples (90% Calculated over 2 Sample Yrs)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_TRH01A02 / Thrashers Creek Reservoir / Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.	5A	Chlorophyll-a	2014	L	31.95

Thrashers Creek Reservoir

Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		31.95	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H11L-02-PH** **Thrashers Creek Reservoir**

Cause Location: Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Station ID: 2-TRH000.40 (Lake Station)

2022: pH - 9/41 Exceedance Rate 2022: pH - 8/37 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_TRH01A02 / Thrashers Creek Reservoir / Thrashers Creek Reservoir from its impounding structure upstream to its backwaters.	5A	pH	2006	L	31.95

Thrashers Creek Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		31.95	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H11L-03-PH** Mill Creek Reservoir

Cause Location: Mill Creek Reservoir

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Station ID:

2-MIN000.98 (Mill Cr Reservoir- Main Lake site @ dam) 2022: pH 8/37 exceedance rate 2022: pH 8/34 exceedance rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11L_MIN01A06 / Mill Creek Reservoir / Mill Creek Reservoir	5A	pH	2014	L	186.41

Mill Creek Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		186.41	

Sources: Dam or Impoundment; Source Unknown

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James River Basin

Cause Group Code: **H11R-01-BAC** **Buffalo River**

Cause Location: Buffalo River from the confluence of Long Branch to the confluence with Rutledge Creek

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Buffalo River) received U.S. EPA approval on 9/20/2013 [Fed. ID.53766] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53766, 9/20/2013

Five stations are located within the 17.78 miles of impaired waters. 2-BUF011.95 (TMDL) (Rt 739 Bridge Boxwood Farm Road), 2-BUF013.53 (Ambient) (Route 29 Bridge), 2-BUF023.21 (Ambient)(Route 778 Bridge, NW of Amherst) , 2-BUF026.58 (TMDL)(2018)(At Route 610), and 2-BUF026.43 (TMDL)(2018) (Buffalo River @ Rt 60)

2-BUF011.95 (TMDL)(2018) (Rt 739 Bridge Boxwood Farm Road) - No new data since the 2014 data window: Four of 12 samples in excess of the instantaneous criterion.

2-BUF013.53 (Ambient) (Route 29 Bridge) - 2022: Insufficient Information - zero of 12 samples in excess of the Statistical Threshold Value and not enough samples to analyze geomean, IM carries. 2020: Two of 12 samples in excess of the instantaneous criterion. 2016: Two of 12 samples in excess of the instantaneous criterion. 2014: Two of 12 samples in excess of the instantaneous criterion. 2012: Two of 12 samples in excess of the instantaneous criterion.

2-BUF023.21 (Ambient)(Route 778 Bridge, NW of Amherst)- No new data since 2012 data window: Five of 27 samples in excess of the instantaneous criterion.

2-BUF026.58 (TMDL)(2018)(At Route 610) - No new data since 2014 data window: Seven of 12 samples in excess of the instantaneous criterion.

2-BUF026.43 (TMDL)(2018) (Buffalo River @ Rt 60) - 2022: Five of 12 samples in excess of the Statistical Threshold Value. 2020: Six of 12 samples in excess of the instantaneous criterion. 2018: Nine of 12 samples in excess of the instantaneous criterion. 2016: Nine of 12 samples in excess of the instantaneous criterion. 2014: Nine of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11R_BUF01A00 / Buffalo River / Buffalo River mainstem from the watershed boundary at the Rutledge Creek mouth upstream to the Town of Amherst WTP intake (JM29).	4A	Escherichia coli (E. coli)	2010	L	4.59
VAW-H11R_BUF02A00 / Buffalo River / Buffalo River mainstem from the Town of Amherst WTP intake upstream five miles, the WQS public water supply (PWS) designation (JM29).	4A	Escherichia coli (E. coli)	2010	L	5.26
VAW-H11R_BUF03A00 / Buffalo River / Buffalo River mainstem from the upstream end of the WQS public water supply (PWS) designation upstream to the mouth of Stonehouse Creek (JM29).	4A	Escherichia coli (E. coli)	2006	L	3.67

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11R_BUF03B14 / Buffalo River / Buffalo River from its confluence with Stonehouse Creek to its confluence with Franklin Creek (JM28).	4A	Escherichia coli (E. coli)	2014	L	2.17
VAW-H11R_BUF04A08 / Buffalo River / Buffalo River from its confluence with Long Branch downstream to its confluence with Franklin Creek.	4A	Escherichia coli (E. coli)	2014	L	2.09

Buffalo River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.78

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H11R-01-BEN** Long Branch

Cause Location: Long Branch from its headwaters to the mouth at Buffalo River

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Long Branch and Buffalo River (Long Branch) Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 11/21/2013. [Fed. ID.55242] and SWCB approval on 3/28/2014 for these 2008 303(d) Listed impairments to the benthic community.

2-LOB000.37 (2001 Probabilistic Monitoring)(Amherst County Prop. Off Rt. 60)

IM - Seasonal difference noted for biological sampling.

2009-2012 Bio TMDL Sampling finds two Virginia Stream Condition Index (VSCI) surveys: 47.8 (Spring 2011) and 63.3 (Fall 2011). This stream has embedded riffles, noticeable sediment deposition, and is bordered on one side by a cow pasture.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11R_LOB01A04 / Long Branch / Long Branch from its headwaters to the mouth at Buffalo River (JM28).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	3.6

Long Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.6

Sources: Clean Sediments

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James River Basin

Cause Group Code: **H11R-02-BAC** Mill Creek

Cause Location: Mill Creek from its headwaters to the backwaters of Mill Creek Reservoir.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Mill Creek) received U.S. EPA approval on 9/20/2013 [Fed. ID.53767] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53767, 9/20/2013

One station is located within the 4.19 miles of impaired waters. 2-MIN002.25 (Citmon Follow-up) (Mill Creek @ rt 778 Lowesville Rd)

2-MIN002.25 (Citmon Follow-up)(Mill Creek @ rt 778 Lowesville Rd) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11R_MIN01A08 / Mill Creek / Mill Creek from its headwaters to the backwaters of Mill Creek Reservoir.	4A	Escherichia coli (E. coli)	2008	L	4.16

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.16

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H11R-02-BEN** **Buffalo River**

Cause Location: Buffalo River from its confluence with Long Branch downstream to its confluence with Franklin Creek.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Long Branch and Buffalo River (Buffalo River) Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 11/21/2013. [Fed. ID.55241] and SWCB approval on 3/28/20104 for these 2008 303(d) Listed impairments to the benthic community.

Station ID:

2-BUF026.43 (Bio)(Buffalo River @ Rt 60) - No additional data since the 2014 data window:

IM - Three 2011 Virginia Stream Condition Index (VSCI) surveys average 54.9. This stream has good riffles but algae are dominant, indicating potential nutrient enrichment. It also has excessive sediment deposition, likely due to its location in an agricultural watershed with pasture adjacent to the left bank.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H11R_BUF04A08 / Buffalo River / Buffalo River from its confluence with Long Branch downstream to its confluence with Franklin Creek.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.09

Buffalo River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.09

Sources: Clean Sediments

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James River Basin

Cause Group Code: **H12R-01-BAC** Rutledge Creek

Cause Location: Rutledge Creek mainstem from the Town of Amherst outfall downstream to its mouth on the Buffalo River.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Rutledge Creek) received U.S. EPA approval on 9/20/2013 [Fed. ID.53764] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53764, 9/20/2013

One station is located within the 3.33 miles of impaired waters.2-RTD003.08 (Ambient)(2018) (Below Amherst STP Outfall)

2-RTD003.08 (Ambient)(2018)(Below Amherst STP Outfall) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H12R_RTD01A00 / Rutledge Creek / Rutledge Creek mainstem from the Town of Amherst outfall downstream to its mouth on the Buffalo River (JM30).	4A	Escherichia coli (E. coli)	2012	L	3.33

Rutledge Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.33

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H12R-01-BEN** Rutledge Creek

Cause Location: Rutledge Creek mainstem from the Town of Amherst outfall downstream to its mouth on the Buffalo River.

Cause City/County: Amherst County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

2-RTD003.08 (Bio)(Below Amherst STP Outfall)

IM - 2007/2011 Bio

This site was highly embedded with unstable banks and poor bank vegetative protection. Available habitat was covered with periphyton and filamentous algae.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H12R_RTD01A00 / Rutledge Creek / Rutledge Creek mainstem from the Town of Amherst outfall downstream to its mouth on the Buffalo River (JM30).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.33

Rutledge Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.33

Sources: Source Unknown

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James River Basin

Cause Group Code: **H12R-03-BAC** **Buffalo River**

Cause Location: Rocky Creek to its mouth on the Tye River.

Cause City/County: Amherst County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Buffalo River) received U.S. EPA approval on 9/20/2013 [Fed. ID.55241] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 55241, 9/20/2013

One station is located within the 7.81 miles of impaired waters. 2-BUF002.10 (Ambient)(Route 657 at Gaging Station)

2-BUF002.10 (Ambient)(Route 657 at Gaging Station) - 2022: 16 of 41 samples in excess of the Statistical Threshold Value. 2020: 10 of 42 samples in excess of the instantaneous criterion. 2018: 13 of 42 samples in excess of the instantaneous criterion.

Flow adjusted trend analysis (2016) reports a degrading trend in E.coli data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H12R_BUF01A00 / Buffalo River / Buffalo River mainstem from its mouth on the Tye River upstream to a low water dam near Route 657 (JM31).	4A	Escherichia coli (E. coli)	2008	L	2.34
VAW-H12R_BUF02A02 / Buffalo River / Buffalo River from Rocky Creek to the dam at the Route 657 bridge (JM31).	4A	Escherichia coli (E. coli)	2008	L	5.47

Buffalo River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.81

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H12R-04-BAC Turner Creek

Cause Location: Turner Creek from its headwaters to the mouth on the Buffalo River

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Turner Creek) received U.S. EPA approval on 9/20/2013 [Fed. ID.53765] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53765, 9/20/2013

One station is located within the 4.49 miles of impaired waters.2-TNR000.25 (Ambient) (Turner Cr @ rt 739 Boxwood Farm Rd)

2-TNR000.25 (Ambient) (Turner Cr @ rt 739 Boxwood Farm Rd)- :2018: Four of 12 samples in excess of the instantaneous criterion. 2016: Eight of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H12R_TNR01A08 / Turner Creek / Turner Creek from its headwaters to the mouth on the Buffalo River (JM29).	4A	Escherichia coli (E. coli)	2008	L	4.49

Turner Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.49

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H12R-05-BAC** Rutledge Creek

Cause Location: Rutledge Creek from its confluence with Higginbottom Creek to its headwaters.

Cause City/County: Amherst County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 53764, 9/20/2013

The Hat Creek, Piney River, Rucker Run, Mill Creek, Rutledge Creek, Turner Creek, Buffalo River, and Tye River Bacteria TMDL Study (Rutledge Creek) received U.S. EPA approval on 9/20/2013 [Fed. ID.53764] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2008 and 2010 303(d) Listed water for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 53764, 9/20/2013

One station is located within the 4.17 miles of impaired waters. 2-RTD007.61 (TMDL Station)(2018) (Rutledge Creek at Sweetbriar entrance)

2-RTD007.61 (TMDL Station)(2018)(Rutledge Creek at Sweetbriar entrance) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-H12R_RTD03A14 / Rutledge Creek / Rutledge Creek from its confluence with Higginbottom Creek to its headwaters (JM30).	4A	Escherichia coli (E. coli)	2014	L	4.17

Rutledge Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.17

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H13L-02-PH** Lake Nelson

Cause Location: Lake Nelson

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This lake is impaired due to excursions of the pH WQS at station: 2-XLU000.10 (15 excursions of 34 samples = 44%)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H13L_XLU01A04 / Lake Nelson / Lake Nelson	5A	pH	2018	L	40.62

Lake Nelson

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		40.62	

Sources: Non-Point Source

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James River Basin

Cause Group Code: H13R-01-BAC Rucker Run

Cause Location: Rucker Run from the headwaters downstream to its confluence with the Tye River. (Start Mile: 18.36 End Mile: 0.00 Total Impaired Size: 18.36 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due to exceedances of the e-coli bacteria WQS at station: 2-RKR000.02 (new WQS analysis- two or more STV hits in the same 90-day period with less than 10 samples.). Initial Listing Date: 2004. This segment is included in the EPA Approved Tye River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H13R_RKR01A00 / Rucker Run / Rucker Run from the headwaters downstream to its confluence with the Tye River.	4A	Escherichia coli (E. coli)	2012	L	18.36

Rucker Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.36

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H13R-02-BAC** **Bobs Creek**

Cause Location: Bobs Creek from the headwaters downstream to its confluence with Rucker Run. (Start Mile 4.35
 End Mile: 0.00 Total Impaired Size: 4.35 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2BBOB000.19.
 No new data in 2022. Initial Listing Date: 2014 This segment is included in the EPA Approved Tye River Bacteria
 TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H13R_BOB01A10 / Bobs Creek / Bobs Creek from the headwaters downstream to its confluence with Rucker Run.	4A	Escherichia coli (E. coli)	2014	L	4.35

Bobs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.35

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H14R-01-BEN** Mallorys Creek

Cause Location: Mallorys Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 8.75 End Mile: 0.00 Total Impaired Size: 8.75 Miles)

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: (2-MLY005.39- Impaired for VSCI). No new data 2022. Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H14R_MLY01A14 / Mallorys Creek / Mallorys Creek from the headwaters downstream to its confluence with the James River.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	8.75

Mallorys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.75

Sources: Source Unknown

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James River Basin

Cause Group Code: **H14R-01-HG** **James River**

Cause Location: James River from its confluence with the Tye River downstream to its confluence with the Rockfish River. (Start Mile: 219.47 End Mile: 200.9 Total Impaired Size: 18.57 Miles)

Cause City/County: Buckingham County; Nelson County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This segment is impaired due to exceedances of mercury in fish tissue at station: 2-JMS213.00 (Hg is in two species). No new data in 2022. 2005 FT/Sediment: Hg (2 species). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H14R_JMS01A18 / James River / James River from its confluence with Bishop Creek downstream to its confluence with the Rockfish River.	5A	Mercury in Fish Tissue	2010	L	13.49
VAV-H14R_JMS02A18 / James River / James River from its confluence with the Tye River downstream to its confluence with Bishop Creek.	5A	Mercury in Fish Tissue	2010	L	5.09

James River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		18.58

Sources: Source Unknown

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James River Basin

Cause Group Code: H15R-01-BAC South Fork Rockfish River

Cause Location: South Fork Rockfish River from the headwaters downstream to its confluence with the Rockfish River. (Start Mile: 11.55 End Mile: 0.00 Total Impaired Size: 11.55 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-RFS001.00 (33 exceedances out of 72 samples in 2020), no new data 2022. Initial Listing Date: 2004. This segment is included in the EPA Approved South Fork Rockfish River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_RFS01A00 / Rockfish River South Fork / South Fork Rockfish River from a point approximately 8 miles upstream of the Rockfish River downstream to its confluence with the Rockfish River.	4A	Escherichia coli (E. coli)	2008	L	7.82
VAV-H15R_RFS02A10 / Rockfish River South Fork / South Fork Rockfish River from the headwaters downstream to a point approximately 8 miles upstream of the Rockfish River.	4A	Escherichia coli (E. coli)	2008	L	3.74

South Fork Rockfish River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.56

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H15R-02-BAC North Fork Rockfish River

Cause Location: North Fork Rockfish River from the headwaters downstream to its confluence with the Rockfish River. (Start Mile: 7.18 End Mile: 0.00 Total Impaired Size: 7.18 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-RFN000.52 (2020 cycle-28 exceedances of 72 samples for e-coli). No new data 2022. Initial Listing Date: 2006. This segment is included in the EPA Approved North Fork Rockfish River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_RFN01A00 / Rockfish River North Fork / North Fork Rockfish River from the headwaters downstream to its confluence with the Rockfish River.	4A	Escherichia coli (E. coli)	2006	L	7.18

North Fork Rockfish River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.18

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H15R-03-BAC** **Taylor Creek**

Cause Location: Taylor Creek from the headwaters downstream to its confluence with Perry Creek. (Start Mile: 4.99 End Mile: 0.00 Total Impaired Size: 4.99 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-TLR000.05. No new data 2022. Initial Listing Date: 2012. This segment is included in the EPA Approved North Fork Rockfish River Bacteria TMDL. This impairment was lengthened slightly in 2016 to correct a previous segmentation error.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_TLR01A08 / Taylor Creek / Taylor Creek from the confluence of the two headwater tributaries downstream to its confluence with Perry Creek.	4A	Escherichia coli (E. coli)	2012	L	4.99

Taylor Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.99

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H15R-03-BEN** **Taylor Creek**

Cause Location: Taylor Creek from the headwaters downstream to its confluence with Perry Creek. (Start Mile: 4.99 End Mile: 0.00 Total Impaired Size: 4.99 Miles)

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-TLR000.52. Due to access permission issues at the 2-TLR000.52 probabilistic station, follow-up monitoring is being performed at station 2-TLR000.03, located the first bridge downstream of the probmon reach. 2-TLR000.03 2022 cycle- VSCI (spring 2016-71.2, fall 2020-75.5), shows improvement but additional data is needed to delist. Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_TLR01A08 / Taylor Creek / Taylor Creek from the confluence of the two headwater tributaries downstream to its confluence with Perry Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	4.99

Taylor Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.99

Sources: Source Unknown

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James River Basin

Cause Group Code: **H15R-04-BAC** **Goodwin Creek**

Cause Location: Goodwin Creek from the headwaters downstream to its confluence with the North Fork Rockfish River. (Start Mile: 2.55 End Mile: 0.00 Total Impaired Size: 2.55 Miles)

Cause City/County: Albemarle County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2BGOW000.76 (5 exceedances of 10 samples for e-coli in 2016). No new data 2022. Initial Listing Date: 2016 This segment is included in the EPA Approved North Fork Rockfish River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_GOW01A16 / Goodwin Creek / Goodwin Creek from the headwaters downstream to its confluence with the North Fork Rockfish River.	4A	Escherichia coli (E. coli)	2016	L	2.55

Goodwin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.55

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H15R-05-TEMP** **South Fork Rockfish River**

Cause Location: South Fork Rockfish River from the headwaters downstream to a point approximately 8 miles upstream of the Rockfish River.

Cause City/County: Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 2-RFS001.00 (11 exceedances out of 48 samples in 2022). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H15R_RFS02A10 / Rockfish River South Fork / South Fork Rockfish River from the headwaters downstream to a point approximately 8 miles upstream of the Rockfish River.	5A	Temperature	2022	L	3.74

South Fork Rockfish River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			3.74

Sources: Source Unknown

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James River Basin

Cause Group Code: H16R-01-BAC Rockfish River

Cause Location: Rockfish River from the headwaters downstream to its confluence with Davis Creek. (Start Mile: 29.14 End Mile: 23.36 Total Impaired Size: 5.78 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-RKF026.42 *listing station (2020 cycle- 19 exceedances of E.coli WQS out of 72 samples, no new data 2022) and 2BRKF023.61 (5 exceedances of 11 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2006. This segment is included in the EPA Approved Rockfish River Bacteria TMDL

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H16R_RKF02A00 / Rockfish River / Rockfish River from the headwaters downstream to its confluence with Davis Creek.	4A	Escherichia coli (E. coli)	2006	L	5.78

Rockfish River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.78

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H16R-02-BAC** **Beaver Creek**

Cause Location: Beaver Creek from the confluence of its two headwater branches downstream to its confluence with the Rockfish River. (Start Mile 7.41 End Mile: 0.00 Total Impaired Size: 7.41 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-BVR000.83 (2 exceedances of 12 samples for e-coli in 2016, no new data). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H16R_BVC01A04 / Beaver Creek / Beaver Creek from the confluence of its two headwater branches downstream to its confluence with the Rockfish River.	5A	Escherichia coli (E. coli)	2012	L	7.41

Beaver Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.41

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H16R-03-BAC** Cove Creek

Cause Location: Cove Creek from the headwaters downstream to its confluence with the Rockfish River. (Start Mile: 10.47 End Mile: 0.00 Total Impaired Size: 10.47 Miles)

Cause City/County: Albemarle County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-COV003.44 (8 exceedances of 12 samples for e-coli in 2018). No new data 2022. Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H16R_COV01A00 / Cove Creek / Cove Creek from the headwaters downstream to its confluence with the Rockfish River.	5A	Escherichia coli (E. coli)	2012	L	10.47

Cove Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.47

Sources: Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H16R-04-BAC** **Rockfish River**

Cause Location: Rockfish River from its confluence with Davis Creek downstream to its confluence with the James River. (Start Mile: 23.36 End Mile: 0.00 Total Impaired Size: 23.36 Miles) This segment was lengthened in 2018 with the addition of a downstream assessment unit.

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 2-RKF007.28 (2 exceedances of 12 samples for e-coli in 2016, no data in 2022); 2-RKF014.71 (2 exceedances of 12 samples for e-coli in 2016, no new data in 2022) and 2-RKF000.19 (3 exceedances of 12 samples for e-coli) Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H16R_RKF01A00 / Rockfish River / Rockfish River from its confluence with Hog Creek downstream to its confluence with the James River.	5A	Escherichia coli (E. coli)	2018	L	6.06
VAV-H16R_RKF01B10 / Rockfish River / Rockfish River from its confluence with Cove Creek downstream to its confluence with the Hog Creek.	5A	Escherichia coli (E. coli)	2012	L	8.02
VAV-H16R_RKF01C10 / Rockfish River / Rockfish River from its confluence with Davis Creek downstream to its confluence with the Cove Creek.	5A	Escherichia coli (E. coli)	2012	L	9.28

Rockfish River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.36

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H16R-05-BAC** **Rockfish River UT**

Cause Location: Rockfish River UT (Lower Rockfish River watershed) from the headwaters downstream to its confluence with the Rockfish River. (Start Mile: 2.69 End Mile: 0.00 Total Impaired Size: 2.69 Miles)

Cause City/County: Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-XRK001.64 (2022 cycle- E.coli remains impaired with the new WQS analysis revealing Insufficient Information to change status of impairment, - No E.coli STV exceedances but insufficient data to analyze geomean.) Prioritize for follow-up monitoring. Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H16R_XRK01A14 / Rockfish River UT / Rockfish River UT located within the VAV-H16R (Lower Rockfish River) watershed.	5A	Escherichia coli (E. coli)	2016	L	2.7

Rockfish River UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.7

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H17R-01-BAC** **Totier Creek**

Cause Location: Totier Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 10.4 End Mile: 0.00 Total Impaired Size: 10.4 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-TOT002.61 (7 exceedances of 12 samples for e-coli in 2018, no new data 2022). Initial Listing Date: 2002. This segment is included in the EPA approved James River watersheds bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H17R_TOT01A00 / Totier Creek / Totier Creek from the RWSA-Scottsville Public Water Intake downstream to its confluence with the James River.	4A	Escherichia coli (E. coli)	2008	L	0.72
VAV-H17R_TOT02A00 / Totier Creek / Totier Creek from the headwaters downstream to the upper end of Totier Creek Reservoir.	4A	Escherichia coli (E. coli)	2008	L	9.61

Totier Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.33

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H17R-02-BAC** **James River**

Cause Location: James River from its confluence with the Rockfish River downstream to its confluence with the Rivanna River. (Start Mile 200.9 End Mile: 165.59 Total Impaired Size: 35.01 Miles)

Cause City/County: Albemarle County; Buckingham County; Cumberland County; Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station(s): 2-JMS189.31 (2022 cycle- insufficient information collected at DEQ station 2-JMS189.31 to change the assessment status (new WQS reveals one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean); 2-JMS195.54 (2 exceedances of 12 samples for e-coli) and 2-JMS176.63 (2022 cycle- two or more STV exceedances in the same 90-day period represented by 10+ samples (analysis based on the revised E.coli WQS). Initial Listing Date: 2008

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H17R_JMS01A18 / James River / James River from its confluence with Totier Creek downstream to its confluence with the Hardware River.	5A	Escherichia coli (E. coli)	2008	L	8.13
VAV-H17R_JMS02A18 / James River / James River from its confluence with Ballinger Creek downstream to its confluence with Totier Creek.	5A	Escherichia coli (E. coli)	2008	L	4.82
VAV-H17R_JMS03A18 / James River / James River from its confluence with the Rockfish River downstream to its confluence with Ballinger Creek.	5A	Escherichia coli (E. coli)	2008	L	5.74
VAV-H20R_JMS01A02 / James River / James River from the Hardware River downstream to a point 5 miles above Fork Union Sanitary District raw water intake.	5A	Escherichia coli (E. coli)	2012	L	1.98
VAV-H20R_JMS02A02 / James River / The James River from a point 5 miles above Fork Union Sanitary District's raw water intake downstream to its confluence with the Slate River.	5A	Escherichia coli (E. coli)	2012	L	2.94
VAV-H20R_JMS02B18 / James River / The James River from its confluence with the Slate River downstream to the Fork Union Sanitary District's raw water intake.	5A	Escherichia coli (E. coli)	2012	L	2.16
VAV-H20R_JMS03A02 / James River / The James River from the Fork Union Sanitary District's raw water intake downstream to the confluence with the Rivanna River.	5A	Escherichia coli (E. coli)	2012	L	9.25

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			35.02

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H17R-03-BAC** **Ballinger Creek**

Cause Location: Ballinger Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 10.08 End Mile: 0.00 Total Impaired Size: 10.08 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-BLR003.00 (3 exceedances of 18 samples for e-coli). No new data in 2022. Initial Listing Date; 2004. This impairment is included in the EPA Approved James River (Slate River Watershed) Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H17R_BLR01A18 / Ballinger Creek / Ballinger Creek from the headwaters downstream to its confluence with the James River.	4A	Escherichia coli (E. coli)	2008	L	10.09

Ballinger Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 10.09
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Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H17R-05-BEN** **Totier Creek**

Cause Location: Totier Creek from the RWSA-Scottsville Public Water Intake downstream to its confluence with the James River. (Start Mile: .71 End Mile: 0.00 Total Impaired Size: .71 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthic at station: 2-TOT000.08 (Impaired for VSCI). Carries forward from 2008 Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H17R_TOT01A00 / Totier Creek / Totier Creek from the RWSA-Scottsville Public Water Intake downstream to its confluence with the James River.	5A	Benthic Macroinvertebrates Bioassessments	2006	L	0.72

Totier Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.72

Sources: Source Unknown

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James River Basin

Cause Group Code: **H18R-01-BAC** **North Fork Hardware River**

Cause Location: North Fork Hardware River from the headwaters downstream to its confluence with the Hardware River. (Start Mile: 11.35 End Mile: 0.00 Total Impaired Size: 11.35)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations 2-HNF008.28 and 2-HNF005.03. 2022 cycle: Impairment remains with data at 2-HNF000.102 revealing two or more STV hits in the same 90-day period with less than 10 samples. Data collected at 2-HNF008.28 reveals insufficient information to change the assessment status with one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Initial Listing Date: 2004. This segment is included in the EPA approved North Fork Hardware River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H18R_HNF01A00 / Hardware River North Fork / North Fork Hardware River form the headwaters downstream to its confluence with the Hardware River.	4A	Escherichia coli (E. coli)	2008	L	11.35

North Fork Hardware River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.35

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H18R-02-BAC** **South Branch North Fork Hardware River and Tributaries**

Cause Location: South Branch North Fork Hardware River and tributaries from the headwaters downstream to its confluence with the North Fork Hardware River. (Start Mile: 24.01 End Mile: 0.00 Total Impaired Size: 24.01 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-HNS002.40 (2022 cycle- two or more STV hits in the same 90-day period with less than 10 samples (analysis based on the revised E.coli WQS)). Initial Listing Date: 2008. This segment is included in the North Fork Hardware River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H18R_HNS01A08 / South Branch North Fork Hardware River / South Branch of the North Fork Hardware River (including tributaries) from the headwaters downstream to its confluence with the North Fork Hardware River.	4A	Escherichia coli (E. coli)	2008	L	24.02
VAV-H18R_XNH01A10 / X-trib to the South Branch North Fork Hardware River 1 / X-trib of the South Branch North Fork Hardware River and tributaries from their headwaters downstream to its confluence with the South Branch North Fork Hardware River.	4A	Escherichia coli (E. coli)	2012	L	1.77

South Branch North Fork Hardware River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			25.79

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H19R-01-BAC** **Hardware River**

Cause Location: Hardware River from the headwaters downstream to its confluence with the James River. (Start Mile: 23.24 End Mile: 0.00 Total Impaired Size: 23.24 Miles)

Cause City/County: Albemarle County; Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-HRD011.57 (2022 analysis based on the revised E.coli WQS reveals station 2-HRD011.57 remains impaired with geomean exceedances in three 90-day periods). Additional data was collected in 2022 at 2-HRD000.36 (impaired- two or more STV hits in the same 90-day period with less than 10 samples). Initial Listing Date: 2002. This segment is included in the EPA approved Hardware River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H19R_HRD01A00 / Hardware River / Hardware River from the Rt. 6 bridge, downstream to its confluence with the James River.	4A	Escherichia coli (E. coli)	2008	L	7.0
VAV-H19R_HRD02A10 / Hardware River / Hardware River from the headwaters downstream to the Rt. 6 bridge.	4A	Escherichia coli (E. coli)	2008	L	16.3

Hardware River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			23.3

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H20R-01-BAC Bear Garden Creek

Cause Location: Bear Garden Creek from the headwaters downstream to its confluence with the James River.
 (Start Mile: 9.58 End Mile 0.00 Total Impaired Size: 9.58 Miles)

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-BSG000.58 (2 exceedances of 12 samples for e-coli in 2016, no new data in 2022) Initial Listing Date: 2010. This segment is included in the EPA Approved Bear Garden Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H20R_BGC01A98 / Bear Garden Creek / Bear Garden Creek from the a point 5 miles above the Fork Union Sanitary District raw water intake to the mouth at the James River.	4A	Escherichia coli (E. coli)	2010	L	4.71
VAV-H20R_BGC02A04 / Bear Garden Creek / Bear Garden Creek from its headwaters downstream to a point 5 miles above the Fork Union Sanitary District's raw water intake.	4A	Escherichia coli (E. coli)	2010	L	4.89

Bear Garden Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.6

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H20R-01-BEN** Bear Garden Creek

Cause Location: Bear Garden Creek from its headwaters downstream to a point 5 miles above the Fork Union Sanitary District's raw water intake.

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station(s): 2-BGC008.10 (Impaired for VSCI). Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H20R_BGC02A04 / Bear Garden Creek / Bear Garden Creek from its headwaters downstream to a point 5 miles above the Fork Union Sanitary District's raw water intake.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.89

Bear Garden Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.89

Sources: Source Unknown

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James River Basin

Cause Group Code: **H20R-02-BAC** South Creek

Cause Location: South Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 6.66 End Mile 0.00 Total Impaired Size: 6.66 Miles)

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station 2-SSX001.39 (4 exceedances of 12 samples for e-coli). No new data in 2022. Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H20R_SXX01A08 / South Creek / South Creek from its headwaters downstream to its confluence with the James River	5A	Escherichia coli (E. coli)	2014	L	6.67

South Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.67

Sources: Source Unknown

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James River Basin

Cause Group Code: **H20R-02-BEN** North Creek

Cause Location: North Creek from headwaters downstream to the first unnamed tributary confluence. (Start Mile: 5.30 End Mile: 1.98 Total Impaired Size: 3.32 Miles)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station(s): 2-NOR003.28 (Impaired for VSCI) and 2-NOR003.59 (Impaired for VSCI). No new data in 2022. Initial Listing Date: 2008. This impairment is included in the EPA Approved North Creek Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H20R_NOR01A02 / North Creek / North Creek from headwaters downstream to the first unnamed tributary confluence.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	3.32

North Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.32

Sources: Agriculture; Clean Sediments; Crop Production (Crop Land or Dry Land); Erosion from Derelict Land (Barren Land); Managed Pasture Grazing; Municipal Point Source Discharges; Non-Point Source; Unspecified Urban Stormwater

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James River Basin

Cause Group Code: **H21L-01-DO** **Troublesome Reservoir**

Cause Location: Troublesome Reservoir in its entirety

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2016 cycle the segment was impaired for Dissolved Oxygen with an exceedance rate of 8/65 at station 2-TBM000.92.

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21L_TBM01A06 / Troublesome Reservoir / Troublesome Reservoir	5A	Dissolved Oxygen	2010	L	52.68

Troublesome Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		52.68	

Sources: Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Dam or Impoundment

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James River Basin

Cause Group Code: **H21R-01-BAC** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Horsepen Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at

2BHOX0.62.

The impairment is considered nested within the James River (Slate River) Bacterial TMDL; therefore, it is considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_HOX01A08 / Horsepen Creek / Horsepen Creek from its headwaters to its mouth on the Slate River	4A	Escherichia coli (E. coli)	2016	L	5.87

Horsepen Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.87

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H21R-01-BEN** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Horsepen Creek was impaired of the Aquatic Life Use due to benthic monitoring at 2BHOX000.62 during 2009 and 2012.

Biologist notes from 2009 indicated that the riffles were highly embedded and unstable, which was likely a result of relatively unstable stream banks and heavy local watershed erosion. Sediment is a likely stressor in this stream.

Further monitoring in 2017 was variable and an assessment could not be determined.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_HOX01A08 / Horsepen Creek / Horsepen Creek from its headwaters to its mouth on the Slate River	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.87

Horsepen Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.87

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H21R-02-BAC Walton Fork

Cause Location: Walton Fork from its confluence with Ripley Creek to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Walton Fork downstream of the confluence with Ripley Fork was impaired of the Recreation Use during the 2018 cycle due to an E. coli exceedance rate of 4/12 at 2-WTN002.50.

The segment is located within the study area for the James River (Slate River) Watershed Bacterial TMDL, which was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008. TMDL implementation would be expected to bring Walton Fork into compliance; therefore, the segment is considered nested.

The exceedance rate was 6/24 in the 2022 cycle; in addition, it was 6/17 at 2-WTN001.23.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_WTN01A08 / Walton Fork / Walton Fork from its confluence with Ripley Creek to its mouth on the Slate River	4A	Escherichia coli (E. coli)	2018	L	3

Walton Fork

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H21R-02-BEN** **Walton Fork**

Cause Location: Walton Fork from its confluence with Ripley Creek to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Lower Walton Fork was impaired of the Aquatic Life Use in the 2016 cycle to benthic monitoring at 2-WTN002.50. This stream had riffles consisting of mostly gravel and a little cobble. There was excessive sedimentation throughout the stream and an abundance of periphyton.

2016 benthic monitoring at 2-WTN002.08 was inconclusive.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_WTN01A08 / Walton Fork / Walton Fork from its confluence with Ripley Creek to its mouth on the Slate River	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3

Walton Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Source Unknown

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James River Basin

Cause Group Code: **H21R-03-BAC** **North River**

Cause Location: The North River from the confluence with an unnamed tributary near Route 56 to its headwaters

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The North River from its headwaters at Meadow Creek to its mouth was impaired of the Recreation Use in the 2002 cycle. The impairment was subsequently addressed in the James River Watershed (Slate River) Bacterial TMDL which was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008. The lower portion was later partially delisted in the 2008 cycle due to an acceptable E.coli exceedance rate (2/23) at 2-NTH001.65.

During the 2016 cycle, the E. coli exceedance rate was 4/12 at 2-NTH003.88. No additional data has been collected.

Note: the segment was shortened in the 2018 cycle to correct the location of the headwaters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_NTH02A08 / North River / The North River from the confluence with an unnamed tributary near Route 56 to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	5.98

North River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.98

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H21R-04-BAC** **Slate River**

Cause Location: The Slate River from the confluence with North Fork downstream to its confluence with Walton Fork

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: A portion of the Slate River was first listed for the Recreation Use in the 2002 IR. The segment length was adjusted to Grease Creek downstream to Walton Fork in the 2004 cycle. The segment was addressed in the James River (Slate River Watershed) Bacterial TMDL which was approved by the EPA on 9/20/2007. A portion was partially delisted in the 2008 cycle and the impairment now extended from the North River to Walton Fork.

The E. coli exceedance rate was 3/12 at 2-SLT024.72 during the 2020 cycle.

NOTE:

During the 2008 cycle, a downstream portion of the Slate River from Walton Fork to Joshua Creek was considered impaired due to an E. coli exceedance rate of 3/22 at 2-SLT018.85. The segment was mistakenly combined with the upstream TMDL segment. It was split off in the 2018 cycle and considered nested. See fact sheet H21R-05-BAC

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_SLT02A08 / Slate River / Slate River from the North River downstream to Walton Fork.	4A	Escherichia coli (E. coli)	2012	L	6.25

Slate River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.25

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H21R-05-BAC** **Slate River**

Cause Location: The Slate River from the confluence with Walton Fork downstream to its confluence with Joshua Creek

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: A portion of the Slate River was first listed for the Recreation Use in the 2002 IR. The segment length was adjusted to Grease Creek downstream to Walton Fork in the 2004 cycle. The segment was addressed in the James River (Slate River Watershed) Bacterial TMDL which was approved by the EPA on 9/20/2007.

During the 2008 cycle, a downstream portion of the Slate River from Walton Fork to Joshua Creek was considered impaired due to an E. coli exceedance rate of 3/22 at 2-SLT018.85. The segment was mistakenly combined with the upstream TMDL segment. It was split off in the 2018 cycle and considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_SLT01A00 / Slate River / The Slate River from the confluence with Walton Fork downstream to its confluence with Joshua Creek	4A	Escherichia coli (E. coli)	2008	L	6.69

Slate River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.69

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H21R-06-BAC** Grease Creek

Cause Location: Grease Creek from its headwaters to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Grease Creek was initially impaired of the Recreation Use in the 2008 cycle based on an exceedance rate of 2/9 at 2-GRD001.62. It is considered nested in the Slate River Bacterial TMDL, which was approved by the EPA on 09/20/2007.

During the 2020 cycle, the exceedance rate was 2/12 at station 2-GRD001.62.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H21R_GRD01A08 / Grease Creek / Grease Creek from its headwaters to its mouth on the Slate River	4A	Escherichia coli (E. coli)	2008	L	10.74

Grease Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.74

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H22R-01-BAC** **Slate River**

Cause Location: Slate River from its confluence with Joshua Creek to its mouth at the James River.

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Slate River from the confluence with Sharps Creek downstream to its mouth was initially listed as impaired of the Recreation Use in the 2002 cycle due to fecal coliform exceedances at 2-SLT003.88.

The Slate River Bacterial TMDL was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008.

The impairment was later converted to E. coli and was extended upstream to the confluence with Joshua Creek because of additional exceedances at 2-SLT014.52.

The E. coli exceedance rates during the 2022 cycle were: 10/36 at 2-SLT003.68 3/11 at 2-SLT014.52 (2018 cycle)

It remains impaired due to 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H22R_SLT01A06 / Slate River / Slate River from Joshua Creek downstream to its confluence with Sharps Creek.	4A	Escherichia coli (E. coli)	2008	L	9.04
VAP-H22R_SLT02A02 / Slate River / The Slate River from the confluence with Sharps Creek to Rt. 676.	4A	Escherichia coli (E. coli)	2012	L	3.27
VAP-H22R_SLT03A02 / Slate River / The Slate River from Rt. 676 to a point 5 miles upstream of the Fork Union Sanitary District raw water intake (rivermile 3.88) to the mouth at the James River.	4A	Escherichia coli (E. coli)	2012	L	1.00
VAP-H22R_SLT03B20 / Slate River / The Slate River from a point 5 miles upstream of the Fork Union Sanitary District raw water intake (rivermile 3.88) to the mouth at the James River.	4A	Escherichia coli (E. coli)	2012	L	2.90

Slate River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.21

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H22R-02-BAC** Muddy Creek

Cause Location: Muddy Creek from its headwaters to its mouth on the Slate River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Muddy Creek was impaired of the Recreation Use in the 2008 cycle due to E. coli exceedances at 2-MYC000.50. The exceedance rate was 6/12 in the 2014 cycle; no additional monitoring has been conducted.

The creek is located within the study area for the James River (Slate River) Watershed Bacterial TMDL, which was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008. The impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H22R_MYC01A08 / Muddy Creek / Muddy Creek from its headwaters to its mouth on the Slate River	4A	Escherichia coli (E. coli)	2008	L	6.77

Muddy Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.77

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H22R-04-BAC** **Hunts Creek**

Cause Location: Hunts Creek from its headwaters to its mouth on the Slate River.

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Hunts Creek was impaired of the Recreation Use in the 2014 cycle due to an E. coli exceedance rate of 2/12 at 2-HUS002.24. The stream is located within the study area for Slate River Bacterial TMDL, which was approved by the EPA on 09/20/2007, and is considered nested (Category 4A.) No additional E. coli monitoring has been conducted.

The stream extent was corrected in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H22R_HUS01A06 / Hunts Creek / Hunts Creek from its headwaters to a point 5 miles above the Fork Union Sanitary District intake. Segment split in 2020 cycle to correct PWS extent. The stream extent was corrected in the 2020 cycle.	4A	Escherichia coli (E. coli)	2014	L	9.65
VAP-H22R_HUS01B20 / Hunts Creek / Hunts Creek from a point 5 miles above the Fork Union Sanitary District intake to its mouth on the Slate River.	4A	Escherichia coli (E. coli)	2014	L	1.99

Hunts Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.64

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H23L-01-CHLA** Lake Albemarle

Cause Location: Lake Albemarle

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: This lake is impaired due to exceedances of the chlorophyll a (nutrients) Lake Nutrient Criteria at station : 2-SIN000.44 (>35 ug/l two for two years).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23L_SIN01A04 / Lake Albemarle / Lake Albemarle	5A	Chlorophyll-a	2016	L	37.02

Lake Albemarle

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		37.02	

Sources: Dam or Impoundment; Non-Point Source

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James River Basin

Cause Group Code: **H23L-03-HAB** Mint Springs Lake

Cause Location: Mint Springs Lake

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: This lake is impaired due to a VDH swimming advisory issued in August 2019. The harmful algae bloom event persisted for a 34-day period (08/08/19 to 09/11/19) and was confirmed by VDH through follow-up monitoring. Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23L_PWC01A22 / Mint Springs Lake / Mint Springs Lake	5A	Harmful Algal Blooms	2022	L	3.84

Mint Springs Lake

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:		3.84	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H23R-01-BEN** **Broad Axe Run**

Cause Location: Broad Axe Run and tributaries from the headwaters downstream to its confluence with the Mechums River. (Start Mile: 8.32 End Mile: 0.00 Total Impaired Size: 8.32 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-BRX000.66 (Impaired for VSCI). Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_BRX01A00 / Broad Axe Run / Broad Axe Run and tributaries from the headwaters downstream to its confluence with the Mechums River.	5A	Benthic Macroinvertebrates Bioassessments	2004	H	8.32

Broad Axe Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.32

Sources: Source Unknown

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James River Basin

Cause Group Code: **H23R-02-BEN** Lickinghole Creek

Cause Location: Lickinghole Creek from the headwaters downstream to its confluence with the Mechums River.
 (Start Mile: 8.94 End Mile: 0.00 Total Impaired Size: 8.94 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-LKN-LKN01-RCA (Level III benthic data from Rivanna Conservation Alliance- VSCI reserve judgment with an observed effect in 2022). Additional data collected in 2022 at DEQ station 2-LKN000.02 (Impaired for VSCI).
 Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_LKN01A00 / Lickinghole Creek / Lickinghole Creek from a point 5 miles above the Rivanna Water and Sewer Authority's raw water intake downstream to its confluence with the Mechums River.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	1.21
VAV-H23R_LKN02A22 / Lickinghole Creek / Lickinghole Creek from the headwaters downstream to a point 5 miles above the Rivanna Water and Sewer Authority's raw water intake.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	7.73

Lickinghole Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.94

Sources: Non-Point Source

Virginia Department of Environmental Quality
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James River Basin

Cause Group Code: H23R-03-BAC Mechums River

Cause Location: Mechums River from the headwaters downstream to its confluence with the Moormans River.
 (Start Mile: 26.36 End Mile: 0.00 Total Impaired Size: 26.36 Miles)

Cause City/County: Albemarle County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-MCM005.12 (2022 cycle- analysis using the revised E.coli WQS, reveals two STV hits in the same 90-day period with less than 10 samples-impaired). and 2-MCM018.92 (2022 cycle- analysis using the revised E.coli WQS, reveals two STV hits in the same 90-day period with less than 10 samples -impaired). Initial Listing Date: 2006. The impairment size was lengthened in 2012 to add upstream assessment units. This segment is included in the EPA approved Mechums River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_MCM01A00 / Mechums River / Mechums River from the pumping station below Lake Albemarle downstream to its confluence with the Moormans River.	4A	Escherichia coli (E. coli)	2006	L	7.27
VAV-H23R_MCM01B10 / Mechums River / Mechums River from its confluence with Lickinghole Creek downstream to the pumping station below Lake Albemarle.	4A	Escherichia coli (E. coli)	2006	L	3.92
VAV-H23R_MCM02A00 / Mechums River / Mechums River from its confluence with Stockton Creek downstream to its confluence with Lickinghole Creek.	4A	Escherichia coli (E. coli)	2012	L	2.07
VAV-H23R_MCM02B10 / Mechums River / Mechums River from the headwaters downstream to its confluence with Stockton Creek.	4A	Escherichia coli (E. coli)	2012	L	13.10

Mechums River

Recreation	Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				26.36

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H23R-03-BEN** **Mechums River**

Cause Location: Mechums River from the headwaters downstream to its confluence with Lickinghole Creek. (Start Mile: 26.36 End Mile: 11.19 Total Impaired Size: 15.17 Miles)

Cause City/County: Albemarle County; Nelson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-MCM018.92 (2022 cycle- remains impaired for VSCI). In 2022, additional data collected at RCA Level III station 2-MCM-MCM11-RCA remains impaired based on VSCI scores. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_MCM02A00 / Mechums River / Mechums River from its confluence with Stockton Creek downstream to its confluence with Lickinghole Creek.	5A	Benthic Macroinvertebrates Bioassessments	2004	H	2.07
VAV-H23R_MCM02B10 / Mechums River / Mechums River from the headwaters downstream to its confluence with Stockton Creek.	5A	Benthic Macroinvertebrates Bioassessments	2004	H	13.10

Mechums River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.17

Sources: Source Unknown

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James River Basin

Cause Group Code: **H23R-04-BEN** **Slabtown Branch**

Cause Location: Slabtown Branch and tribs from the headwaters downstream to its confluence with Lickinghole Creek. (Start Mile: 4.92 End Mile: 0.00 Total Impaired Size: 4.92 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-SLB-SLB01-RCA (Impaired for VSCI based on Level III benthic data from Rivanna Conservation Alliance). Data collected at DEQ station 2-SBT000.17 (co-located with 2-SLB-SLB01-RCA) shows continued VSCI impairment in 2022. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_SLB01A08 / Slabtown Branch / Slabtown Branch and tributaries from the headwaters downstream to the confluence with Lickinghole Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	4.92

Slabtown Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.92

Sources: Golf Courses; Non-Point Source

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James River Basin

Cause Group Code: **H23R-06-BEN** **Parrott Branch X-trib**

Cause Location: Parrott Branch X-trib from the headwaters downstream to its confluence with Parrott Branch.
 (Start Mile: 1.15 End Mile: 0.00 Total Impaired Size: 1.15 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-XPT-XPT01-RCA (Impaired for VSCI based on Level III benthic data from Rivanna Conservation Alliance). Data collected in the 2022 cycle at DEQ station 2-XJV000.25, co-located with RCA's 2-XPT-XPT01-RCA, reveals that this tributary to Parrott Creek remains impaired for aquatic life due to exceedances of the General Standard for Benthics (impaired VSCI status). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_XPT01A10 / X-trib to Parrott Branch / X-trib to Parrott Branch from the headwaters downstream to its confluence with Parrott Branch.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	1.15

Parrott Branch X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.15

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H23R-07-BEN** **Spring Creek**

Cause Location: Spring Creek from the headwaters downstream to the upper end of Lake Albemarle. (Start Mile 3.48 End Mile: 0.00 Total Impaired Size: 3.48 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-XSI-XSI01-RCA (Impaired for VSCI). No new data at this station in 2022. Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_SIN02A10 / Spring Creek / Spring Creek from the headwaters downstream to the upper end of Lake Albemarle.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	3.49

Spring Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.49

Sources: Source Unknown

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James River Basin

Cause Group Code: **H23R-08-BAC** **Stockton Creek**

Cause Location: Stockton Creek from the headwaters downstream to its confluence with the Mechums River.
 (Start Mile: 12.06 End Mile: 0.00 Total Impaired Size: 12.06 Miles)

Cause City/County: Albemarle County; Nelson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-SKM001.47 (2 exceedances of 12 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H23R_SKM01A10 / Stockton Creek / Stockton Creek from the headwaters downstream to its confluence with the Mechums River.	5A	Escherichia coli (E. coli)	2014	L	12.07

Stockton Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.07

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H24L-01-DO** **Sugar Hollow Reservoir**

Cause Location: Sugar Hollow Reservoir

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: This lake is impaired due to exceedances of the Dissolved Oxygen WQS at station: 2-MNR014.50 (12 exceedances of 70 samples = 17.1% exceedance rate).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H24L_MNR01A04 / Sugar Hollow Reservoir / Sugar Hollow Reservoir	5A	Dissolved Oxygen	2022	L	47.46

Sugar Hollow Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	47.46	

Sources: Source Unknown

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James River Basin

Cause Group Code: H24R-02-BEN X-trib to Doyles River

Cause Location: X-trib to Doyles River from the headwaters downstream to its confluence with the Doyles River.
 (Start Mile: 4.74 End Mile: 0.00 Total Impaired Size: 4.74 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station:
 2BXDL-XDY01-RCA (Impaired for VSCI). Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H24R_XDL01A12 / X-trib to Doyles River / X-trib and tributaries to Doyles River from the headwaters downstream to its confluence with the Doyles River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.74

X-trib to Doyles River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.74

Sources: Source Unknown

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James River Basin

Cause Group Code: **H24R-03-BAC** **X-trib to Doyles River**

Cause Location: X-trib to Doyles River from the headwaters downstream to its confluence with the Doyles River.

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2BXDY001.38 (2 STV exceedances in the same 90-day period with less than 10 samples). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H24R_XDY01A22 / X-trib to Doyles River / X-trib and tributaries to Doyles River from the headwaters downstream to its confluence with the Doyles River.	5A	Escherichia coli (E. coli)	2022	L	4.93

X-trib to Doyles River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.93

Sources: Source Unknown

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James River Basin

Cause Group Code: **H25R-01-BAC** **Buck Mountain Creek**

Cause Location: Buck Mountain Creek from the headwaters downstream to its confluence with the South Fork Rivanna River. (Start Mile: 10.59 End Mile 0.00 Total Impaired Size: 10.59 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-BKM002.01 (2 exceedances of 12 samples for e-coli in 2020, no new data 2022). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H25R_BKM01A00 / Buck Mountain Creek / Buck Mountain Creek from its confluence with an unnamed tributary at Lick Mountain downstream to its confluence with the South Fork Rivanna River.	5A	Escherichia coli (E. coli)	2010	L	10.59

Buck Mountain Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.59

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H25R-02-BEN Piney Creek X-trib

Cause Location: Piney Creek X-trib from its headwaters downstream to its confluence with Piney Creek. (Start Mile: 3.22 End Mile: 0.00 Total Impaired Size: 3.22 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-XPY-XPY02-SW (Impaired for VSCI, no new data in 2022). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H25R_XPY01A12 / Piney Creek X-trib / Piney Creek X-trib from the headwaters downstream to its confluence with Piney Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	3.23

Piney Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.23

Sources: Source Unknown

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James River Basin

Cause Group Code: H26L-01-DO South Fork Rivanna River Reservoir

Cause Location: South Fork Rivanna Reservoir from the dam upstream, including the Ivy Creek arm of reservoir.

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The South Fork Rivanna River Reservoir is impaired for aquatic life use due to exceedances of the DO WQS at stations 2-RRS003.59 (15 exceedances of 55 samples for DO) and 2-RRS005.62 (7 exceedances of 55 samples for DO).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26L_01 / S F Rivanna River Reservoir / South Fork Rivanna Reservoir from the dam upstream to the confluence with Ivy Creek	5A	Dissolved Oxygen	2018	L	120.30
VAV-H26L_IVC01A22 / S F Rivanna River Reservoir / South Fork Rivanna River Reservoir Ivy Creek Arm	5A	Dissolved Oxygen	2018	L	61.01
VAV-H26L_RRS01A22 / S F Rivanna River Reservoir / South Fork Rivanna River Reservoir from the confluence of Ivy Creek, upstream to the uppermost extent of the lake	5A	Dissolved Oxygen	2018	L	217.39

South Fork Rivanna River Reservoir

Aquatic Life	Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	398.7

Sources: Natural Sources; Non-Point Source

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H26R-01-BAC** Ivy Creek

Cause Location: Ivy Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the S. F. Rivanna Reservoir Intake. (Start Mile: 12.08 End Mile 2.57 Total Impaired Size: 9.51 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-IVC008.09 (4 exceedances of 12 samples for e-coli, no new data 2022). In 2022, there is insufficient E.coli data at 2-IVC005.19 to assess recreation use with one STV exceedance in multiple 90-day periods but insufficient data to analyze geomean (analysis based on the revised E.coli WQS). Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_IVC02A00 / Ivy Creek / Ivy Creek from its confluence with Little Ivy Creek downstream to the 5 mile upper limit of the PWS designation for the RWSA-SF Rivanna River Public Water Intake.	5A	Escherichia coli (E. coli)	2014	L	4.02
VAV-H26R_IVC03A00 / Ivy Creek / Ivy Creek from the headwaters downstream to its confluence with Little Ivy Creek.	5A	Escherichia coli (E. coli)	2014	L	5.49

Ivy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.51

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H26R-02-PH** Ivy Creek

Cause Location: Ivy Creek from the headwaters downstream to its confluence with Little Ivy Creek. (Start Mile: 12.08 End Mile: 6.59 Total Impaired Size: 5.49 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 2-IVC010.20 (2 excursions of 6 samples for pH in 2010, no new data in 2022). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_IVC03A00 / Ivy Creek / Ivy Creek from the headwaters downstream to its confluence with Little Ivy Creek.	5A	pH	2006	L	5.49

Ivy Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.49

Sources: Atmospheric Deposition - Acidity; Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H26R-03-BEN** Ivy Creek

Cause Location: Ivy Creek from the headwaters downstream to its confluence with the South Fork Rivanna River Reservoir. (Start Mile: 12.08 End Mile: 0.00 Total Impaired Size: 12.08 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-IVC005.19 (Impaired for VSCI) and 2-IVC010.20 (Impaired for VSCI). Initial Listing Date: 2008. (This segment was lengthened in 2010)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_IVC01A00 / Ivy Creek / Ivy Creek from the 5 mile upper limit of the PWS designation for the RWSA-SF Rivanna River Public Water Intake downstream to its confluence with the South Fork Rivanna River Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	2.57
VAV-H26R_IVC02A00 / Ivy Creek / Ivy Creek from its confluence with Little Ivy Creek downstream to the 5 mile upper limit of the PWS designation for the RWSA-SF Rivanna River Public Water Intake.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	4.02
VAV-H26R_IVC03A00 / Ivy Creek / Ivy Creek from the headwaters downstream to its confluence with Little Ivy Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.49

Ivy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.08

Sources: Atmospheric Deposition - Acidity; Source Unknown

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James River Basin

Cause Group Code: **H26R-04-BEN** **South Fork Rivanna River**

Cause Location: South Fork Rivanna River from the RWSA SF Rivanna River Public Water Intake downstream to its confluence with the Rivanna River. (Start Mile: 3.47 End Mile: 0.00 Total Impaired Size: 3.47 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-RRS001.81 (Impaired for VSCI) and 2-RRS-RVN31-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_RRS01A00 / Rivanna River South Fork / South Fork Rivanna River from the RWSA SF Rivanna River Public Water Intake downstream to its confluence with the Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	3.47

South Fork Rivanna River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.47

Sources: Dam or Impoundment; Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: **H26R-05-BEN** **Powell Creek**

Cause Location: Powell Creek (including all tributaries) from the headwaters downstream to its confluence with the South Fork Rivanna River. (Start Mile: 10.36 End Mile: 0.00 Total Impaired Size: 10.36 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-PLC001.49 (Impaired for VSCI) and 2-PLC-PWL01-RCA (Impaired for VSCI). Initial Listing Date; 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_PLC01A10 / Powell Creek / Powell Creek and tributaries from the headwaters downstream to its confluence with the South Fork Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	10.37

Powell Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.37

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H26R-06-BEN** Naked Creek

Cause Location: Naked Creek (including all tributaries) from the headwaters downstream to its confluence with the South Fork Rivanna Reservoir. (Start Mile: 9.82 End Mile 0.00 Total Impaired Size: 9.82 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-NKD-NKD02-RCA (Impaired for VSCI 2022). Additional data collected at 2BNAK001.37 and 2-NKD-NKD12-RCA in 2022 (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_NKD01A10 / Naked Creek / Naked Creek and tributaries from the headwaters downstream to its confluence with the South Fork Rivanna Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	9.83

Naked Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.83

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: H26R-07-BEN South Fork Rivanna River X-trib

Cause Location: South Fork Rivanna River X-trib from the headwaters downstream to its confluence with the South Fork Rivanna River. (Start Mile: 3.21 End Mile: 0.00 Total Impaired Size: 3.21 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-XRV-XZW01-RCA (Impaired for VSCI, no new data 2022). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_XRV01A10 / South Fork Rivanna River X-trib / South Fork Rivanna River X-trib (including tributaries) from the headwaters downstream to its confluence with the South Fork Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	3.21

South Fork Rivanna River X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.21

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H26R-08-BEN** Fishing Creek

Cause Location: Fishing Creek and tributaries from the headwaters downstream to its confluence with the South Fork Rivanna Reservoir. (Start Mile: 12.53 End Mile: 0.00 Total Impaired Size: 12.53 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station(s): 2-FSH-FSH01-RCA (Impaired for VSCI, no new data 2022). In the 2022 cycle the benthic impairment remains with data collected at stations 2-FSH000.62 and 2-FSH-FSH02-RCA showing continued impairment based on VSCI scores. Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_FSH01A12 / Fishing Creek / Fishing Creek and tributaries from the headwaters downstream to its confluence with the South Fork Rivanna Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	12.54

Fishing Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.54

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H26R-09-BEN** **Little Ivy Creek X-trib**

Cause Location: Little Ivy Creek X-trib from the headwaters downstream to its confluence with Little Ivy Creek.
 (Start Mile: 4.44 End Mile: 0.00 Total Impaired Size: 4.44 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station:
 2-XLI-XLI01-RCA (Impaired for VSCI). Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H26R_XLI01A16 / Little Ivy Creek X-trib / Little Ivy Creek X-trib (including tributaries) from the headwaters downstream to its confluence with Little Ivy Creek.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	4.44

Little Ivy Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.44

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H27R-01-BEN Flat Branch X-trib**

Cause Location: Flat Branch X-trib from the headwaters downstream to its confluence with Flat Branch. (Start Mile: 2.03 End Mile: 0.00 Total Impaired Size: 2.03 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-XKL000.37 (Impaired for VSCI). Initial List Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_XKL01A08 / X-trib to Flat Branch / X-trib to Flat Branch from the headwaters (including tributaries) downstream to its confluence with Flat Branch.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.03

Flat Branch X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.03

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H27R-02-BAC** **Swift Run**

Cause Location: Swift Run from its confluence with Welsh Run downstream to its confluence with the North Fork Rivanna River. (Start Mile: 1.91 End Mile: 0.00 Total Impaired Size: 1.91 Miles)

Cause City/County: Albemarle County; Greene County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-SFR000.60 (2 exceedances of 12 samples for e-coli). The impairment is nested into the Rivanna River Bacteria TMDL (NF Rivanna Watershed) in 2022. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_SFR01A00 / Swift Run / Swift Run from its confluence with Welsh Run downstream to its confluence with the North Fork Rivanna River.	4A	Escherichia coli (E. coli)	2010	L	1.91

Swift Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.91

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H27R-02-BEN** **Swift Run**

Cause Location: Swift Run from its confluence with Welsh Run downstream to its confluence with the North Fork Rivanna River. (Start Mile: 1.91 End Mile: 0.00 Total Impaired Size: 1.91 Miles)

Cause City/County: Albemarle County; Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at stations: 2-SFR00.60 and 2-SFR-SFR01-RCA (Rivanna Conservation Alliance Level III Benthic station). Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_SFR01A00 / Swift Run / Swift Run from its confluence with Welsh Run downstream to its confluence with the North Fork Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.91

Swift Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.91

Sources: Non-Point Source

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H27R-03-BAC** **Preddy Creek**

Cause Location: Preddy Creek and North Branch Preddy Creek from the headwaters downstream to its confluence with the North Fork Rivanna River. (Start Mile: 13.72 End Mile: 0.00 Total Impaired Size: 13.72). This segment was lengthened in 2010 with additional upstream segments.

Cause City/County: Albemarle County; Greene County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-PRD000.21 (4 exceedances of 12, no new data 2022) Initial Listing Date: 2006. This segment is included in the EPA approved Preddy Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_PRD01A00 / Preddy Creek / Preddy Creek from the headwaters downstream to its confluence with the North Fork Rivanna River.	4A	Escherichia coli (E. coli)	2006	L	7.49
VAV-H27R_PRD02A06 / Preddy Creek North Branch / North Branch of Preddy Creek from the headwaters downstream to its confluence with Preddy Creek	4A	Escherichia coli (E. coli)	2010	L	6.25

Preddy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.74

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H27R-03-BEN Preddy Creek North Branch

Cause Location: Preddy Creek North Branch from the headwaters downstream to its confluence with Preddy Creek. (Start Mile: 6.24 End Mile: 0.00 Total Impaired Size: 6.24)

Cause City/County: Albemarle County; Greene County; Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-PRD004.42 (Impaired for VSCI), 2-PRD006.35 (Impaired for VSCI) and 2-PRD-PRD01-RCA (Impaired for VSCI). Initial Listing Date: 2010 This impairment is included in the EPA approved North Fork Rivanna Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_PRD02A06 / Preddy Creek North Branch / North Branch of Preddy Creek from the headwaters downstream to its confluence with Preddy Creek	4A	Benthic Macroinvertebrates Bioassessments	2010	L	6.25

Preddy Creek North Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.25

Sources: Agriculture; Streambank Erosion; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: H27R-04-BAC North Fork Rivanna River

Cause Location: North Fork Rivanna River from its confluence with the Lynch River downstream to its confluence with the Rivanna River. (Start Mile: 17.88 End Mile: 0.00 Total Impaired Size: 17.88 Miles)

Cause City/County: Albemarle County; Greene County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-RRN002.19 (17 exceedances of 70 samples for e-coli in 2018, no new data 2022) and 2-RRN010.92 (2 exceedances of 12 samples for e-coli, no new data 2022). Initial Listing Date: 2006. This segment was lengthened in 2010, however, this segment is included in the EPA approved North Fork Rivanna River bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_RRN01A00 / Rivanna River North Fork / North Fork Rivanna River from its confluence with Preddy Creek downstream to its confluence with the Rivanna River.	4A	Escherichia coli (E. coli)	2006	L	6.56
VAV-H27R_RRN01B10 / Rivanna River North Fork / North Fork Rivanna River from the RWSA NF Rivanna River Public Water Intake downstream to its confluence with the Preddy Creek.	4A	Escherichia coli (E. coli)	2006	L	3.99
VAV-H27R_RRN02A00 / Rivanna River North Fork / North Fork Rivanna River from its confluence with Swift Run downstream to the RWSA-NF Rivanna River Public Water Intake.	4A	Escherichia coli (E. coli)	2010	L	3.82
VAV-H27R_RRN03A10 / Rivanna River North Fork / North Fork Rivanna River from its confluence with the Lynch River downstream to its confluence with Swift Run.	4A	Escherichia coli (E. coli)	2010	L	3.51

North Fork Rivanna River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.88

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
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James River Basin

Cause Group Code: **H27R-05-BEN** Marsh Run

Cause Location: Marsh Run from the headwaters downstream to its confluence with the North Fork Rivanna River. (Start Mile: 3.65 End Mile: 0.00 Total Impaired Size: 3.65 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-MSH-XZY01-RCA (Impaired for VSCI, no new data 2022). Additional benthic data collected in the 2022 cycle at 2BMSH000.10 (Impaired for VSCI). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_MSH01A10 / Marsh Run / Marsh Run from the headwaters downstream to its confluence with the North Fork Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.66

Marsh Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.66

Sources: Non-Point Source

Virginia Department of Environmental Quality
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James River Basin

Cause Group Code: **H27R-06-BEN** **Blue Run**

Cause Location: Blue Run from the headwaters downstream to its confluence with Swift Run. (Start Mile: 8.72
 End Mile: 0.00 Total Impaired Size: 8.72 Miles)

Cause City/County: Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station:
 2-BLU-BLU02-RCA (Impaired for VSCI, no new data 2022). Additional impaired benthic data collected in the
 2022 cycle at DEQ station 2-BLU004.86. Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_BLU01A04 / Blue Run / Blue Run from the headwaters downstream to its confluence with Swift Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	8.72

Blue Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.72

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H27R-07-BEN Stanardsville Run**

Cause Location: Stanardsville Run and tributaries from the headwaters downstream to its confluence with Blue Run. (Start Mile: 5.71 End Mile: 0.00 Total Impaired Size: 5.71 Miles)

Cause City/County: Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-SDV001.02 (Impaired for VSCI) and 2-SDV-SDV04-RCA (Impaired for VSCI). Initial Listing Date: 2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_SDV01A14 / Stanardsville Run / Stanardsville Run and tributaries from the headwaters downstream to its confluence with Blue Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.71

Stanardsville Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.71

Sources: Agriculture; Non-Point Source

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James River Basin

Cause Group Code: **H27R-08-BEN** **Preddy Creek**

Cause Location: Preddy Creek from the headwaters downstream to its confluence with the North Fork Rivanna River. (Start Mile: 7.48 End Mile: 0.00 Total Impaired Size: 7.48 Miles)

Cause City/County: Albemarle County; Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-PRD-BRN01-RCA (Impaired for VSCI). Initial Listing Date: 2016 This impairment is included in the North Fork Rivanna Benthic TMDL, EPA approved in 2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_PRD01A00 / Preddy Creek / Preddy Creek from the headwaters downstream to its confluence with the North Fork Rivanna River.	4A	Benthic Macroinvertebrates Bioassessments	2016	L	7.49

Preddy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.49

Sources: Agriculture; Streambank Erosion; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H27R-09-BEN** **North Fork Rivanna River**

Cause Location: North Fork Rivanna River from its confluence with the Lynch River downstream to the RWSA - North Fork Rivanna River Public Water Intake. (Start Mile: 17.87 End Mile: 10.68 Total Impaired Size: 7.19 Miles)

Cause City/County: Albemarle County; Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-RRN012.89 (Impaired for VSCI 2022 but shows some improvement) and 2-RRN-RRN06-RCA (Impaired for VSCI 2022). Additional benthic data collected at stations 2-RRN010.92 and 2-RRN015.61 in 2022, both have observed effects for benthic impairment. Initial Listing Date: 2016

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_RRN02A00 / Rivanna River North Fork / North Fork Rivanna River from its confluence with Swift Run downstream to the RWSA-NF Rivanna River Public Water Intake.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3.82
VAV-H27R_RRN03A10 / Rivanna River North Fork / North Fork Rivanna River from its confluence with the Lynch River downstream to its confluence with Swift Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3.51

North Fork Rivanna River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.33

Sources: Agriculture; Non-Point Source

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James River Basin

Cause Group Code: **H27R-10-BEN** **Quarter Creek**

Cause Location: Quarter Creek from the dam outfall at Jonquil Road downstream to its confluence with Swift Run. (Start Mile: 1.58 End Mile: 0.00 Total Impaired Size: 1.58 Miles)

Cause City/County: Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-QTR-QTR03-RCA (Impaired for VSCI). Initial Listing Date: 2016 This impairment is included in the EPA approved North Fork Rivanna Benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_QTR01A16 / Quarter Creek / Quarter Creek from the dam outfall at Jonquil Road to its confluence with Swift Run.	4A	Benthic Macroinvertebrates Bioassessments	2016	L	1.58

Quarter Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.58

Sources: Agriculture; Streambank Erosion; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H27R-11-BAC** **Foster Branch**

Cause Location: Foster Branch from the headwaters downstream to its confluence with the North Fork Rivanna River. (Start Mile: 4.26 End Mile: 4.26 Total Impaired Size: 4.26 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station(s): 2BFOS001.01 (2 exceedances of 12 samples for e-coli, no new data 2022). This impairment is nested into the Rivanna River Watershed Bacteria TMDL in 2022. Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_FOS01A12 / Foster Branch / Foster Branch from the headwaters downstream to its confluence with the North Fork Rivanna River.	4A	Escherichia coli (E. coli)	2018	L	4.26

Foster Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.26

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H27R-11-BEN** **Parker Branch**

Cause Location: Parker Branch and tributary from the headwaters downstream to its confluence with a tributary of the Roach River.

Cause City/County: Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired for aquatic life use due to exceedances of the General Standard for benthics at level III Rivanna Conservation Alliance station: 2-PKR-PKR01-RCA (Impaired for VSCI).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H27R_PKR01A10 / Parker Branch / Parker Branch and tributary from the headwaters downstream to its confluence with a tributary of the Roach River.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	12.73

Parker Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.73

Sources: Source Unknown

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James River Basin

Cause Group Code: **H28R-01-BEN** Rivanna River/Moores Creek

Cause Location: Rivanna River from its confluence with the North/South Fork Rivanna downstream to its confluence with an unnamed tributary just below the RWSA-Glenmore STP. (Includes a .54 mile segment of Moores Creek). (Start Mile: 41.43/.54 End Mile: 30.02/0.00 Total Impaired Size: 11.41/.54 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-RVN-RVN11-RCA (Impaired for VSCI), 2-RVN033.65 (Impaired for VSCI) and 2-RVN-RVN01-RCA (Impaired for VSCI). Initial Listing Dates: 1996 and 2006. This segment is included in the EPA approved Rivanna River benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MSC01B12 / Moores Creek / Moores Creek from the RSWA Moores Creek STP bridge downstream to its confluence with the Rivanna River.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	0.54
VAV-H28R_RVN01A00 / Rivanna River / Rivanna River from its confluence with North/South Fork Rivanna downstream to its confluence with Moores Creek.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.49
VAV-H29R_RVN04A00 / Rivanna River / Rivanna River from its confluence with Moores Creek downstream to its confluence with an unnamed tributary just below the RWSA-Glenmore STP.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	5.92

Rivanna River/Moores Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.95

Sources: Agriculture; Impervious Surface/Parking Lot Runoff; Municipal (Urbanized High Density Area); Streambank Erosion; Unrestricted Cattle Access; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H28R-02-BAC** **Moore's Creek**

Cause Location: Moore's Creek from its confluence with the Ragged Mountain Dam receiving stream downstream to its confluence with the Rivanna River. (Start Mile: 6.86 End Mile: 0.00 Total Impaired Size: 6.86 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-MS000.60 (2018 cycle- six E.coli WQS exceedances out of 12 samples, no new data 2022). Initial Listing Date: 2002. This assessment unit was included in the EPA approved Moore's Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MSC01A00 / Moore's Creek / Moore's Creek from its confluence with the Ragged Mountain Dam receiving stream downstream to the RSWA Moore's Creek STP bridge.	4A	Escherichia coli (E. coli)	2008	L	6.32
VAV-H28R_MSC01B12 / Moore's Creek / Moore's Creek from the RSWA Moore's Creek STP bridge downstream to its confluence with the Rivanna River.	4A	Escherichia coli (E. coli)	2008	L	0.54

Moore's Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.86

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H28R-02-BEN** **Moores Creek**

Cause Location: Moores Creek from its confluence with the Ragged Mountain Dam receiving stream downstream to the RWSA Moores Creek STP bridge. (Start Mile: 6.86 End Mile: 0.54 Total Impaired Size: 6.32 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-MS000.60 (Impaired for VSCI). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MSC01A00 / Moores Creek / Moores Creek from its confluence with the Ragged Mountain Dam receiving stream downstream to the RWSA Moores Creek STP bridge.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	6.32

Moores Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.32

Sources: Impervious Surface/Parking Lot Runoff; Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Post-development Erosion and Sedimentation; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H28R-03-BAC** Meadow Creek

Cause Location: Meadow Creek from where it becomes a perennial stream downstream to its confluence with the Rivanna River. (Start Mile: 4.98 End Mile: 0.00 Total Impaired Size: 4.98 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-MWC000.60 (10 exceedances of 23 samples for e-coli in 2018, no new data 2022). Additional data collected at Rivanna Conservation Alliance Level III Bacteria stations in 2022: 2-MWC-MWC11-RCA and 2-MWC-MWC13-RCA revised E.coli WQS analysis: both stations were found to have two or more STV exceedances in the same 90-day period with less than 10 samples = impaired. Initial Listing Date: 2002. This segment is included in the EPA approved Meadow Creek bacteria TMDL. Federal TMDL ID # 35779.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MWC01A00 / Meadow Creek / Meadow Creek from where it becomes a perennial stream downstream to its confluence with the Rivanna River.	4A	Escherichia coli (E. coli)	2008	L	4.98

Meadow Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.98

Sources: Agriculture; Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H28R-04-BAC** **Moore's Creek X-trib**

Cause Location: Moore's Creek X-trib from the headwaters downstream to its confluence with Moore's Creek.

Cause City/County: Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreational use is not supporting based on E.coli WQS exceedances at RCA Level III stations 2-XRC-LDC01-RCA, 2-XRC-LDC03-RCA, 2-XRC-XLC01-RCA, and 2-XRC-XLD01-RCA. In the 2022 cycle the recreation use impairment remains with data collected at all four RCA stations showing two or more E.coli STV exceedances in the same 90-day period with less than 10 samples = impaired (revised E.coli WQS analysis). This recreational use impairment is included in the Moore's Creek bacteria TMDL (Federal TMDL ID# 23392) as a nested segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRC01A04 / Moore's Creek X-Trib / Moore's Creek X-trib from the headwaters downstream to its confluence with Moore's Creek.	4A	Escherichia coli (E. coli)	2020	L	1.67

Moore's Creek X-trib

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.67

Sources: Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H28R-04-BEN Moores Creek X-trib

Cause Location: Moores Creek X-trib from the headwaters downstream to its confluence with Moores Creek.
 (Start Mile: 1.66 End Mile: 0.00 Total Impaired Size: 1.66 Miles)

Cause City/County: Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station:
 2-XRC001.15 (Impaired for VSCI) and 2-XRC-XRC01-RCA (Impaired for VSCI). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRC01A04 / Moores Creek X-Trib / Moores Creek X-trib from the headwaters downstream to its confluence with Moores Creek.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	1.67

Moores Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.67

Sources: Impervious Surface/Parking Lot Runoff; Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Post-development Erosion and Sedimentation; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H28R-05-BEN** Meadow Creek

Cause Location: Meadow Creek from where it becomes a perennial stream downstream to its confluence with Moores Creek. (Start Mile: 4.98 End Mile: 0.00 Total Impaired Size: 4.98 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-MWC000.60 (Impaired for VSCI). Additional impaired data has been collected 2-MWC-MWC03-RCA (Impaired for VSCI) 2-MWC-MWC07-RCA (Impaired for VSCI); 2-MWC-MWC05-RCA (Impaired for VSCI); 2-MWC-MWC06-RCA (Impaired for VSCI); 2-MWC-MWC08-RCA (Impaired for VSCI); 2-MWC-MWC09-RCA (Impaired for VSCI); and 2-MWC-MWC10-RCA Impaired for VSCI). Initial Listing Date: 2006. This impairment is included in the EPA approved Meadow Creek sediment TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MWC01A00 / Meadow Creek / Meadow Creek from where it becomes a perennial stream downstream to its confluence with the Rivanna River.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	4.98

Meadow Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.98

Sources: Impervious Surface/Parking Lot Runoff; Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Post-development Erosion and Sedimentation; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H28R-06-BAC Rivanna River**

Cause Location: Rivanna River from its confluence with the North/South Fork Rivanna downstream to its confluence with Moores Creek. (Start Mile: 41.43 End Mile: 35.94 Total Impaired Size: 5.49 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-RVN037.54 (2 exceedances of 10 samples for e-coli in 2010, 0 of 2 in 2012, no since the 2012 cycle). 2022 cycle: Level III citizen monitoring samples were collected at RCA stations 2-RVN-RVN09-RCA and 2-RVN-RVN11-RCA. Both stations show impairment based on the revised E.coli WQS with two or more STV exceedances in the same 90-day period and a geomean exceedance in any 90-day period represented by 10+ samples. Initial Listing Date: 2006. This segment is included in the EPA approved Rivanna River bacteria TMDL. Federal TMDL ID # 35768.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_RVN01A00 / Rivanna River / Rivanna River from its confluence with North/South Fork Rivanna downstream to its confluence with Moores Creek.	4A	Escherichia coli (E. coli)	2006	L	5.49

Rivanna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.49

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H28R-07-BAC** **Schenks Branch**

Cause Location: Schenks Branch and tributaries from the headwaters downstream to its confluence with Meadow Creek. (Start Mile: 2.92 End Mile: 0.00 Total Impaired Size: 2.92 Miles)

Cause City/County: Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 2-SNK000.88 (3 exceedances of 3 samples for e-coli in 2014, no data in 2022) and 2-XSN000.08 (6 exceedances of 6 samples for e-coli in 2016, no data in 2022). Additional data collected at new RCA Level III E.coli station 2-SNK-SCK01-RCA in 2022 is impaired based on the revised E.coli WQS (two or more STV exceedances in the same 90-day period with less than 10 samples). Initial Listing Date: 2010. This impairment is nested into the EPA approved Rivanna River Bacteria TMDL (Meadow Creek watershed)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_SNK01A02 / Schenk's Branch / Schenk's Branch and tributaries from the headwaters downstream to its confluence with Meadow Creek.	4A	Escherichia coli (E. coli)	2010	L	2.92

Schenks Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H28R-07-BEN** **Schenks Branch**

Cause Location: Schenks Branch and tributaries from the headwaters downstream to its confluence with Meadow Creek. (Start Mile: 2.92 End Mile: 0.00 Total Impaired Size: 2.92 Miles)

Cause City/County: Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-SNK000.88 (Impaired for VSCI in 2018) and 2-XSN000.08. Additional impaired data has been collected in the past at RCA Level III station 2-SNK-SHV01-RCA. Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_SNK01A02 / Schenk's Branch / Schenk's Branch and tributaries from the headwaters downstream to its confluence with Meadow Creek.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.92

Schenks Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Impervious Surface/Parking Lot Runoff; Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Post-development Erosion and Sedimentation; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H28R-08-BAC Rivanna River UT**

Cause Location: Rivanna River UT from the headwaters downstream to its confluence with the Rivanna River.

Cause City/County: Albemarle County; Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-XRM-MDC01-RCA (two or more STV exceedances in the same 90-day period with less than 10 samples- revised E.coli WQS analysis). This impairment is nested into the Rivanna River Bacteria TMDL. Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRM01A18 / Rivanna River UT / Rivanna River UT from the headwaters downstream to its confluence with the Rivanna River.	4A	Escherichia coli (E. coli)	2022	L	0.44

Rivanna River UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.44

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H28R-08-BEN** **Biscuit Run**

Cause Location: Biscuit Run and tributaries from the tributary at the mobile home park downstream to its confluence with Moores Creek. (Start Mile 6.60 End Mile: 0.00 Total Impaired Size 6.60 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-BSC-BSC01-RCA (Impaired for VSCI). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_BSC01A00 / Biscuit Run / Biscuit Run and tributaries from the confluence with the tributary at the mobile home park downstream to its confluence with Moores Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	6.6

Biscuit Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.6

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: **H28R-09-BAC** Meadow Creek X-trib

Cause Location: Meadow Creek X-trib beginning near Rothery Street downstream to its confluence with Meadow Creek.

Cause City/County: Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This tributary to Meadow Creek is impaired for recreation use based on Level III E. coli data collected at RCA station 2BXMW-MWC12-RCA (two or more STV exceedances in the same 90-day period with less than 10 samples- revised E.coli WQS analysis). Initial Listing Date: 2022. This segment is nested in the EPA approved Meadow Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XMW01A10 / Meadow Creek X-trib / Meadow Creek X-trib beginning near Rothery Street downstream to its confluence with Meadow Creek.	4A	Escherichia coli (E. coli)	2022	L	1.78

Meadow Creek X-trib

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.78

Sources: Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H28R-09-BEN** **Morey Creek**

Cause Location: Morey Creek from the headwaters downstream to its confluence with Moores Creek. (Start Mile: 2.93 End Mile: 0.00 Total Impaired Size: 2.93 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to excursions of the General Standard for Benthics at station: 2-MOY-MRY01-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_MOY01A02 / Morey Creek / Morey Creek from the headwaters downstream to its confluence with Moore's Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.93

Morey Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.93

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H28R-10-BAC Biscuit Run

Cause Location: Biscuit Run and tributaries from the confluence with the tributary at the mobile home park downstream to its confluence with Moores Creek.

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at Rivanna Conservation Alliance level III station 2-BSC-BSC01-RCA (revised WQS- Two STV exceedances in the same 90-day period with less than 10 samples = Impaired). Initial Listing Date: 2022. This assessment unit is nested into the EPA approved Moores Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_BSC01A00 / Biscuit Run / Biscuit Run and tributaries from the confluence with the tributary at the mobile home park downstream to its confluence with Moores Creek.	4A	Escherichia coli (E. coli)	2022	L	6.6

Biscuit Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.6

Sources: Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H28R-10-BEN** **Town Branch**

Cause Location: Town Branch and tributary from the headwaters downstream to its confluence with the Rivanna River. (Start Mile: 1.19 End Mile: 0.00 Total Impaired Size: 1.19 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-TWN-TWN01-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_TWN01A10 / Town Branch / Town Branch and tributary from the headwaters downstream to its confluence with the Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.2

Town Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.2

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: **H28R-11-BAC** **UT to Moores Creek X-trib**

Cause Location: UT to Moores Creek X-trib from the headwaters downstream to its confluence with Moores Creek X-trib.

Cause City/County: Albemarle County; Charlottesville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreational use is not supporting based exceedances of citizen monitoring Level III e-coli data collected at Rivanna Conservation Alliance stations: 2BXRO-RCK01-RCA, 2BXRO-RCK02-RCA, and 2BXRO-XRC01-RCA. This recreational use impairment is included in the Moores Creek bacteria TMDL as a nested segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRO01A18 / UT to Moores Creek X-trib / UT to Moores Creek X-trib from the headwaters downstream to its confluence with Moores Creek X-trib.	4A	Escherichia coli (E. coli)	2022	L	1.16

UT to Moores Creek X-trib

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.16

Sources: Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H28R-11-BEN** Meadow Creek X-trib

Cause Location: Meadow Creek X-trib beginning near Rothery Street downstream to its confluence with Meadow Creek. (Start Mile: 1.78 End Mile 0.00 Total Impaired Size: 1.78 Miles)

Cause City/County: Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2BXMW-XMW01-RCA (Impaired for VSCI). No new data 2022. Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XMW01A10 / Meadow Creek X-trib / Meadow Creek X-trib beginning near Rothery Street downstream to its confluence with Meadow Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.78

Meadow Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.78

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H28R-12-BEN** **X-trib to Moores Creek**

Cause Location: X-trib to Moores Creek from the outfall of the Ragged Mountain Reservoir downstream to Moores Creek. (Start Mile: 2.23 End Mile: 0.00 Total Impaired Size: 2.23 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-XMR-XMR01-RCA (Impaired for VSCI). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XMR01A12 / X-trib to Moores Creek / X-trib to Moores Creek from the outfall of the Ragged Mountain Reservoir downstream to Moores Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.23

X-trib to Moores Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.23

Sources: Dam or Impoundment; Non-Point Source

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James River Basin

Cause Group Code: **H28R-13-BEN** **X-trib above Ragged Mountain Reservoir**

Cause Location: X-trib above Ragged Mountain Reservoir downstream to the north arm pool of the Ragged Mountain Reservoir. (Start Mile: .29 End Mile: 0.00 Total Impaired Size: .29 Miles)

Cause City/County: Albemarle County; Charlottesville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2BXRG-XGM01-RCA (Impaired for VSCI) Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRG01A18 / X-trib above Ragged Mountain Reservoir (North of I-64) / X-trib above Ragged Mountain Reservoir from the headwaters downstream to the pool of Ragged Mountain Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	0.29

X-trib above Ragged Mountain Reservoir

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.29

Sources: Source Unknown

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James River Basin

Cause Group Code: **H28R-14-BEN** **UT to Meadow Creek X-trib**

Cause Location: UT to Meadow Creek X-trib from the headwaters downstream to Meadow Creek X-trib near Holy Comforter School. (Start Mile: .42 End Mile: 0.00 Total Impaired Size: .42 Miles.

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-XMB-INC01-RCA (Impaired for VSCI). Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XMB01A18 / UT to Meadow Creek X-trib / UT to Meadow Creek X-trib from the headwaters downstream to Meadow Creek X-trib. (Near Holy Comforter School)	5A	Benthic Macroinvertebrates Bioassessments	2018	L	0.41

UT to Meadow Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.41

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: **H28R-15-BEN** **Cow Branch**

Cause Location: Cow Branch from the headwaters downstream to its confluence with Moores Creek. (Start Mile: 2.47 End Mile: 0.00 Total Impaired Size: 2.47 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2BXRA-CWB02-RCA (Impaired for VSCI) Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XRA01A02 / Cow Branch / Cow Branch from the headwaters downstream to its confluence with Moores Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.48

Cow Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.48

Sources: Source Unknown

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James River Basin

Cause Group Code: **H28R-17-BEN** **Town Branch UT**

Cause Location: Town Branch UT from the headwaters downstream to its confluence with Town Branch.

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2BXWN-XWN02-RCA (Impaired for VSCI). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H28R_XWN01A20 / Town Branch UT / Town Branch UT from the headwaters downstream to its confluence with Town Branch.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	0.81

Town Branch UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.81

Sources: Source Unknown

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James River Basin

Cause Group Code: **H29R-03-BAC** **Buck Island Creek**

Cause Location: Buck Island Creek from the headwaters downstream to its confluence with the Rivanna River.
 (Start Mile: 9.17 End Mile: 0.00 Total Impaired Size: 9.17 Miles)

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-BID002.11 (2 exceedances of 12 samples for e-coli in 2018, no new data 2022) and 2-BID005.83 (6 exceedances of 9 samples for e-coli in 2010, no new data in 2022). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H29R_BID01A00 / Buck Island Creek / Buck Island Creek from the 5 mile upper limit of the PWS designation for the Lake Monticello Service Authority Public Water Intake downstream to its confluence with the Rivanna River.	5A	Escherichia coli (E. coli)	2008	L	2.66
VAV-H29R_BID02A00 / Buck Island Creek / Buck Island Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Lake Monticello Service Authority Public Water Intake.	5A	Escherichia coli (E. coli)	2008	L	6.51

Buck Island Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.17

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H29R-04-BAC** Rivanna River

Cause Location: Rivanna River from its confluence with Moores Creek downstream to its confluence with an unnamed tributary just below the RWSA-Glenmore STP.

Cause City/County: Albemarle County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS found at DEQ station 2-RVN033.65 (revised WQS: two or more STV exceedances in the same 90-day period with less than 10 samples = impaired). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H29R_RVN04A00 / Rivanna River / Rivanna River from its confluence with Moores Creek downstream to its confluence with an unnamed tributary just below the RWSA-Glenmore STP.	5A	Escherichia coli (E. coli)	2022	L	5.92

Rivanna River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.92

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H29R-04-BEN** Carroll Creek

Cause Location: Carroll Creek and tributaries from the headwaters downstream to its confluence with the Rivanna River. (Start Mile: 18.46 End Mile: 0.00 Total Impaired Size: 18.46 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-CRR000.27 (Impaired for VSCI) and 2-CRR-CRL01-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H29R_CAR01A06 / Carroll Creek / Carroll Creek and tributaries from the headwaters downstream to its confluence with the Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	18.46

Carroll Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			18.46

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H30R-01-BEN** **Mechunk Creek**

Cause Location: Mechunk Creek from its confluence with Jacks Branch downstream to the DOC water intake near the Route 250 bridge crossing. (Start Mile: 10.31 End Mile: 7.27 Total Impaired Size: 3.04 Miles) This impaired was shortened in 2018 with the delisting of the upstream segment.

Cause City/County: Albemarle County; Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-MCK007.47 (Impaired for VSCI) Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H30R_MCK02A10 / Mechunk Creek / Mechunk Creek from its confluence with Jacks Branch downstream to the DOC water intake near the Route 250 bridge crossing.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	3.04

Mechunk Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.04

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H30R-02-BEN** **East Prong Beaverdam Creek**

Cause Location: East Prong Beaverdam Creek and tributary from the headwaters downstream to its confluence with Beaverdam Creek. (Start Mile: 4.70 End Mile: 0.00 Total Impaired Size: 4.70 Miles)

Cause City/County: Fluvanna County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-BEP-BVE01-RCA (Impaired for VSCI). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H30R_BEP01A12 / East Prong Beaverdam Creek / East Prong Beaverdam Creek and tributary from the headwaters downstream to its confluence with Beaverdam Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.7

East Prong Beaverdam Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.7

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H30R-03-BEN** **Jacks Branch**

Cause Location: Jacks Branch and tributary from the headwaters downstream to its confluence with Mechunk Creek. (Start Mile 7.16 End Mile 0.00 Total Impaired Size: 7.16 Miles)

Cause City/County: Albemarle County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-JCK-JCK01-RCA (Impaired for VSCI). Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H30R_JCK01A12 / Jacks Branch / Jacks Branch and tributary from the headwaters downstream to its confluence with Mechunk Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	7.17

Jacks Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.17

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H31R-01-HG** Rivanna River

Cause Location: Rivanna River from its confluence with Mechunk Creek downstream to its confluence with Cunningham Creek.

Cause City/County: Fluvanna County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish consumption use is not supporting due to two exceedances of Mercury (Largemouth Bass and Smallmouth Bass) at station 2-RVN023.01 (Fish Tissue samples: 2 exceedances of Hg-Impaired; 1 exceedance of PCB - observed effect)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_RVN02A00 / Rivanna River / Rivanna River from its confluence with Mechunk Creek downstream to its confluence with Cunningham Creek.	5A	Mercury in Fish Tissue	2020	L	8.39

Rivanna River

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			8.39

Sources: Source Unknown

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James River Basin

Cause Group Code: **H31R-02-BEN** Carys Creek

Cause Location: Carys Creek from the headwaters downstream to the confluence with a major tributary upstream of the Rivanna River. (Start Mile: 1.80 End Mile: 0.00 Total Impaired Size: 1.80 Miles)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-CRY-CYC01-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_CRY01A08 / Carys Creek / Carys Creek from the headwaters downstream to its confluence with the Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.21

Carys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.21

Sources: Non-Point Source

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James River Basin

Cause Group Code: H31R-03-BEN X-trib to Boston Creek

Cause Location: X-trib to Boston Creek from the headwaters downstream to its confluence with Boston Creek. (Lake Monticello) (Start Mile: 2.29 End Mile: 0.00 Total Impaired Size: 2.29 Miles)

Cause City/County: Albemarle County; Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at the Rivanna Conservation Alliance Level III benthic station: 2-XYX-XYX01-RCA (Impaired for VSCI). Initial Listing Date: 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_XYX01A10 / X-trib to Boston Creek (Lake Monticello) / X-trib to Boston Creek from the headwaters downstream to its confluence with Boston Creek. (Lake Monticello)	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.3

X-trib to Boston Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.3

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: H31R-04-BEN X-trib to Rivanna River

Cause Location: X-trib to the Rivanna River from the headwaters downstream to its confluence with the Rivanna River. (Start Mile: 1.00 End Mile: 0.00 Total Impaired Size 1.00 Mile)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-XRN-XZZ01-RCA (Impaired for VSCI). Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_XRN01A10 / X-trib to the Rivanna River / X-trib to the Rivanna River from the headwaters downstream to its confluence with the Rivanna River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1

X-trib to Rivanna River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **H31R-05-BAC** Rivanna River

Cause Location: Rivanna River from its confluence with Mechunk Creek downstream to its confluence with Cunningham Creek. (Start Mile: 23.72 End Mile: 15.34 Total Impaired Size: 8.38 Miles)

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-RVN015.97 (2022 cycle, revised E.coli WQS: Two STV exceedances in the same 90-day period with less than 10 samples = Impaired). Additional data in 2022 collected at new RCA Level III E.coli station 2-RVN-RVN10-RCA: insufficient data with one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_RVN02A00 / Rivanna River / Rivanna River from its confluence with Mechunk Creek downstream to its confluence with Cunningham Creek.	5A	Escherichia coli (E. coli)	2016	L	8.39

Rivanna River

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 8.39

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H31R-05-BEN** Rivanna River

Cause Location: Rivanna River from its confluence with Carys Creek downstream to its confluence with the James River.

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at the Rivanna Conservation Alliance Level III benthic station 2-RVN-RVN05-RCA (Impaired for VSCI). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_RVN01A00 / Rivanna River / Rivanna River from its confluence with Carys Creek downstream to its confluence with the James River.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	8.89

Rivanna River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.89

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: H31R-06-BAC Roundabout Creek

Cause Location: Roundabout Creek from the headwaters downstream to its confluence with the Rivanna River.
 (Start Mile: 3.48 End Mile: 0.00 Total Impaired Size: 3.48 Miles)

Cause City/County: Albemarle County; Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2BRNB000.63 (6 exceedances of 12 samples for e-coli in 2018, no new data 2022) Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H31R_RNB01A18 / Roundabout Creek / Roundabout Creek from the headwaters downstream to its confluence with the Rivanna River.	5A	Escherichia coli (E. coli)	2018	L	3.47

Roundabout Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.47

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H32L-01-CHLA** **Fluvanna Ruritan Lake**

Cause Location: Fluvanna Ruritan Lake

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: This lake is impaired for nutrients in 2022 with two years of monitoring data exhibiting exceedance of the Chlorophyll-a WQS

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32L_00 / Fluvanna Ruritan Lake / Fluvanna Ruritan Lake	5A	Chlorophyll-a	2022	L	51.13

Fluvanna Ruritan Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		51.13	

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H32L-01-DO** **Fluvanna Ruritan Lake**

Cause Location: Fluvanna Ruritan Lake

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: This lake is impaired due to exceedances of the DO WQS at station: 2-CFK004.34 (18 exceedances of 81 samples for DO).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32L_00 / Fluvanna Ruritan Lake / Fluvanna Ruritan Lake	5A	Dissolved Oxygen	2012	L	51.13

Fluvanna Ruritan Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	51.13	

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H32R-02-BAC** Middle Fork Cunningham Creek

Cause Location: Middle Fork Cunningham Creek and tributary from the headwaters downstream to its confluence with Cunningham Creek. (Start Mile: 7.43 End Mile: 0.00 Total Impaired Size: 7.43 Miles)

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5R

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 2-CNM002.25 (6 exceedances of 18 samples for e-coli in 2010, 1 of 9 in 2012, no new data in 2022, remained impaired) and 2-CNM004.16 (2 exceedances of 12 samples for e-coli in 2010, 1 of 9 in 2012, no new data in 2022, remains impaired). The impaired waters in this assessment unit are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CNM01A00 / Cunningham Creek Middle Fork / Middle Fork Cunningham Creek from its confluence with an unnamed tributary originating near Antioch downstream to its confluence with Cunningham Creek.	5R	Escherichia coli (E. coli)	2006	L	3.41
VAV-H32R_CNM02A04 / Middle Fork Cunningham Creek / Middle Fork Cunningham Creek and tributary from the headwaters downstream to its confluence with an unnamed tributary originating near Antioch.	5R	Escherichia coli (E. coli)	2008	L	4.03

Middle Fork Cunningham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.44

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **H32R-02-BEN** Middle Fork Cunningham Creek

Cause Location: Middle Fork Cunningham Creek from its confluence with an unnamed tributary originating near Antioch downstream to its confluence with Cunningham Creek. (Start Mile: 3.41 End Mile: 0.00 Total Impaired Size: 3.41 Miles)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5R

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations 2-CNM-CNM07-RCA (Impaired for VSCI), 2-CNM001.75 (Impaired for VSCI), and 2-CNM002.25 (Impaired for VSCI). The impaired waters in this assessment unit are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CNM01A00 / Cunningham Creek Middle Fork / Middle Fork Cunningham Creek from its confluence with an unnamed tributary originating near Antioch downstream to its confluence with Cunningham Creek.	5R	Benthic Macroinvertebrates Bioassessments	2010	L	3.41

Middle Fork Cunningham Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.41

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H32R-03-BAC** **Middle Fork Cunningham Creek X-trib**

Cause Location: Middle Fork Cunningham Creek X-trib from the headwaters downstream to its confluence with the Middle Fork Cunningham Creek. (Start Mile: 3.77 End Mile: 0.00 Total Impaired Size: 3.77 Miles)

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5R

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-XPA000.57 (2 exceedances of 12 samples for e-coli, no new data 2022). The impaired waters in this segment are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial listing date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_XPA01A06 / X-trib to the Middle Fork Cunningham Creek / X-trib to the Middle Fork Cunningham Creek (including major tributary) from the headwaters downstream to its confluence with the Middle Fork Cunningham Creek.	5R	Escherichia coli (E. coli)	2008	L	3.77

Middle Fork Cunningham Creek X-trib

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.77

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H32R-04-BEN X-trib to North Fork Cunningham Creek

Cause Location: X-trib to North Fork Cunningham Creek from the headwaters downstream to its confluence with the North Fork Cunningham Creek. (Start Mile: .59 End Mile: 0.00 Total Impaired Size: .59 Miles)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5R

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at station: 2-XCF-XCF01-RCA (Impaired for VSCI). The impaired waters in this segment are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2010

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_XCF01A10 / X-trib to North Fork Cunningham Creek / X-trib to North Fork Cunningham Creek from the headwaters downstream to its confluence with the North Fork Cunningham Creek.	5R	Benthic Macroinvertebrates Bioassessments	2010	L	0.59

X-trib to North Fork Cunningham Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.59

Sources: Municipal (Urbanized High Density Area); Non-Point Source

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James River Basin

Cause Group Code: H32R-05-BAC Cunningham Creek North Fork

Cause Location: North Fork Cunningham Creek from the Fluvanna Ruritan Lake outfall downstream to its confluence with Cunningham Creek.

Cause City/County: Albemarle County; Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5R

Cause Description: Recreational use is not supported due to exceedances of the e-coli WQS at 2-CFK001.31 (6 exceedances of 36 samples for e-coli in 2020, no new data 2022). The impaired waters in this assessment unit are to be addressed through the implementation of the Cunningham Creek Watershed Plan.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CFK01A00 / Cunningham Creek North Fork / North Fork Cunningham Creek from the Fluvanna Ruritan Lake outfall downstream to its confluence with Cunningham Creek.	5R	Escherichia coli (E. coli)	2020	L	4.19

Cunningham Creek North Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.19

Sources: Source Unknown

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James River Basin

Cause Group Code: **H32R-05-BEN** **Cunningham Creek North Fork**

Cause Location: North Fork Cunningham Creek from the Fluvanna Ruritan Lake outfall downstream to its confluence with Cunningham Creek. (Start Mile: 4.18 End Mile: 0.00 Total Impaired Size: 4.18 Miles)

Cause City/County: Albemarle County; Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5R

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station 2-CFK001.31 (Impaired for VSCI). The impaired waters in this assessment unit are being addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date; 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CFK01A00 / Cunningham Creek North Fork / North Fork Cunningham Creek from the Fluvanna Ruritan Lake outfall downstream to its confluence with Cunningham Creek.	5R	Benthic Macroinvertebrates Bioassessments	2012	L	4.19

Cunningham Creek North Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.19

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H32R-06-BAC** **Cunningham Creek**

Cause Location: Cunningham Creek from the confluence of the Middle/South Fork Cunningham Creek downstream to its confluence with the Rivanna River.

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5R

Cause Description: Recreational use is not supporting due to exceedances of the bacteria WQS at stations 2-CXB000.86 (7 exceedances of 36 samples for e-coli in 2020, no new data 2022) and 2-CXB005.39 (11 exceedances of 36 samples for e-coli in 2020, no new data 2022). The impaired waters in this assessment unit are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial listing date: 2020

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CXB01A00 / Cunningham Creek / Cunningham Creek from the confluence of the Middle/South Fork Cunningham Creek downstream to its confluence with the Rivanna River.	5R	Escherichia coli (E. coli)	2020	L	5.62

Cunningham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.62

Sources: Source Unknown

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James River Basin

Cause Group Code: **H32R-06-BEN** **Cunningham Creek**

Cause Location: Cunningham Creek from the confluence of the Middle/South Fork Cunningham Creek downstream to its confluence with the Rivanna River. (Start Mile: 5.62 End Mile: 0.00 Total Impaired Size (5.62 Miles))

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5R

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-CXB000.86 (Impaired for VSCI) The impaired waters in this assessment unit are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CXB01A00 / Cunningham Creek / Cunningham Creek from the confluence of the Middle/South Fork Cunningham Creek downstream to its confluence with the Rivanna River.	5R	Benthic Macroinvertebrates Bioassessments	2012	L	5.62

Cunningham Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.62

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H32R-07-BAC** South Fork Cunningham Creek

Cause Location: South Fork Cunningham Creek from the second x-trib downstream to its confluence with Cunningham Creek.

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5R

Cause Description: Impaired for recreational uses due to exceedances of the e-coli bacteria WQS at 2-CSF000.03 (6 exceedance of 35 samples for e-coli in 2020, no new data 2022). The impaired waters in this segment are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CSF01A00 / Cunningham Creek South Fork / South Fork Cunningham Creek from the second x-trib downstream to its confluence with Cunningham Creek.	5R	Escherichia coli (E. coli)	2020	L	1.59

South Fork Cunningham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.59

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H32R-07-BEN** **South Fork Cunningham Creek**

Cause Location: South Fork Cunningham Creek from the second x-trib downstream to its confluence with Cunningham Creek. (Start Mile: 1.58 End Mile: 0.00 Total Impaired Size: 1.58 Miles)

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5R

Cause Description: This segment is impaired due to exceedances of the General Standard for benthics at station: 2-CSF000.10 (Impaired for VSCI). The impaired waters in this segment are to be addressed through the implementation of the Cunningham Creek Watershed Plan. Initial Listing Date: 2018

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-H32R_CSF01A00 / Cunningham Creek South Fork / South Fork Cunningham Creek from the second x-trib downstream to its confluence with Cunningham Creek.	5R	Benthic Macroinvertebrates Bioassessments	2018	L	1.59

South Fork Cunningham Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			1.59

Sources: Non-Point Source

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James River Basin

Cause Group Code: **H33L-01-CHLA** Powhatan Lake

Cause Location: Upper and lower

Cause City/County: Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: In 2014 the lake was impaired for aquatic life due to Chlorophyll a pooled violations at 2-STG000.21 and 2-STG000.91.

During the 2016 and 2018 cycle there was no new data so the segment remained impaired for Chlorophyll a.

During the 2020 cycle the segment remained impaired for Chlorophyll a. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33L_STG01A12 / Powhatan Lakes / Upper and Lower	5A	Chlorophyll-a	2014	L	61.36

Powhatan Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		61.36	

Sources: Source Unknown

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James River Basin

Cause Group Code: H33L-01-DO Powhatan Lake

Cause Location: Upper and lower

Cause City/County: Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2012 cycle the segment became a reservoir. The segment was impaired for aquatic life use due to DO violations at stations 2-STG000.21 and 2-STG000.91 with a pooled rate of 5/25.

During the 2014 cycle the segment remained impaired for aquatic life use due to DO violations at 2-STG000.21 and 2-STG000.91 with a pooled rate of 11/92.

During the 2016 and 2018 cycle there was no new data so the segment remained impaired for DO.

During the 2020 cycle the segment remained impaired for DO at 2-STG000.21(3/29) and 2-STG000.91(6/29).

During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33L_STG01A12 / Powhatan Lakes / Upper and Lower	5A	Dissolved Oxygen	2012	L	61.36

Powhatan Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	61.36	

Sources: Source Unknown

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James River Basin

Cause Group Code: **H33R-01-BAC** **Solomons Creek**

Cause Location: Solomons Creek from its headwaters downstream to its mouth at the James River.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Solomons Creek was assessed as not supporting of the Recreation Use goal in the 2010 cycle based on an E. coli exceedance rate of 7/12 at 2-SOL001.00 (Route 621.)

As this impairment is within the study area for the James River - Piedmont Region TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009, Solomons Creek is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_SOL01A10 / Solomons Creek / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2010	L	4.06

Solomons Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.06

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-02-DO** Deep Creek

Cause Location: Segment begins at the confluence of Deep Creek with Sallee Creek, and extends downstream to the Route 684 bridge.

Cause City/County: Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Deep Creek from Maxey Mill Creek to the Route 684 bridge (rm 3.00) was assessed as impaired of the Aquatic Life Use because of a dissolved oxygen exceedance rate of 2/12 at 2-DCR003.00. The TMDL was due in 2020, but natural conditions are suspected.

The DO exceedance rates at other stations were acceptable in the 2010 cycle (2/26 at 2-DCR007.93 and 1/11 at 2-DCR013.89); therefore, the upstream segment was shortened to the confluence with Sallee Creek.

The exceedance rate at 2-DCR003.00 was 3/23 during the 2016 cycle.

Additional monitoring is recommended.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_DCR01A98 / Deep Creek / Deep Creek from Sallee Creek to the Route 684 bridge (river mile 3.00)	5C	Dissolved Oxygen	2008	L	0.37

Deep Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.37

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **H33R-03-BAC** Sallee Creek

Cause Location: Sallee Creek from its headwaters to its mouth at Deep Creek.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Sallee Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 2-SLE002.65, which is located at the Route 60 bridge.

It is considered nested in the upper James River TMDL in the James River and Tributaries - Lower Piedmont Report, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_SLE01A00 / Sallee Creek / Sallee Creek from its headwaters to its mouth at Deep Creek.	4A	Escherichia coli (E. coli)	2014	L	7.08

Sallee Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.08

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-04-BAC** XAQ - Deep Creek, UT

Cause Location: The unnamed tributary XAQ from its headwaters to its mouth at Deep Creek.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the tributary was impaired of the Recreation Use due to an E. coli exceedance rate of 2/11 at station 2BXAQ001.17, which is located at Duke Road off of Route 684.

The stream is located within the study area for the James River and Tributaries - Lower Piedmont Region Bacterial TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The impairment will be addressed during implementation; therefore, it is considered nested.

No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_XAQ01A16 / XAQ - Deep Creek, UT / Headwaters to mouth at Deep Creek.	4A	Escherichia coli (E. coli)	2016	L	3.19

XAQ - Deep Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.19

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-05-BAC** **Davis Creek**

Cause Location: Davis Creek from its headwaters to its mouth at Muddy Creek.

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Davis Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 2-DVS001.23, which is located at the Route 687 bridge.

No additional monitoring has been conducted.

As this area is within the study area for the James River - Piedmont Region TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009, Davis Creek is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_DVS01A00 / Davis Creek / Davis Creek from its headwaters to its mouth at Muddy Creek.	4A	Escherichia coli (E. coli)	2012	L	7.68

Davis Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.68

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-06-BAC** **James River**

Cause Location: The James River from its confluence with the Rivanna River downstream to the confluence with Big Lickinghole Creek.

Cause City/County: Cumberland County; Fluvanna County; Goochland County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the James River from the Rivanna River downstream to Big Lickinghole Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 8/48 at 2-JMS157.28, which is located at the Route 45 bridge at Cartersville.

The exceedance rate was acceptable in the 2020 cycle (4/84); however, it was 2/12 at station 2-JMS166.50, and 4/12 at 2BJMS144.63. Therefore, the segment remained impaired.

The new bacteria criteria were implemented in the 2022 cycle, 2BJMS144.63 was impaired due to 2 or more STV hits in the same 90-day period with < 10 samples. There was insufficient information to assess 2-JMS166.50, so the impairment at that station was carried over.

The TMDL was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009 and the segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_JMS01A98 / James River / The James River from its confluence with the Rivanna River at river mile 166.61 downstream to the confluence with Big Lickinghole Creek at river mile 143.35.	4A	Escherichia coli (E. coli)	2016	L	23.09

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.09

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-07-DO** **Muddy Creek**

Cause Location: Muddy Creek from the confluence with Davis Creek downstream to its mouth at the James River.

Cause City/County: Cumberland County; Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Muddy Creek was assessed as not supporting of the Aquatic Life Use in the 2018 cycle due to a dissolved oxygen exceedance rate of 4/12 at 2-MUY01.23, which is located at the Route 684 bridge.

The exceedance rate was 6/24 in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_MUY01B00 / Muddy Creek / Muddy Creek from the confluence of Davis Creek downstream to the mouth at the James River.	5C	Dissolved Oxygen	2018	L	3.58

Muddy Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.58

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **H33R-08-BAC** Steger Creek

Cause Location: Steger Creek from its headwaters to the extent of backwater from Upper Powhatan Lake.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The upper portion of Steger Creek was impaired of the Recreation Use during the 2018 cycle due to an E. coli exceedance rate of 4/12 at monitoring station 2-STG002.00, which is located at the Route 684 bridge.

The new bacteria criteria were implemented in the 2022 cycle. Although the data from the 2018 cycle would have been assessed as insufficient for assessment under the new criteria, the impairment is carried over.

It is considered nested in the upper James River TMDL in the James River and Tributaries - Lower Piedmont report, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_STG02A18 / Stegers Creek / Stegers Creek from its headwaters to the backwater of upper Powhatan Lake.	4A	Escherichia coli (E. coli)	2018	L	3.11

Steger Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.11

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H33R-09-BAC** Gaddes Creek

Cause Location: Gaddes Creek from its headwaters to its mouth at the James River.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Gaddes Creek was impaired of the Recreation Use during the 2018 cycle due to an E. coli exceedance rate of 2/12 at monitoring station 2BGAD001.12, which is located at the Cosby Road (Rt. 621) bridge.

The new bacteria criteria were implemented in the 2022 cycle. Although the data from the 2018 cycle would have been assessed as insufficient for assessment if the new criteria had been effective at that time, the impairment is carried over as per guidance.

It is considered nested in the upper James River TMDL in the James River and Tributaries - Lower Piedmont report, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H33R_GAD01A18 / Gaddes Creek / Headwaters to mouth at the James River	4A	Escherichia coli (E. coli)	2018	L	2.75

Gaddes Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.75

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H34R-01-BAC** Byrd Creek

Cause Location: Segment comprises all of Byrd Creek, from its headwaters to its mouth at the Little River.

Cause City/County: Fluvanna County; Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Byrd Creek was initially considered fully supporting but threatened of the Recreation Use in 1998. It was later identified by the EPA for listing consideration. In the 2002 cycle, the segment was downgraded to impaired of the Recreation Use support goal based on fecal coliform standard exceedances recorded at the Route 603 bridge (2-BYR003.35); therefore the TMDL was due in 2010.

During the 2008 cycle, the impairment was converted to E. coli and the segment length was corrected.

Byrd Creek was impaired during the 2010 cycle: 2-BYR000.50 (2/10) 2-BYR003.35 (2/12) 2-BYR018.04 (1/11 - FS) 2-BYR021.58 (6/25)

Byrd Creek remained impaired during the 2020 cycle with the following violation rates: 2-BYR003.35 (0/10 - FS) 2-BYR021.58 (3/11)

The new bacteria WQS were implemented in the 2022 cycle. Although the 2020 result would have been insufficient information if it had been analyzed under the current criteria, the impairment will be carried over.

The TMDL was completed as part of the James River and Tributaries - Lower Piedmont Bacterial TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The segment is therefore considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H34R_BYR01A98 / Byrd Creek / Byrd Creek from its headwaters at the confluence of Kent Branch and Venable Creek to its mouth at the Little River (branch of the James River) at Elk Island.	4A	Escherichia coli (E. coli)	2008	L	19.36

Byrd Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.36

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H34R-03-BAC** **Venable Creek**

Cause Location: Venable Creek from its headwaters to its mouth at Byrd Creek.

Cause City/County: Fluvanna County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Venable Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 3/12 at the Route 601 bridge (2-VNB001.89).

Venable Creek is a tributary of Byrd Creek, which is also impaired due to bacteria. The TMDL for Byrd Creek was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The TMDL requires a 100% reduction in anthropogenic direct loads, 99% reductions for agriculture, residential and urban loads, and a 71% reduction in wildlife loads; therefore, Venable Creek is considered a nested water (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H34R_VNB01A08 / Venable Creek / Headwaters to mouth at Byrd Creek	4A	Escherichia coli (E. coli)	2008	L	8.07

Venable Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.07

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H34R-04-BAC** **Phils Creek**

Cause Location: Phils Creek from its headwaters to its mouth at Byrd Creek.

Cause City/County: Fluvanna County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Phils Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 3/12 at the Route 601 bridge (2-PHL001.46).

Phils Creek is a tributary of Byrd Creek, which is also impaired due to bacteria. The TMDL for Byrd Creek was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The TMDL requires a 100% reduction in anthropogenic direct loads, 99% reductions for agriculture, residential and urban loads, and a 71% reduction in wildlife loads; therefore, Phils Creek is considered a nested water (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H34R_PHL01A08 / Phils Creek / Headwaters to mouth at Byrd Creek.	4A	Escherichia coli (E. coli)	2008	L	6.69

Phils Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.69

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H34R-04-BEN** **Phils Creek**

Cause Location: Phils Creek from its headwaters to its mouth at Byrd Creek.

Cause City/County: Fluvanna County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle, Phils Creek was assessed as impaired of the Aquatic Life Use due to an altered benthic community at 2-PHL003.97, which is located at the Route 629 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H34R_PHL01A08 / Phils Creek / Headwaters to mouth at Byrd Creek.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	6.69

Phils Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.69

Sources: Source Unknown

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James River Basin

Cause Group Code: **H34R-05-BAC** Mill Creek

Cause Location: Mills Creek from its headwaters to its mouth at Little Byrd Creek.

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Mills Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 5/12 at the Route 609 bridge (2-MML001.31).

Mill Creek is located within the Byrd Creek watershed, which is also impaired due to bacteria. The TMDL for Byrd Creek was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The TMDL requires a 100% reduction in anthropogenic direct loads, 99% reductions for agriculture, residential and urban loads, and a 71% reduction in wildlife loads; therefore, Mill Creek is considered a nested water (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H34R_MML01A08 / Mill Creek / Headwaters to mouth at Little Byrd Creek	4A	Escherichia coli (E. coli)	2008	L	6

Mill Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H35R-01-BAC** **Willis River**

Cause Location: Willis River from its headwaters to its confluence with Little Willis River

Cause City/County: Buckingham County; Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 1998 cycle, Willis River from the confluence with Reynolds Creek downstream to its mouth was impaired of the Recreation Use due to fecal coliform exceedances. The impairment was addressed in the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004.

The Willis River from its headwaters to the confluence with the Little Willis River was first listed for a bacterial TMDL in the 2004 cycle (fecal coliform). It converted to an E. coli impairment in the 2016 cycle. The exceedance rates were as follows in the 2022 cycle:

2-WLS042.78 - 12/36 2-WLS055.54 - 4/12 (2016 cycle)

It remains impaired due to 2 or more STV hits in the same 90-day period with < 10 samples.

NOTE: In older cycles, the Recreation Use impairments on upstream Willis River were considered addressed in the TMDL. In the 2018 cycle, the upstream impairment was changed to nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H35R_WLS01A04 / Willis River / Willis River from its headwaters to Tongue Quarter Creek	4A	Escherichia coli (E. coli)	2016	L	12.25
VAP-H35R_WLS02A04 / Willis River / Willis River from Tongue Quarter Creek to the Little Willis River confluence	4A	Escherichia coli (E. coli)	2012	L	10.34

Willis River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			22.59

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: H35R-02-BAC XQM - Willis River, UT

Cause Location: An unnamed tributary to the Willis River near Route 638

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: XQM, an unnamed tributary of the Willis River, was initially considered impaired of the Recreation Use due to a fecal exceedance rate of 3/9 at station 2-XQM000.03 in the 2004 cycle.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004.

In previous cycles, it was considered part of the TMDL, however in the 2018 cycle it was determined that the stream itself was not specifically addressed so the impairment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H35R_XQM01A00 / XQM - Willis River, Unnamed Tributary / An unnamed tributary to the Willis River near Route 638	4A	Fecal Coliform	2004	L	1.68

XQM - Willis River, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			1.68

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H35R-03-BAC** **Little Willis River**

Cause Location: The Little Willis River from Perkins Creek to its mouth at the Willis River.

Cause City/County: Buckingham County; Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little Willis River was initially considered impaired of the Recreation Use in the 2008 cycle due to an E. coli exceedance rate of 2/8 at 2-LWW004.14. The exceedance rate was 3/23 in the 2016 cycle.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004 and is considered nested.

No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H35R_LWW01A08 / Little Willis River / Little Willis River from Perkins Creek to its mouth on the Willis River	4A	Escherichia coli (E. coli)	2008	L	6.14

Little Willis River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.14

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H35R-04-BAC** **Whispering Creek**

Cause Location: Whispering Creek from its headwaters to its mouth at the Willis River.

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Whispering Creek was considered impaired of the Recreation Use in the 2014 cycle due to an E. coli exceedance rate of 4/12 at 2-WSP001.95.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004 and is considered nested.

No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H35R_WSP01A08 / Whispering Creek / Whispering Creek from its headwaters to its mouth on the Willis River	4A	Escherichia coli (E. coli)	2014	L	13.47

Whispering Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.47

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: H35R-05-BAC Tongue Quarter Creek

Cause Location: Tongue Quarter Creek from its headwaters to its mouth at the Willis River.

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Tongue Quarter Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 2-TQC003.20, which is located at Broken Bridge Road.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004 and is considered nested.

There has been no additional information collected in the 2022 cycle; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H35R_TQC01A20 / Tongue Quarter Creek / Headwaters to mouth at the Willis River	4A	Escherichia coli (E. coli)	2020	L	6.42

Tongue Quarter Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.42

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H36L-02-DO** **Bear Creek Lake**

Cause Location: Bear Creek Lake in its entirety

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2022 cycle the segment became impaired for Dissolved Oxygen with an exceedance rate of 5/16 at station 2-BRC001.55.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36L_BRC01A06 / Bear Creek Lake / Bear Creek Lake at Bear Creek Lake State Park	5A	Dissolved Oxygen	2022	L	41.11

Bear Creek Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	41.11	

Sources: Dam or Impoundment

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James River Basin

Cause Group Code: **H36R-01-BAC** **Willis River**

Cause Location: Willis River from the confluence of Reynolds Creek to its mouth.

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 1998 cycle, Willis River from the confluence with Reynolds Creek downstream to its mouth was impaired of the Recreation Use due to fecal coliform exceedances. The impairment was addressed in the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004.

During the 2020 cycle, the E. coli exceedance rate was 8/35 at 2-WLS004.27.

NOTE:

In previous cycles, the Recreation Use impairments on upstream Willis River were considered addressed in the TMDL. In addition, fact sheet H36R-01-BAC extended from the northern Cumberland State Forest boundary to the mouth. In the 2018 cycle, the length of this fact sheet is shortened to match the original TMDL segment (also see fact sheet H36R-07-BAC) and the upstream areas were changed to nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_WLS01A00 / Willis River / The Willis River from the Reynolds Creek confluence to its mouth at the James River.	4A	Escherichia coli (E. coli)	2006	L	14.88

Willis River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.88

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H36R-02-BAC** **Randolph Creek**

Cause Location: Randolph Creek from the headwaters to the upstream limit of Sports Lake.

Cause City/County: Buckingham County; Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The upper portion of Randolph Creek was considered impaired of the Recreation Use in the 2002 cycle due to fecal coliform exceedances at hog farm special study stations PL-21A and PL-21B.

The impairment converted to E. coli during the 2006 cycle.

During the 2022 cycle, the stream remained impaired due to 2 or more STV hits in the same 90-day period with < 10 samples at station 2-RND004.39.

In previous cycles, the Recreation Use impairment on Randolph Creek was considered addressed in the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/20025 and by the SWCB on 6/17/2004. In the 2018 cycle, the impairment was changed to nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_RND01A00 / Randolph Creek / Randolph Creek from the headwaters to the upstream limit of Sports Lake.	4A	Escherichia coli (E. coli)	2006	L	11.81

Randolph Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.81

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H36R-02-BEN** **Randolph Creek**

Cause Location: Randolph Creek from the headwaters to the upstream limit of Sports Lake.

Cause City/County: Buckingham County; Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The upper portion of Randolph Creek was considered impaired of the Aquatic Life Use in the 2008 cycle based on the results of benthic monitoring at 2-RND003.57, a 2001 probabilistic monitoring station.

The habitat assessment indicated sediment impacts.

No additional monitoring has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_RND01A00 / Randolph Creek / Randolph Creek from the headwaters to the upstream limit of Sports Lake.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	11.81

Randolph Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.81

Sources: Source Unknown

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James River Basin

Cause Group Code: **H36R-04-BAC** **Hatcher Creek**

Cause Location: Hatcher Creek from the headwaters to its mouth at the Willis River

Cause City/County: Buckingham County; Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Hatcher Creek was considered impaired of the Recreation Use in the 2010 cycle due to E. coli exceedances at 2-HCH004.81.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004, and is considered nested.

The exceedance rate was 2/12 during the 2016 cycle. No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_HCH01A04 / Hatcher Creek / Hatcher Creek from the headwaters to its mouth at the Willis River	4A	Escherichia coli (E. coli)	2010	L	10.18

Hatcher Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.18

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H36R-05-BAC** Reynolds Creek

Cause Location: Reynolds Creek from its headwaters to its mouth at the Willis River

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Reynolds Creek was impaired of the Recreation Use in the 2012 cycle due to an E. coli exceedance rate of 3/12 at 2-RLD000.48.

No additional monitoring has been conducted.

The stream is located within the study area for the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004 and is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_RLD01A06 / Reynolds Creek / Reynolds Creek from its headwaters to the Cumberland State Forest Boundary	4A	Escherichia coli (E. coli)	2012	L	4.15
VAP-H36R_RLD01C10 / Reynolds Creek / Reynolds Creek from the Cumberland State Forest Boundary to the mouth at the Willis River	4A	Escherichia coli (E. coli)	2012	L	2.70

Reynolds Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.85

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H36R-05-BEN** Reynolds Creek

Cause Location: Reynolds Creek from its headwaters to its mouth at the Willis River

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Reynolds Creek was impaired of the Aquatic Life Use in the 2014 cycle due to monitoring at 2-RLD000.48 in 2009 and 2012.

This stream is in the Cumberland State Forest. It is characterized by marginal bank stability, excessive sediment deposition, and marginal epifaunal substrate. Biologist notes from 2009 and 2012 indicate very unstable habitat, mostly consisting of leaf packs and woody debris that were covered in sediment. Heavy local watershed erosion was also noted. In 2012 there was noted beaver activity affecting habitat availability.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_RLD01A06 / Reynolds Creek / Reynolds Creek from its headwaters to the Cumberland State Forest Boundary	5A	Benthic Macroinvertebrates Bioassessments	2014	L	4.15
VAP-H36R_RLD01C10 / Reynolds Creek / Reynolds Creek from the Cumberland State Forest Boundary to the mouth at the Willis River	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.70

Reynolds Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.85

Sources: Source Unknown

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James River Basin

Cause Group Code: **H36R-06-BEN** **Bigger Creek**

Cause Location: Bigger Creek from its headwaters to the mouth on Reynolds Creek.

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Bigger Creek is impaired of the Aquatic Life Use based on monitoring at 2-BIO000.45 in 2009 and 2014. This site is in the Cumberland State Forest and had marginal bank stability, pronounced sediment deposition, and suboptimal epifaunal substrate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_BIO01A08 / Bigger Creek / Bigger Creek from its headwaters to the Cumberland State Forest Boundary.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	1.20
VAP-H36R_BIO01C10 / Bigger Creek / Bigger Creek from the Cumberland State Forest Boundary to the mouth on Reynolds Creek	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3.24

Bigger Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.44

Sources: Source Unknown

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James River Basin

Cause Group Code: **H36R-07-BAC** **Willis River**

Cause Location: Willis River from the southern boundary of the Cumberland State Forest downstream to the confluence of Reynolds Creek.

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 1998 cycle, Willis River from the confluence with Reynolds Creek downstream to its mouth was impaired of the Recreation Use due to fecal coliform exceedances. The impairment was addressed in the Willis River Fecal Coliform TMDL, which was approved by the EPA on 5/31/2002 and by the SWCB on 6/17/2004.

In older cycles, all of the Recreation Use impairments on upstream Willis River were considered addressed in the TMDL. In addition, fact sheet H36R-01-BAC extended from the southern Cumberland State Forest boundary to the mouth. In the 2018 cycle, the length of this fact sheet is shortened to match the original TMDL segment and the upstream areas were changed to nested. This impairment now extends from the southern boundary of the Cumberland State Forest downstream to Reynolds Creek.

The E. coli exceedance rates were as follows in the 2020 cycle: 2-WLS025.32 - 11/35 (IM) 2BWLS017.93 - 1/1 (W) 2-WLS030.32 - 5/11 (IM)

There was insufficient information to assess E.coli during the 2020 cycle due to the new bacteria criteria (one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean); therefore, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_WLS01B08 / Willis River / The Willis River from the southern boundary of the Cumberland State Forest downstream to its confluence with Reynolds Creek.	4A	Escherichia coli (E. coli)	2008	L	18.13

Willis River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.13

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H36R-07-BEN** **Bonbrook Creek**

Cause Location: The mainstem of Bonbrook Creek.

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 cycle, Bonbrook Creek was impaired of the Aquatic Life Use based on benthic macroinvertebrate sampling at 2-BRK001.00. This site is in the Cumberland State Forest and exhibited marginal bank stability, pronounced sediment deposition, and marginal epifaunal substrate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_BRK01A08 / Bonbrook Creek / Bonbrook Creek from its headwaters to its mouth on the Willis River, excluding portion within the Cumberland State Forest.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.12
VAP-H36R_BRK01C10 / Bonbrook Creek / Bonbrook Creek within the Cumberland State Forest Boundary	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.58

Bonbrook Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.7

Sources: Source Unknown

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James River Basin

Cause Group Code: **H36R-08-DO** Bear Creek

Cause Location: Bear Creek from its headwater to the extent of backwater from Bear Creek Lake.

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2018 cycle, upper Bear Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/26 at DCR station 2-BRC-BC-2-DCR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H36R_BRC01A18 / Bear Creek / Bear Creek from its headwaters to the backwater of Bear Creek Lake.	5C	Dissolved Oxygen	2018	L	3.68

Bear Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.68

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **H37R-01-BAC** **Big Lickinghole, Little Lickinghole, and White Hall Creeks**

Cause Location: The mainstems of Big Lickinghole Creek downstream of Old Miss Branch, Little Lickinghole Creek, and White Hall Creek.

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The creeks were initially considered impaired of the Recreation Use support goals during the 2002 cycle based on water quality monitoring performed at the confluence of Big Lickinghole Creek and Little Lickinghole Creek (2-BLG002.60).

During the 2008 cycle, TMDL monitoring for E. coli was conducted throughout the watershed. Although several stations on the creeks had acceptable violation rates, including the original listing station 2-BLG002.60 which had a violation rate of 2/23, the original segmentation was maintained. The impairment converted to E. coli. It was determined that a portion of Little Lickinghole Creek that had been included in the original impairment is actually called White Hall Creek. Since a TMDL station on White Hall Creek showed impairment, the stream continued to be included in the segment.

The TMDL was completed during the 2010 cycle as part of the James River and Tributaries - Lower Piedmont Region TMDL, which was adopted by the EPA on 6/11/2008 and by the SWCB on 4/28/2009 (Category 4A.)

The following were the violation rates on the streams during the 2010 cycle. 2-BLG002.60 - 2/23 2-BLG006.41 - 3/12 (IM) 2-BLG008.60 - 1/12 2-BLG011.41 - 0/1 2-BLG012.33 - 0/12 2-LIH005.28 - 4/24 (IM) 2-WHC000.46 - 2/12 (IM)

Based on the acceptable violation rates on Big Lickinghole Creek at the upstream stations, the portion of the stream upstream of Old Miss Branch were delisted and classified as Category 2C.

The segment remained impaired in the 2014 cycle based on an E. coli exceedance rate of 3/12 at 2-LIH005.28. Monitoring in the 2016 cycle at station 2-WHC000.46 was acceptable (0/11); therefore, further monitoring was recommended.

Monitoring at 2-BLG002.60 during the 2020 cycle continued to show impairment (3/12).

New bacteria criteria were implemented in the 2022 cycle. Monitoring was conducted at 2-BLG002.60, 2-LIH005.28, and 2-BLG006.41, however all three stations had insufficient information for assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H37R_BLG01A98 / Big Lickinghole Creek/Little Lickinghole Creek/White Hall Creek / Big Lickinghole (BLG), Little Lickinghole (LIH) and White Hall Creeks (WHC), excluding BLG upstream of Old Miss Branch.	4A	Escherichia coli (E. coli)	2008	L	22.53

Big Lickinghole, Little Lickinghole, and White Hall Creeks

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			22.53

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: H37R-02-BAC Tarred Rat Creek

Cause Location: The mainstem of Tarred Rat Creek.

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Tarred Rat Creek was monitored for E. coli as a part of the Big Lickinghole and Little Lickinghole Creeks' TMDL. The creek was assessed as not supporting of the Recreation Use based on an E. coli exceedance rate of 3/11 at the Route 687 bridge (2-TRT001.23).

The TMDL was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. The Big and Little Lickinghole Creeks require a 100% reduction in anthropogenic direct loads, 99% reductions in agricultural, residential, and urban loads, and a 53% reduction in wildlife loads. Due to the large reductions, implementation is expected to address the Tarred Rat Creek impairment as well; therefore, the segment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H37R_TRT01A08 / Tarred Rat Creek / Headwaters to mouth at Little Lickinghole Creek	4A	Escherichia coli (E. coli)	2008	L	3.31

Tarred Rat Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 3.31		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: H38R-01-BAC Little Creek

Cause Location: Little Creek below its confluence with Cheney's Creek.

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Little Creek below its confluence with Cheney's Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/11 at 2-LLI000.58, which is located off Route 607.

The stream is within the study area for the James River - Lower Piedmont Region Bacterial TMDL which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009; therefore, it is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_LLI01A12 / Little Creek / Cheney's Creek to mouth at James River	4A	Escherichia coli (E. coli)	2012	L	0.65

Little Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.65

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-02-BAC** Mohawk Creek

Cause Location: Mohawk Creek from its headwaters to its mouth at the James River.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Mohawk Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 2-MOH001.73, which is located at Route 617.

The stream is within the study area for the James River - Lower Piedmont Region Bacterial TMDL which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009; therefore, it is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_MOH01A12 / Mohawk Creek / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2012	L	4.69

Mohawk Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.69

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-03-BAC** Beaverdam Creek

Cause Location: Segment comprises all of Beaverdam Creek.

Cause City/County: Goochland County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Beaverdam Creek was considered impaired of the Recreation Use goal during the 2004 cycle based on a fecal coliform violation rate of 4/21 at the first bridge downstream of Route 6 (2-BDC000.79).

During the 2008 cycle, additional monitoring was conducted and the impairment converted to E. coli. The exceedance rate was 6/22 at 2-BDC000.79 and 2/12 at the Route 639 bridge (2-BDC003.52) during the 2010 cycle.

The TMDL was completed as part of the James River and Tributaries - Lower Piedmont Region Bacterial TMDL which was approved by the EPA on 6/11/2008 and by the SWCB on 4/29/2009. The impairment is considered Category 4A.

Additional monitoring was conducted during the 2020 cycle at 2-BDC000.79; the exceedance rate was 3/11.

The new E. coli criteria were implemented in the 2022 cycle. No monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_BDC01A98 / Beaverdam Creek / Beaverdam Creek from its headwaters to the James River.	4A	Escherichia coli (E. coli)	2008	L	8.74

Beaverdam Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.74

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-04-BAC** Fine Creek

Cause Location: Fine Creek from its headwaters to its mouth at the James River.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Fine Creek was impaired of the Recreation Use in the 2018 cycle due to an E. coli exceedance rate of 5/38 at 2-FIN000.81.

The TMDL was developed as part of the James River and Tributaries - Lower Piedmont Region Bacterial TMDL. The TMDL was approved by the EPA on 6/11/2008 and by the SWCB on 4/29/2009. Therefore, the segment is considered Category 4A.

The exceedance rate was 6/38 during the 2020 cycle.

New E. coli criteria were implemented in the 2022 cycle. There was insufficient information to assess.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_FIN01A98 / Fine Creek / Fine Creek from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2018	L	10.46

Fine Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.46

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-05-BAC** **XVV - UT to XNH (James River, UT)**

Cause Location: Segment comprises the unnamed tributary XVV from the Four Seasons laundry lagoon discharge to the mouth

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The tributary was assessed as not supporting of the Recreation Use in the 2004 cycle based on fecal coliform exceedances (2/2) in the ditch below the Four Seasons Laundry lagoon.

The stream is within the study area for the James River - Lower Piedmont Region Bacterial TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009; therefore, the impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_XVV01A04 / XVV - UT to XNH (UT to James River) / Roadside ditch downstream of Four Seasons Laundry lagoon.	4A	Fecal Coliform	2004	L	0.41

XVV - UT to XNH (James River, UT)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			0.41

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-06-BAC** Courthouse Creek

Cause Location: Segment comprises all of Courthouse Creek from its headwaters to the confluence with Beaverdam Creek.

Cause City/County: Goochland County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Courthouse Creek was initially assessed as impaired of the Recreation Use in the 2006 cycle due to E. coli exceedances at the Route 634 bridge (2-CTS003.23.)

During the 2008 cycle, the exceedance rate was 3/22 at 2-CTS003.23 and 6/12 at station 2-CTS007.27, which is located at the Route 633 bridge.

The TMDL for Beaverdam Creek, to which Courthouse Creek flows, was completed as part of the James River and Tributaries - Lower Piedmont Region Bacterial TMDL. The TMDL was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. Because the Beaverdam Creek impairment requires a 100% reduction in anthropogenic direct sources, 99% reductions in agricultural, residential, and urban sources, and a 77% reduction in wildlife sources within the watershed, it is believed that the implementation will also address the Courthouse Creek impairment. The segment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_CTS01A06 / Courthouse Creek / Headwaters to mouth at Beaverdam Creek	4A	Escherichia coli (E. coli)	2006	L	10.34

Courthouse Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.34

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H38R-07-DO** **Branch Creek**

Cause Location: Branch Creek from its headwaters to its mouth at Fine Creek.

Cause City/County: Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Branch Creek was assessed as impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/10 at the Route 615 bridge (2-BNH001.76).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_BNH01A08 / Branch Creek / Headwaters to mouth at Fine Creek	5C	Dissolved Oxygen	2008	L	5.51

Branch Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 5.51

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **H38R-08-BAC** **James River**

Cause Location: The James River from the confluence with Mohawk Creek to river mile 137.00

Cause City/County: Goochland County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River from Mohawk Creek downstream to rivermile 137 was impaired of the Recreation Use in the 2018 cycle (4/14 at 2BJMS136.77).

The segment is included in the James River Piedmont Region Bacterial TMDL, which was approved by the EPA on 6/11/2008 and by the SWCB on 4/28/2009. It is considered Category 4A.

The exceedance rates were as follows in the 2020 cycle: 2BJMS136.77 - 7/23 2BJMS-J25-JRA - 12/73 (IN/O) 2BJMS-JRTP-JRMN - 0/5 (IN)

Additional monitoring in the 2022 cycle was conducted under the new E. coli criteria. There were insufficient information to assess the standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H38R_JMS02A04 / James River / James River from the confluence with Mohawk Creek to river mile 137.00	4A	Escherichia coli (E. coli)	2018	L	3.75

James River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.75

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H39R-01-PH** **Broad Branch**

Cause Location: Broad Branch from its headwaters to the dam above Route 623.

Cause City/County: Goochland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: In 2006, Broad Branch was assessed as not supporting the Aquatic Life Use due to three high pH exceedances in the summer of 2003 at 2-BOD003.31, which is located downstream of a pond draining a golf course.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOD02A06 / Broad Branch / Broad Branch from its headwaters to the dam upstream of Route 623.	5A	pH	2006	L	2.64

Broad Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.64

Sources: Natural Sources; Non-Point Source

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James River Basin

Cause Group Code: **H39R-02-BAC** **Tuckahoe Creek and Major Tributaries**

Cause Location: Various streams within the Tuckahoe Creek watershed

Cause City/County: Goochland County; Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Tuckahoe Creek from Route 6 to its mouth at the James River was fully supporting but threatened of the Swimmable Use during the 1998 cycle due to fecal coliform exceedances at 2-TKO004.69. The creek was mistakenly included on Attachment A Part 1 of the Consent Decree.

In 2002, the portion of Tuckahoe Creek from the Route 6 bridge upstream to the confluence with Little Tuckahoe Creek, Little Tuckahoe Creek, and the upper portion of Deep Run were added to the impaired waters list. The TMDLs (13.75 total miles) were due by 2014.

Pre-TMDL monitoring in the watershed was conducted of the impaired- and previously threatened segments during the year 2004 cycle. Broad Branch was added as an impairment.

Tuckahoe Creek upstream of Little Tuckahoe Creek was impaired in the 2006 cycle based on monitoring at 2-TKO010.24.

During the 2008 cycle, several of the impairments converted to E. coli.

In the 2010 cycle, the exceedance rate at 2-TKO004.69 fell to 4/40; therefore, Tuckahoe Creek from Little Tuckahoe Creek downstream to its mouth was partially delisted (8.98 miles).

During the 2014 cycle, there was no additional monitoring conducted at Broad Branch; therefore, the fecal coliform impairment was carried over. E. coli monitoring confirmed the lower Deep Run impairment with an exceedance rate of 5/12 at 2-DPR001.00. Upper Deep Run remained impaired of the Recreation Use due to an E. coli violation rate of 4/10 at both stations 2-DPR002.46 and 2-DPR004.38 during the 2010 cycle; there had been no additional monitoring; therefore, the impairment is carried over. The exceedance rate on the upper portion of Tuckahoe Creek was 4/12 at 2-TKO010.64. Tuckahoe Creek from Little Tuckahoe Creek downstream to its mouth was relisted in the 2014 cycle based on an exceedance rate of 3/23 at 2-TKO004.69. Little Tuckahoe Creek remains impaired for E. coli with exceedances at 2-LIY001.73 and is assessed as Cat. 4A; the exceedance rate was 6/11 during the 2014 cycle.

The “Bacteria TMDL for Tuckahoe Creek, Little Tuckahoe Creek, Anderson, Broad, Georges, and Readers Branches, and Deep Run Henrico, Goochland, and Hanover Counties, Virginia” was approved by the EPA on 9/20/2004 and by the SWCB on 7/31/2008. The report allocates E. coli between nonpoint source, municipal (MS4) urban runoff, and a municipal discharger. The TMDL includes the entire watershed. All bacteria-impaired segments are assessed as Cat. 4A.

In the 2020 cycle, monitoring was conducted at 2-LIY001.73. Little Tuckahoe Creek remained impaired (7/11.) New bacteria criteria were implemented in the 2022 cycle. No additional monitoring was conducted in the 2022 cycle; however, the stream would remain impaired if the data were re-analyzed due to two or more STV hits in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOD01A00 / Broad Branch / Broad Branch from the dam upstream of Route 623 to the confluence with Tuckahoe Creek.	4A	Fecal Coliform	2004	L	2.42
VAP-H39R_BOD02A06 / Broad Branch / Broad Branch from its headwaters to the dam upstream of Route 623.	4A	Fecal Coliform	2004	L	2.64

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Tuckahoe Creek and Major Tributaries

Recreation Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 5.06

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DPR01A00 / Deep Run / Deep Run from its headwaters to the pond at river mile 1.47.	4A	Escherichia coli (E. coli)	2002	L	4.17
VAP-H39R_DPR02A00 / Deep Run / Deep Run from the dam at river mile 1.47 to the confluence with Tuckahoe Creek.	4A	Escherichia coli (E. coli)	2012	L	1.50
VAP-H39R_LIY01A00 / Little Tuckahoe Creek / Little Tuckahoe Creek from its headwaters to the confluence with Tuckahoe Creek.	4A	Escherichia coli (E. coli)	2002	L	6.02
VAP-H39R_TKO01A98 / Tuckahoe Creek / Tuckahoe Creek from the headwaters to the confluence with Little Tuckahoe Creek.	4A	Escherichia coli (E. coli)	2006	L	7.70
VAP-H39R_TKO03A98 / Tuckahoe Creek / Confluence with Little Tuckahoe Creek to mouth at James River.	4A	Escherichia coli (E. coli)	2014	L	8.97

Tuckahoe Creek and Major Tributaries

Recreation Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 28.36

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-02-DO** **Tuckahoe Creek Watershed**

Cause Location: Various streams within the Tuckahoe Creek watershed

Cause City/County: Goochland County; Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: There have been widespread dissolved oxygen exceedances on separate segments within the watershed.

The Tuckahoe Creek Natural Conditions Assessment report was completed in November 2005 to determine the source of the dissolved oxygen impairments. The report recommends delisting Deep Run and Little Tuckahoe Creek, reclassifying Tuckahoe Creek from Little Tuckahoe Creek to its mainstem as Class VII waters due to swamp conditions, and assessing multiple streams within the watershed as Category 4C waters due to natural low flow conditions. A portion of Tuckahoe Creek was delisted in the 2006 cycle due to acceptable dissolved oxygen exceedance rates.

Tuckahoe Creek was reclassified as Class VII swampwaters during the 2010 cycle.

Additional field data was collected in the 2016 cycle at 2-XUT000.62. The dissolved oxygen exceedance rate was acceptable (1/11); therefore, it was partially delisted. The Class VII portion of Tuckahoe Creek was delisted in the 2016 cycle. Per Virginia's Water Quality Standards (9VAC25-260-50), numeric dissolved oxygen standards only apply to Class VII waters when there is sufficient evidence the narrative criterion is not protective of aquatic life uses. To date, this Class VII water has not exhibited a need for a site-specific DO criterion, so the DO impairment has been removed.

The report attributes the low dissolved oxygen in Stony Run to natural low-flow conditions and recommends the segment be assessed as a Cat. 4C water. Additional monitoring was conducted at 2-SNJ000.19 in the 2016 cycle; however, there was insufficient data for assessment (1/9). One additional sample was collected at 2-SNJ001.41 (DO 0/1.) The exceedance rate was acceptable during the 2018 cycle (1/21 at 2-SNJ000.19); therefore, Stony Run was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOD01A00 / Broad Branch / Broad Branch from the dam upstream of Route 623 to the confluence with Tuckahoe Creek.	4C	Dissolved Oxygen	NA	NA	2.42
VAP-H39R_BOD02A06 / Broad Branch / Broad Branch from its headwaters to the dam upstream of Route 623.	4C	Dissolved Oxygen	NA	NA	2.64
VAP-H39R_GER01A02 / Georges Branch / Headwaters to mouth at Tuckahoe Creek	4C	Dissolved Oxygen	NA	NA	1.87
VAP-H39R_RDR01A02 / Readers Branch / Headwaters to mouth at Little Tuckahoe Creek	4C	Dissolved Oxygen	NA	NA	3.14
VAP-H39R_TKE01A04 / East Branch Tuckahoe Creek / Eastern Branch Tuckahoe Creek from the confluence with Tuckahoe Creek to the confluence with the James River (Kanawha Canal) near Boshers Dam.	4C	Dissolved Oxygen	NA	NA	3.48
VAP-H39R_XHP01A04 / XHP - UT to XCZ (Tuckahoe Creek, UT) / Mainstem from headwaters to mouth at XCZ	4C	Dissolved Oxygen	NA	NA	1.74

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VAP-H39R_XUR01A04 / XUR - UT to Tuckahoe Creek / Headwaters to mouth	4C	Dissolved Oxygen	NA	NA	2.67
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Tuckahoe Creek Watershed

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			17.96

Sources: Natural Sources; Non-Point Source

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James River Basin

Cause Group Code: **H39R-04-BAC** **Rattlesnake Creek**

Cause Location: The mainstem of Rattlesnake Creek from its headwaters to its mouth at the James River.

Cause City/County: Chesterfield County; Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Rattlesnake Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 4/11 at station 2-RTL000.04, which is located at Riverside Drive.

The creek is within the study area for the James River and Tributaries - City of Richmond TMDL, which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. Although the impairment was not specifically addressed, it will be included in the implementation phase of the TMDL and is therefore considered nested (Category 4A.)

In the 2020 cycle, monitoring at Alliance for the Chesapeake Bay station 2BRTL-RSC02-ACB confirmed the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_RTL01A08 / Rattlesnake Creek / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2010	L	2.23

Rattlesnake Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.23

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-05-BEN** Powwhite Creek

Cause Location: Powwhite Creek from its headwaters to its mouth at the James River.

Cause City/County: Chesterfield County; Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, Powwhite Creek was assessed as not supporting of the Aquatic Life Use goal due to impairment of the benthic community at station 2-PWT001.97, which is a freshwater probabilistic monitoring station.

The station was replaced by 2-PWT001.23 because the location is a more appropriate stream type (non-swampy). Monitoring at 2-PWT001.23 in 2012-2013 also indicated impairment, as did 2016 monitoring at 2-PWT001.40.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_PWT01A98 / Powwhite Creek / The mainstem of Powwhite Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	8.13

Powwhite Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.13

Sources: Source Unknown

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James River Basin

Cause Group Code: **H39R-06-BAC** **Reedy Creek**

Cause Location: Segment comprises Reedy Creek from its headwaters to its mouth at the James River.

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Reedy Creek was initially listed as threatened of the Recreation Use during the year 1998 cycle due to fecal coliform exceedances. The segment was downgraded to impaired in the year 2002 assessment based on exceedances at Riverside Drive in the City of Richmond (2-RDD000.19). The impairment converted to E. coli in the 2006 cycle.

Additional E. coli monitoring was conducted in preparation for the TMDL. During the 2010 cycle, the segment remained impaired with the following violation rates: 2-RDD000.19 - 10/34 2-RDD000.99 - 5/12 2-RDD001.57 - 22/24 2-RDD002.61 - 5/12 2-RDD003.61 - 5/12

The Reedy Creek impairment was addressed in the James River and Tributaries - City of Richmond TMDL, which was approved by the EPA on 11/4/2010. The stream is considered Category 4A.

In addition, 2-RDD000.76 was impaired in the 2020 cycle (4/22.) The creek remains impaired during the 2022 cycle due to two or more STV exceedances in a 90-day period at stations 2-RDD-RC3-ACB, 2-RDD-RC4-ACB, and 2-RDD-J21-ACB, as well as geometric mean exceedances at 2-RDD-J21-ACB.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_RDD01A00 / Reedy Creek / Reedy Creek from its headwaters to the tributary upstream of Roanoke Street.	4A	Escherichia coli (E. coli)	2006	L	2.38
VAP-H39R_RDD01B10 / Reedy Creek / Reedy Creek from the tributary upstream of Roanoke Street to Roanoke Street.	4A	Escherichia coli (E. coli)	2006	L	0.36
VAP-H39R_RDD01C10 / Reedy Creek / Reedy Creek from Roanoke Street to the James River.	4A	Escherichia coli (E. coli)	2006	L	1.09

Reedy Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.83

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-06-PCB** **Reedy Creek**

Cause Location: Reedy Creek from Roanoke Street to the James River.

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: During the 2020 cycle, lower Reedy Creek was impaired of the Fish Consumption Use due to two exceedances of the human health water quality standard for PCBs at 2-RDD000.19-S.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_RDD01C10 / Reedy Creek / Reedy Creek from Roanoke Street to the James River.	5A	Polychlorinated biphenyls (PCBs)	2020	H	1.09

Reedy Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.09

Sources: Source Unknown

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James River Basin

Cause Group Code: **H39R-06-PH** Reedy Creek

Cause Location: Reedy Creek from the tributary upstream of Roanoke Street downstream to Roanoke Street.

Cause City/County: Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2010 cycle, the portion of Reedy Creek around station 2-RDD000.99 was assessed as impaired of the Aquatic Life Use due to elevated pH levels.

The source of the pH impairment was considered unknown. However, the pH exceedances were 9.6 and 9.8 SU, which is substantially higher than at other stations on Reedy Creek and may be due to pooled water in the channelized stream.

The segment length was adjusted in the 2014 cycle to end at Roanoke Street because sampling at all other stations within Reedy Creek remain acceptable, including ACB station 2-RDD-RC1-ACB which is just downstream.

No additional pH data has been collected at 2-RDD000.99.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_RDD01B10 / Reedy Creek / Reedy Creek from the tributary upstream of Roanoke Street to Roanoke Street.	5A	pH	2010	L	0.36

Reedy Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.36

Sources: Source Unknown

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James River Basin

Cause Group Code: **H39R-07-BAC XZE - James River, UT**

Cause Location: The tributary from its headwaters to its mouth at the James River.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the tributary was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 4/11 at station 2-XZE000.19, which is located at a private drive downstream of Tarrington.

The stream is located within the study area for the James River - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XZE01A10 / XZE - James River, UT / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2010	L	1.31

XZE - James River, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.31

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-08-BAC** **James River**

Cause Location: Segment begins at the Boulevard Bridge at river mile 113.20 and extends downstream to the fall line of the James River.

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River was initially assessed not supporting of the Recreation use support goal in 1998 based on the results of a summer special study in the fall zone. The special study was designed to monitor the effects of summertime rain and combined sewer overflow (CSO) events on water quality in the James River and to monitor the effects of Richmond's CSO abatement efforts. The special study data used representative conditions before completion of CSO abatement projects.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired at stations 2-JMS110.37, 2-JMS111.17, and 2-JMS112.33 due to two or more STV hits in the same 90-day period with < 10 samples. There was insufficient information to assess several other stations.

The James River - City of Richmond Bacterial TMDL was approved by the EPA on 11/4/2010; therefore, the segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_JMS03A98 / James River / The James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge.	4A	Escherichia coli (E. coli)	2006	L	2.94
VAP-H39R_JMS03B14 / James River - South Channel / The south channel of the James River from the Belle Island dam to the Brown's Island dam. State Scenic River	4A	Escherichia coli (E. coli)	2006	L	0.95

James River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.89

Sources: Agriculture; Combined Sewer Overflows; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-08-DO** XAB - Salles Creek, UT

Cause Location: The tributary from its headwaters to its mouth at Salles Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2010 cycle, the unnamed tributary was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances at 2-SAL001.93, which is located at Route 711.

The violation rate was 3/19 during the 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XAB01A10 / XAB - Salles Creek, UT / Headwaters to mouth at Salles Creek	5A	Dissolved Oxygen	2010	L	0.1

XAB - Salles Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.1

Sources: Source Unknown

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James River Basin

Cause Group Code: **H39R-08-PH** XAB - Salles Creek, UT

Cause Location: The tributary from its headwaters to its mouth at Salles Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2010 cycle, the unnamed tributary was assessed as not supporting of the Aquatic Life Use due to pH exceedances at 2-SAL001.93, which is located at Route 711. The exceedance rate was 9/19 during the 2012 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XAB01A10 / XAB - Salles Creek, UT / Headwaters to mouth at Salles Creek	5A	pH	2010	L	0.1

XAB - Salles Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.1

Sources: Source Unknown

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James River Basin

Cause Group Code: **H39R-09-DO** **James River - South Channel**

Cause Location: The south channel of the James River around Belle Isle.

Cause City/County: Richmond

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: In the 2012 cycle, the James River from the Boulevard Bridge downstream to the fall line was assessed as not supporting of the Aquatic Life Use because of low dissolved oxygen at 2-JMS111.48. The station is located on the south channel of the James River below the Canoe Run CSO outfall.

All other stations within the segment had acceptable exceedance rates. Therefore, the south channel was separated during the 2014 cycle. The impairment is limited to the south channel between the Belle Island Dam and the Brown's Island dam. The north channel was partially delisted.

The exceedance rate was 9/58 at 2-JMS111.48 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_JMS03B14 / James River - South Channel / The south channel of the James River from the Belle Island dam to the Brown's Island dam. State Scenic River	5A	Dissolved Oxygen	2012	L	0.95

James River - South Channel

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.95

Sources: Combined Sewer Overflows; Source Unknown

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James River Basin

Cause Group Code: **H39R-10-BAC** **Bernards Creek**

Cause Location: The mainstem of Bernards Creek.

Cause City/County: Chesterfield County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Bernards Creek was initially assessed as impaired of the Recreation Use during the 2004 cycle based on fecal coliform exceedances at the Route 711 bridge (2-BOR001.73).

During the 2008 cycle, E. coli monitoring at 2-BOR001.73 was acceptable (1/11), however monitoring at the Route 607 bridge (2-BOR003.61) had an exceedance rate of 2/12 and the impairment was converted to E. coli.

In the 2014 cycle, exceedance rates were 4/27 at 2-BOR001.73 and 3/3 at downstream station 2-BOR000.02.

The TMDL was approved by the EPA on 11/4/2010. Bernards Creek is considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOR01A02 / Bernards Creek / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2008	L	8.13

Bernards Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.13

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-10-DO** **Bernards Creek**

Cause Location: The mainstem of Bernards Creek.

Cause City/County: Chesterfield County; Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2014 cycle, Bernards Creek was impaired of the Aquatic Life Use due to dissolved oxygen exceedances at 2-BOR001.73, which is located at the Route 711 bridge. Monitoring near the mouth was acceptable (0/3 at 2-BOR000.02).

The exceedance rate was 4/27 during the 2016 cycle.

Upstream monitoring was conducted in 2020 at station 2-BOR003.61; the station was acceptable (0/9). The dissolved oxygen impairment will be carried over; however, additional monitoring is suggested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOR01A02 / Bernards Creek / Headwaters to mouth at James River	5A	Dissolved Oxygen	2014	L	8.13

Bernards Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.13

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **H39R-10-PH** **Bernards Creek**

Cause Location: The mainstem of Bernards Creek.

Cause City/County: Chesterfield County; Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Bernards Creek was impaired of the Aquatic Life Use during the 2022 cycle due to a pH exceedance rate of 2/9 at station 2-BOR003.61.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_BOR01A02 / Bernards Creek / Headwaters to mouth at James River	5C	pH	2022	L	8.13

Bernards Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 8.13

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **H39R-11-HG** **James River**

Cause Location: The James River from the rivermile 128.14 near the confluence with Norwood Creek downstream to the confluence with Tuckahoe Creek.

Cause City/County: Goochland County; Powhatan County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The segment was assessed as not supporting of the Fish Consumption Use in the 2010 cycle due to mercury exceedances in redbreast sunfish and quillback carpsucker in 2003 and smallmouth bass in 2005. The monitoring occurred at station 2-JMS127.50, which is located at the end of Route 652 at Watkins Landing.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_JMS02B04 / James River / The James River from river mile 128.14 to the confluence with Tuckahoe Creek.	5A	Mercury in Fish Tissue	2010	L	4.37

James River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.37

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **H39R-12-BAC** Salles Creek

Cause Location: The mainstem of Salles Creek from its headwaters to its mouth at the James River.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Salles Creek was assessed as not supporting of the Recreation Use due to E. coli violations at station 2-SAL000.12, which is located at the Chesterfield County sewer line.

During the 2012 cycle, the violation rate was 9/22.

The creek is within the study area for the James River and Tributaries - City of Richmond TMDL, which was approved by the EPA on 11/4/2010. Although the impairment was not specifically addressed, it will be included in the implementation phase of the TMDL and is therefore considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_SAL01A08 / Salles Creek / Headwaters to mouth at James River	4A	Escherichia coli (E. coli)	2010	L	1.96

Salles Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 1.96

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-13-BAC** **Genito Creek**

Cause Location: Genito Creek from its headwaters to its mouth at the James River.

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Genito Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/10 at the Route 6 bridge (2-GEN000.69). The exceedance rate was 4/12 during the 2014 cycle.

Genito Creek is located within the study area for the James River - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010. Although the impairment was not specifically addressed, all bacterial impairments within the study area will be addressed during implementation; therefore, it is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_GEN01A00 / Genito Creek / Genito Creek from its headwaters to the James River, including the West Fork Genito Creek.	4A	Escherichia coli (E. coli)	2008	L	6.81

Genito Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.81

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-13-BEN** **Stony Run**

Cause Location: Stony Run from its headwaters to the extent of backwater at the pond.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, upper Stony Run was assessed as impaired of the Aquatic Life Use due to impairment of the benthic community at 2-SNJ001.77 (downstream of Church Road). Additional sampling in 2012 and 2019 confirmed the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_SNJ01A04 / Stony Run / Headwaters to extent of backwater of pond	5A	Benthic Macroinvertebrates Bioassessments	2008	H	1.01

Stony Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.01

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H39R-14-BAC** Jones Creek

Cause Location: Jones Creek from its headwaters downstream to its mouth at the extent of backwater of Woodberry Pond.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Jones Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 3/11 at 2-JOH004.04, which is located at Route 628.

The stream is located within the study area for the James River - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_JOH01A08 / Jones Creek / Headwaters downstream to mouth at Woodberry Pond.	4A	Escherichia coli (E. coli)	2012	L	8.2

Jones Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.2

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-15-BEN** **XYT - Stony Run, UT**

Cause Location: The unnamed tributary from its headwaters to its mouth at Stony Run.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, the tributary was assessed as impaired of the Aquatic Life Use due to impairment of the benthic communities at stations 2-XYT000.04 and 2-XYT000.29, which were located downstream and upstream of the Barrington pipeline spill.

Station 2-XYT000.29 was re-sampled in the 2022 cycle and remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XYT01A08 / XYT - Stony Run, UT / Headwaters to mouth at Stony Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	1.27

XYT - Stony Run, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			1.27

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H39R-16-HG** **James River**

Cause Location: The tidal James River from the fall line near Mayos Bridge to river mile 108.76.

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: During the 2010 cycle, the James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge was assessed as not supporting of the Fish Consumption Use due to the following mercury exceedances:

2-JMS109.98 - 1 sp. in 2004 2-JMS110.00 - 3 sp. in 2003, 2 sp. in 2004, & 2 sp in 2006

The fall line has subsequently been determined to be slightly upstream of those locations. In the 2022 cycle, the impairment has been moved from riverine AUs VAP-H39R_JMS03A98 and -JMS03B14 to tidal AU VAP-G01E_JMS01A02. The upper segments are considered delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	Mercury in Fish Tissue	2022	L	0.239

James River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.239		

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **H39R-17-CDANE** James River

Cause Location: The tidal James River from the fall line downstream to rivermile 108.76

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: Chlordane in Fish Tissue/5A

Cause Description: During the 2010 cycle, the James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge was assessed as not supporting of the Fish Consumption Use due to chlordane exceedances at 2-JMS110.00 (1 sp. in 2003 and 2 sp. in 2005 (carp and striped bass)).

The fall line has subsequently been determined to be slightly upstream of those locations. In the 2022 cycle, the impairment has been moved from riverine AUs VAP-H39R_JMS03A98 and -JMS03B14 to tidal AU VAP-G01E_JMS01A02. The upper segments are considered delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	Chlordane in Fish Tissue	2022	L	0.239

James River

Fish Consumption

Chlordane in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.239		

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **H39R-17-DDE** **James River**

Cause Location: The tidal James River from the fall line downstream to rivermile 108.76.

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: DDE in Fish Tissue/5A

Cause Description: During the 2010 cycle, the James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge was assessed as not supporting of the Fish Consumption Use due to DDE exceedances in carp in 2002 and blue catfish in 2003 at 2-JMS110.00.

The fall line has subsequently been determined to be slightly upstream of those locations. In the 2022 cycle, the impairment has been moved from riverine AUs VAP-H39R_JMS03A98 and -JMS03B14 to tidal AU VAP-G01E_JMS01A02. The upper segments are considered delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	DDE in Fish Tissue	2022	L	0.239

James River

Fish Consumption

DDE in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.239		

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **H39R-17-DDT** **James River**

Cause Location: The tidal James River from the fall line downstream to rivermile 108.76.

Cause City/County: Richmond

Use(s): Fish Consumption

Causes(s)/VA Category: DDT in Fish Tissue/5A

Cause Description: During the 2010 cycle, the James River from the Boulevard Bridge to the fall line at approximately the railroad trestle above Mayos Bridge was assessed as not supporting of the Fish Consumption Use due to DDT exceedances in carp in 2002, blue catfish in 2003, and striped bass in 2005 at 2-JMS110.00.

The fall line has subsequently been determined to be slightly upstream of those locations. In the 2022 cycle, the impairment has been moved from riverine AUs VAP-H39R_JMS03A98 and -JMS03B14 to tidal AU VAP-G01E_JMS01A02. The upper segments are considered delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	5A	DDT in Fish Tissue	2022	L	0.239

James River

Fish Consumption

DDT in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.239		

Sources: Atmospheric Deposition - Toxics; Source Unknown

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James River Basin

Cause Group Code: **H39R-18-BAC** XHP - Tuckahoe Creek, UT

Cause Location: Headwaters to mouth at tributary XCZ

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Tributary XHP has been assessed as not supporting of the Recreation Use since the 2006 cycle based on E. coli exceedances at 2-XHP000.42.

The “Bacteria TMDL for Tuckahoe Creek, Little Tuckahoe Creek, Anderson, Broad, Georges, and Readers Branches, and Deep Run Henrico, Goochland, and Hanover Counties, Virginia” was approved by the EPA on 9/20/2004 and by the SWCB on 7/31/2008. The report allocates E. coli between nonpoint source and urban runoff. The allocation includes the entire watershed. The segment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XHP01A04 / XHP - UT to XCZ (Tuckahoe Creek, UT) / Mainstem from headwaters to mouth at XCZ	4A	Escherichia coli (E. coli)	2006	L	1.74

XHP - Tuckahoe Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.74

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-19-DO** **Deep Run**

Cause Location: Deep Run from the dam at river mile 1.47 to its mouth at Tuckahoe Creek.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Deep Run was impaired of the Aquatic Life Use during the 2012 cycle due to a dissolved oxygen exceedance rate of 2/12 at 2-DPR001.00, which is located at the Route 6 bridge.

Additional monitoring was conducted in the 2022 cycle. The stream remained impaired (2/11).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DPR02A00 / Deep Run / Deep Run from the dam at river mile 1.47 to the confluence with Tuckahoe Creek.	5C	Dissolved Oxygen	2012	L	1.5

Deep Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.5

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **H39R-20-BAC** **Norwood Creek**

Cause Location: Norwood Creek from the confluence with Woodberry Pond to its mouth at the James River

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Norwood Creek from Dutoy Creek to mouth was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 2/13 at 2-NWD002.27, which is located at Route 711. Monitoring at station 2-NWD005.84 was acceptable.

In the 2014 cycle, there were E. coli exceedances as well at station 2-NWD005.84 (3/12). The impairment was extended upstream to Woodberry Pond dam.

The stream is located within the study area for the James River - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

The stream was re-sampled in 2018; however, there is insufficient information to assess it using the new bacteria criteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_NWD01B12 / Norwood Creek / Mainstem of Norwood Creek from Woodberry Pond dam to mouth.	4A	Escherichia coli (E. coli)	2012	L	6.36

Norwood Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.36

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-21-BAC** XAB - Salles Creek, UT

Cause Location: The unnamed tributary in its entirety.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, an unnamed tributary of Salles Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 3/18 at 2-SAL001.93, which is located on the UT at Route 711.

The stream is located within the study area for the James River - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XAB01A10 / XAB - Salles Creek, UT / Headwaters to mouth at Salles Creek	4A	Escherichia coli (E. coli)	2012	L	0.1

XAB - Salles Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.1

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-22-BAC** Manchester Canal

Cause Location: Manchester Canal

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the Manchester Canal was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/2 at station 2-MAN000.19 which is located at Stockton Street.

The stream is located within the study area for the James River - City of Richmond Bacterial TMDL, which was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_MAN01A12 / Manchester Canal (aka Walker Creek) / Manchester Canal	4A	Escherichia coli (E. coli)	2012	L	0.86

Manchester Canal

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.86

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-23-BAC** Michauk Creek

Cause Location: Michauk Creek from its headwaters to its mouth at Bernards Creek

Cause City/County: Chesterfield County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Michauk Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 4/12 at station 2-MCU002.95, which is located at Rt. 5147.

The stream is located within the Bernards Creek Watershed, which was addressed in the James River - City of Richmond Bacterial TMDL. The TMDL was approved by the EPA on 11/4/2010. The impairment will be addressed during the implementation phase of the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_MCU01A12 / Michauk Creek / Headwaters to mouth at Bernards Creek	4A	Escherichia coli (E. coli)	2012	L	4.48

Michauk Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.48

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-25-BAC** XCK - Reedy Creek, UT (aka Crooked Branch)

Cause Location: Headwaters to its mouth at Reedy Creek

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, the unnamed tributary (aka Crooked Branch) was impaired of the Recreation Use due to E. coli exceedances at 2-CKD-CB1-ACB, which is located 500 feet downstream of Crutchfield Street. The station is sampled by the Alliance for the Chesapeake Bay.

Reedy Creek was addressed in the James River and Tributaries - City of Richmond TMDL, which was approved by the EPA on 11/4/2010. The tributary is considered nested.

The exceedance rate was 7/18 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XCK01A14 / XCK - Reedy Creek, UT / Headwaters to mouth at Reedy Creek	4A	Escherichia coli (E. coli)	2014	L	1.25

XCK - Reedy Creek, UT (aka Crooked Branch)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.25

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-26-BAC** **Dover Creek**

Cause Location: Headwaters to the extent of backwater of Dover Lake

Cause City/County: Goochland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, upper Dover Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 2-DOV003.96, which is located at the Rt. 644 bridge.

Dover Creek is located within the study area for the James River - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. Although the impairment was not specifically addressed, all bacterial impairments within the study area will be addressed during implementation; therefore, it is proposed for nesting (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring has been conducted. Although the 2020 data would have been considered insufficient information had the new criteria been in place at the time, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DOV01A00 / Dover Creek / Dover Creek from its headwaters to the upstream limit of Dover Lake.	4A	Escherichia coli (E. coli)	2020	L	4.77

Dover Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.77

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-26-BEN** **Dover Creek**

Cause Location: Headwaters to the extent of backwater of Dover Lake

Cause City/County: Goochland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle, upper Dover Creek was impaired of the Aquatic Life Use due to an altered benthic community at 2-DOV003.55, a 2017 freshwater probabilistic monitoring station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DOV01A00 / Dover Creek / Dover Creek from its headwaters to the upstream limit of Dover Lake.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	4.77

Dover Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.77

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **H39R-27-BEN** **Deep Run**

Cause Location: Deep Run from its headwaters to the extent of backwater at the pond.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle, upper Deep Run was impaired of the Aquatic Life Use due to an altered benthic community at 2-DPR003.75, which is located at the northern edge of Deep Run Park. It was re-sampled in 2019 and remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DPR01A00 / Deep Run / Deep Run from its headwaters to the pond at river mile 1.47.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	4.17

Deep Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.17

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H39R-28-BEN** **Stony Run**

Cause Location: Stony Run from the dam of the pond downstream to the mouth at Deep Run.

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle, lower Stony Run was impaired of the Aquatic Life Use due to an altered benthic community at 2-SNJ000.19, which is located at Falcon Bridge Road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_SNJ02A04 / Stony Run / Dam of pond downstream to the mouth at Deep Run.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	1.36

Stony Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.36

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **H39R-29-BAC** XBH - Reedy Creek, UT

Cause Location: Headwaters to its mouth at Reedy Creek

Cause City/County: Richmond

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the unnamed tributary was impaired of the Recreation Use due to an E. coli exceedance rate of 12/13 at 2BXXBH-UT1-ACB, which is located at Bassett Avenue and West 46th Street. The station is sampled by the Alliance for the Chesapeake Bay.

The exceedance rate increased to 17/18 during the 2020 cycle.

Reedy Creek was addressed in the James River and Tributaries - City of Richmond TMDL, which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. The impairment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_XBH01A14 / XBH - Reedy Creek, UT / Headwaters to mouth at Reedy Creek	4A	Escherichia coli (E. coli)	2016	L	0.12

XBH - Reedy Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.12

Sources: Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-30-DO** **Dover Creek**

Cause Location: Dover Creek from the Dover Creek Lake dam to the mouth at the Little River.

Cause City/County: Goochland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2018 cycle, lower Dover Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/10 at 2-DOV000.42, which is located at the Route 6 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_DOV01B00 / Dover Creek / Dover Creek from the Dover Creek Lake dam to the mouth at the Little River.	5A	Dissolved Oxygen	2018	L	0.93

Dover Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.93

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **H39R-31-BAC** **James River**

Cause Location: The James River from rivermile 130.14 downstream to the confluence with Tuckahoe Creek

Cause City/County: Goochland County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, the James River from rivermile 130.14 downstream to Tuckahoe Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/11 at 2-JMS127.50, which is located at Watkins Landing.

The segment is located within the study area for the James River - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. Therefore, it is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional monitoring was conducted. The 2020 data would have been insufficient for assessment if the criteria had been implemented at the time; however, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_JMS01B00 / James River / The James River from river mile 130.14 to river mile 128.14.	4A	Escherichia coli (E. coli)	2020	L	2.04
VAP-H39R_JMS02B04 / James River / The James River from river mile 128.14 to the confluence with Tuckahoe Creek.	4A	Escherichia coli (E. coli)	2020	L	4.37

James River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.41

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-32-BAC** **Roberts Branch**

Cause Location: Headwaters to mouth at Bernards Creek

Cause City/County: Chesterfield County; Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Roberts Branch was impaired of the Recreation Use due to an E. coli exceedance rate of 5/12 at 2-ROB000.31.

Roberts Branch is located within the Bernard Creek watershed in the James River - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. Although the impairment was not specifically addressed, all bacterial impairments within the study area will be addressed during implementation; therefore, it is considered nested (Category 4A).

When the data is re-analyzed using the new bacteria criteria, which were implemented in the 2022 cycle, the stream remains impaired because there were 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_ROB01A08 / Roberts Branch / Headwaters to mouth at Bernards Creek	4A	Escherichia coli (E. coli)	2020	L	2.35

Roberts Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.35

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-33-BAC** **Westham Creek**

Cause Location: Headwaters to mouth

Cause City/County: Henrico County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Westham Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 6/12 at 2-WTM000.49, which is located at River Road.

Westham Creek is located within the Lower James River study watershed in the James River - City of Richmond Bacterial TMDL which was approved by the EPA on 11/4/2010 and by the SWCB on 6/29/2012. Although the impairment was not specifically addressed, all bacterial impairments within the study area will be addressed during implementation; therefore, it is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_WTM01A20 / Westham Creek / Headwaters to mouth	4A	Escherichia coli (E. coli)	2020	L	2.52

Westham Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.52

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **H39R-34-TEMP** **Stony Run - Lake Loreine**

Cause Location: The entirety of the pond

Cause City/County: Henrico County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Lake Loreine is a private pond on Stony Run. During the 2022 cycle, the pond was sampled by a citizen monitoring group. The temperature exceeded the maximum water quality standard in 4 out of 14 samples at station 2BSNJ-LL1-HAWQS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-H39R_SNJ01B22 / Stony Run - Lake Loreine / Extent of pond	5A	Temperature	2022	L	0.31

Stony Run - Lake Loreine

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			0.31

Sources: Dam or Impoundment

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James River Basin

Cause Group Code: I01R-01-TEMP Jackson River

Cause Location: Jackson River from river mile 85.4 downstream to river mile 65.6. This cause group was shortened in 2022 based on a review of WQS and a partial delist of the temperature impairment.

Cause City/County: Bath County; Highland County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 2-JKS058.60 (6 exceedances of 35 samples for temperature in 2022) and 2-JKS074.27 exceedances 2/12. Initial Listing Date: 2004. This impairment is believed to be due to natural causes.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I01R_JKS01A22 / Jackson River / Jackson River from its confluence with Castle Run downstream to river mile 65.6.	5C	Temperature	2004	L	5.14
VAV-I01R_JKS02A00 / Jackson River / Jackson River from river mile 85.4, downstream to its confluence with Castle Run.	5C	Temperature	2010	L	14.88

Jackson River

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			20.02

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: I01R-02-TEMP Bolar Run

Cause Location: Bolar Run from the upper Bolar Spring downstream to its confluence with the Jackson River. (Start Mile: 2.10 End Mile: 0.00 Total Impaired Size: 2.10 Miles). This impairment was shortened following review of WQS and an upstream mountainous zone assessment unit was de-listed.

Cause City/County: Bath County; Highland County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 2-BOL000.97 (3 exceedances of 12 samples for temperature in 2008, 0 exceedances of 3 samples for temperature in 2010, no data in 2022 impairment carries forward). Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I01R_BOL01A04 / Bolar Run / Bolar Run from the upper Bolar Spring downstream to its confluence with the Jackson River.	5C	Temperature	2006	L	2.1

Bolar Run

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 2.1
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Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **I01R-03-BAC** Jackson River

Cause Location: Jackson River from river mile 85.4 downstream to the upper end of Lake Moomaw.

Cause City/County: Bath County; Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station JKS058.60. 2020 cycle: (2/12) at station 2-JKS074.27; 2022 cycle: 3/35 exceedances of E.coli at 2-JKS058.60 (new WQS- One STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean) Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I01R_JKS01A00 / Jackson River / Jackson River from 65.6 river miles above the James River, downstream to the upper end of Lake Moomaw.	5A	Escherichia coli (E. coli)	2018	L	8.36
VAV-I01R_JKS01A22 / Jackson River / Jackson River from its confluence with Castle Run downstream to river mile 65.6.	5A	Escherichia coli (E. coli)	2018	L	5.14
VAV-I01R_JKS02A00 / Jackson River / Jackson River from river mile 85.4, downstream to its confluence with Castle Run.	5A	Escherichia coli (E. coli)	2020	L	14.88

Jackson River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.38

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I02R-02-BAC** **Back Creek**

Cause Location: Back Creek from the headwaters downstream to its confluence with East Back Creek. (Start Mile: 41.28 End Mile: 26.21 Total Impaired Size: 15.07 Miles)

Cause City/County: Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-BCC026.08 (2 exceedances of 12 samples for e-coli), Initial Listing Date: 2010. Insufficient data collected in the 2022 cycle, remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I02R_BCC03A00 / Back Creek / Back Creek from a point 37.1 miles upstream of the Jackson River downstream to its confluence with East Back Creek.	5A	Escherichia coli (E. coli)	2010	L	10.92
VAV-I02R_BCC04A10 / Back Creek / Back Creek from the headwaters downstream to a point 37.1 miles upstream of the Jackson River.	5A	Escherichia coli (E. coli)	2010	L	4.14

Back Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.06

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I02R-03-TEMP** Little Back Creek

Cause Location: Little Back Creek from the headwaters downstream to its confluence with Back Creek.

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Little Back Creek is assessed as impaired for aquatic life use due to excursions of the natural trout WQS for temperature (3 exceedances of 12 samples in 2022) at station 2-LTB000.01. Initial Listing Date: 2022

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I02R_LTB01A00 / Little Back Creek / Little Back Creek from the headwaters downstream to its confluence with Back Creek.	5A	Temperature	2022	L	15.01

Little Back Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			15.01

Sources: Source Unknown

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James River Basin

Cause Group Code: I04R-01-TEMP Falling Spring

Cause Location: Falling Spring Creek mainstem from its mouth to confluence of an unnamed tributary located at 37°52'48" / 79°54'52" (JU10).

Cause City/County: Alleghany County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4C

Cause Description: The 2018 data window finds the initial Aquatic Life Use listing for exceedances of the Class VI 20°C Natural Trout Waters criterion. The impairment is categorized '4C' (Impaired or threatened for one or more designated uses but does not require a TMDL because the water is a suspected swampwater awaiting applicable aquatic life criteria or because the impairment is determined to be caused by natural conditions. This category also includes impairments not caused by a pollutant) due to the influence from a thermal cave. Coldwater springs enter this stream which support the presence of trout further downstream.

2-FAS002.75 (Upstream of Hydro Diversion) - Three of eleven temperature observations exceed the Class VI Natural Trout Waters criterion within the 2018 data window. Excursions are: 20.8°C (8/13/15), 20.4°C (8/26/15), and 21.2°C (9/1/15).

2-FAS002.67 (Downstream of Hydro Diversion) - Three of eleven temperature observations exceed the Class VI Natural Trout Waters criterion within the 2018 data window. Excursions are: 20.8°C (8/13/15), 20.2°C (8/26/15), and 21.0°C (9/1/15).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I04R_FAS01A00 / Falling Spring Creek / Falling Spring Creek mainstem from its mouth to confluence of an unnamed tributary located at 37°52'48" / 79°54'52" (JU10).	4C	Temperature	NA	NA	5.1

Falling Spring

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			5.1

Sources: Natural Sources

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James River Basin

Cause Group Code: I04R-02-TEMP Jackson River

Cause Location: Jackson River mainstem from the Covington water intake upstream to the end of the WQS designated public water supply (PWS) section (JU11).

Cause City/County: Alleghany County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: The initial 2020 Aquatic Life Use listing of the Jackson River is based on temperature readings collected during Boatable Probabilistic sampling events.

2-JKS028.69 (North of Intervale) The initial 303(d) listing is based on two temperature measurements exceeding the 20°C Class VI natural trout criterion at 21°C (8/24/15) and 21°C (8/22/17).

2-JKS026.01 (Filtration Plant) Two temperature observations exceed the Class VI natural trout criterion of 20°C at 21°C (7/2/20) and 22°C (8/11/20) during the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I04R_JKS03A00 / Jackson River / Jackson River mainstem from the Covington water intake upstream to the end of the WQS designated public water supply (PWS) section (JU11).	5A	Temperature	2020	L	5.15

Jackson River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			5.15

Sources: Source Unknown

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James River Basin

Cause Group Code: **I07R-02-TEMP** **Jerrys Run**

Cause Location: Jerrys Run mainstem from the C&O Railroad Crossing upstream to its headwaters (JU13).

Cause City/County: Alleghany County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The 2022 data window finds the initial Aquatic Life Use 303(d) listing on Jerrys Run for temperature. 2-JED008.07 (Along USFS Rd 69) - The 2022 data window finds three of 6 temperature in excess of the Class VI 20°C criterion at 22°C (7/29/20) and 21°C (8/12/20, 9/2/20).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I07R_JED01B22 / Jerrys Run / Jerrys Run mainstem from the C&O Railroad Crossing upstream to the junction of Routes 60 and 782 (JU13).	5C	Temperature	2022	L	4.03
VAW-I07R_JED02A02 / Jerrys Run / Jerrys Run mainstem and tributaries from the junction of Routes 60 and 782 upstream to its headwaters (JU13).	5C	Temperature	2022	L	3.79

Jerrys Run

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.82

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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James River Basin

Cause Group Code: **I09L-01-TEMP** **Douthat Lake**

Cause Location: Douthat Lake located in Douthat State Park

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This lake is impaired due to exceedances of the temperature WQS at station: 2-WLN007.36 (21 exceedances of 77 samples for temperature).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I09L_WLN01A00 / Douthat Lake / Douthat Lake located in Douthat State Park	5A	Temperature	2022	L	46.68

Douthat Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:		46.68	

Sources: Source Unknown

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James River Basin

Cause Group Code: I09R-01-BEN Jackson River

Cause Location: Jackson River mainstem from the Westvaco main processing outfall downstream to the confluence of Karnes Creek.

Cause City/County: Alleghany County; Covington

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Jackson River General Standard - Benthic TMDL was approved on 7/21/10 (EPA) and 12/9/10 (SWCB). Federal IDs: 38981, 39001, 39017, 39022, 39003, 39004, 39002, 39005, 39006, 38996, 38997, 38995, 38998, 38999. The original 1996 VAW-I04R and VAW-I09R impairments were combined in 2002. The 1996/1998 originally 303(d) Listed impairments were 24.18 miles. Partial delist (Category 2C) of 9.81 miles from Karnes Creek mouth downstream to Cowpasture R and Jackson R confluence based on VSCI scores >60 at station 2-JKS006.67. 2007-10 VSCI scores from four surveys have an average (avg) of 64.10. Benthic trend analysis shows improving conditions at 2-JKS006.67 (+10 points) 1994-2010. Nutrient data and trends are detailed in previous cycle fact sheets but are not included here due to character limitations.

2-JKS023.61 (City Park, Gage) Bio 'IM' from 4 fall VSCI scores avg 37 (2015-17, 20) during the 2022 data window. The invertebrate community at this site has been dominated by taxa that are tolerant of environments with low dissolved oxygen and high levels of organic pollution (i.e. Tubificidae, Tricladida, Chironomidae, Lumbriculidae, and Simuliidae). The VSCI scores display a negative alteration in the taxonomic diversity and pollution sensitivity of the benthic community. The 2020 Integrated Report (IR) adds one 2017 VSCI Score of 39.2. 2018 IR finds 6 VSCI surveys (2011-16 Fall) averaging 34.3. The 2016 IR finds 6 VSCI surveys (2010-14) with an avg score of 32.8. Seven VSCI surveys (2007-08 & 2010-12) within the 2014 IR score an avg of 34.4. The 2012 IR reports an avg VSCI score of 35.95 from 5 surveys (2006-08, 2010). Seven VSCI surveys (2003-08) for 2010 have an avg score of 45.15. 2008 IR: 7 VSCI surveys (2001-06) with an avg score of 34.36.

2-JKS020.41 (Upper Horse Shoe at Rayon Terrace) 2007 probability station. Two VSCI surveys (2007), avg 48.13.

2-JKS018.68 (Rt. 18 Bridge) - 2022 IR: The 2 year average (2017 and 2020) VSCI score improved to a 65.0 which is above the impairment threshold. Fall 2017 VSCI score is 58.5. Fall 2015 and 2016 VSCI surveys within the 2018 IR result in an avg VSCI of 52.4. Five fall VSCI surveys (2010-14) within the 2016 IR avg 49.8. Six VSCI surveys (2007-08 & 2010-12) within the 2014 IR produce an avg score of 49.4. The 2012 IR finds (2006-08 & 2010) an avg score of 50.37 (5 surveys). Five VSCI surveys within the 2010 IR (2004, 2006-08) have an avg score of 54.28. The 2008 IR reports 2 VSCI scores from the fall of 2004 (67.3) and 2006 (51.8).

2-JKS013.29 (Lowmoor cave) - From 2015 to 2020 the VSCI scores were generally improving. Lower VSCI scores in 2016 are the result of the lower taxonomic diversity and lack of pollution sensitive taxa and increased Chironomidae. The 2 year average (2017 and 2020) VSCI score improved to a 64.8 which is above the impairment threshold. The VSCI avgs 57.7 including one additional Fall 2017 score (60.9) within the 2020 IR. The 2018 IR includes 5 Fall VSCI surveys (2012-16) averaging 56.8. The 2016 avg VSCI score is 56.6. Four surveys conducted in the fall (2010-14) scores range from 54.59 to 58.10. The 2014 IR reports 5 VSCI surveys (2007-08, 2010, 2012) with an avg of 53.1. The avg VSCI score within the 2012 IR (2006-08 & 2010) is 54.04. 2010 results also find impairment with the lowest at 38.6; fall 2004 and the highest 61.26; fall 2006 from 6 VSCI survey scores (2003, 2004, 2006-07). 2008 IR: 4 impaired VSCI surveys (2003-04, 2006). The Lowmoor station through the 2008 IR had lower scores and higher numbers of pollution tolerant organisms than 2-JKS018.68.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I04R_JKS01A00 / Jackson River / Jackson River mainstem from the Westvaco main processing outfall downstream to Dunlap Creek mouth at the watershed boundary with I09R (JU11).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.48

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I09R_JKS03B10 / Jackson River / Jackson River mainstem from upstream of the Lowmoor community downstream to near the mouth of Karnes Creek (JU21).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.37
VAW-I09R_JKS04A00 / Jackson River / Jackson River mainstem from the Covington STP outfall downstream to just above the Lowmoor community (JU21).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.92
VAW-I09R_JKS04B14 / Jackson River / Jackson River mainstem from the Potts Creek confluence downstream to the Covington STP outfall (JU21).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.32
VAW-I09R_JKS05A00 / Jackson River / Jackson River mainstem from downstream of the Fudge's Bridge to the Potts Creek confluence with the Jackson River (JU21).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.01
VAW-I09R_JKS06A00 / Jackson River / Jackson River mainstem from the watershed boundary (I04R) at the mouth of Dunlap Creek downstream to just below the Lexington Avenue Bridge (JU21).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.66

Jackson River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		14.76

Sources: Industrial Point Source Discharge; Municipal (Urbanized High Density Area); Municipal Point Source Discharges

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James River Basin

Cause Group Code: I09R-01-PCB Jackson River

Cause Location: The Jackson River from the Covington water intake downstream to just above the Lowmoor community.

Cause City/County: Alleghany County; Covington

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The 2008 Integrated Report (IR) produces the initial 303(d) Listing of these waters for a total of 12.63 miles.

2-JKS023.88 (Covington City Park) 2005 fish tissue collections find exceedances above the former WQS based PCB TV of 54 ppb (VDH 50) from a single species. Two carp are found with tissue values of 66.4 (68.0 cm) and 71.3 ppb (61.31 cm). Application of the new WQS of 20 ppb adds three additional carp sizes (63.9 cm) exceeding at 28.81 ppb, (63.2 cm) at 35.96 and (51-58 cm) at 37.48 ppb. There are no additional data.

2-JKS023.61 (near Covington City Park at Gage) reports anecdotal data in support of the fish tissue impairment. The 2020 data window includes 2017 fish tissue collections where Carp exceeds the WQS based PCB TV of 20 ppb from a three fish composite (56.0-66.0 cm) at 28.553 ppb. In addition, one water column PCB sample exceeds the 640 pg/L criterion at 806.40 pg/L (9/17/18, wet weather).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I04R_JKS01A00 / Jackson River / Jackson River mainstem from the Westvaco main processing outfall downstream to Dunlap Creek mouth at the watershed boundary with I09R (JU11).	5A	PCBs in Fish Tissue	2008	H	0.48
VAW-I04R_JKS02A00 / Jackson River / Jackson River mainstem from the Covington water intake downstream to Westvaco main processing outfall (JU11).	5A	PCBs in Fish Tissue	2008	H	1.28
VAW-I09R_JKS04A00 / Jackson River / Jackson River mainstem from the Covington STP outfall downstream to just above the Lowmoor community (JU21).	5A	PCBs in Fish Tissue	2008	H	5.92
VAW-I09R_JKS04B14 / Jackson River / Jackson River mainstem from the Potts Creek confluence downstream to the Covington STP outfall (JU21).	5A	PCBs in Fish Tissue	2008	H	0.32
VAW-I09R_JKS05A00 / Jackson River / Jackson River mainstem from downstream of the Fudge's Bridge to the Potts Creek confluence with the Jackson River (JU21).	5A	PCBs in Fish Tissue	2008	H	3.01
VAW-I09R_JKS06A00 / Jackson River / Jackson River mainstem from the watershed boundary (I04R) at the mouth of Dunlap Creek downstream to just below the Lexington Avenue Bridge (JU21).	5A	PCBs in Fish Tissue	2008	H	1.66

Jackson River

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.67

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Sources: Source Unknown

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James River Basin

Cause Group Code: I09R-02-BAC Jackson River

Cause Location: Jackson River mainstem from the Covington water intake downstream to just below the Lexington Avenue Bridge.

Cause City/County: Alleghany County; Covington

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The original 3.38 mile waters were 1998 303(d) listed for fecal coliform (FC) bacteria and delisted for bacteria October 2005 as approved by the U.S. EPA (Fed. ID - NA) where only one exceedance from 24 observations are reported via the 2006 Integrated Report (IR) for escherichia coli (E. coli) bacteria.

The bacteria impairment returned with the 2008 Integrated Report (IR) based on E. coli excursions at 2-JKS023.61. Data within the 2010 data window results in an additional extension of the impairment from stations 2-JKS018.68 and 2-JKS015.60. The impairment extends a total of 12.63 miles.

2-JKS023.61 (Covington City Park) - The 2022 data window finds one Statistical Threshold Value (STV) exceedance (>410 CFU/100 mL) in one or multiple 90-day periods but insufficient data to analyze geomean from 6 excursions in 42 total samples. Seven of 43 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 data window. Seven of 35 E.coli samples exceed within the 2018 data window and fourteen of 36 E.coli observations exceed the WQS instantaneous criterion of 235 cfu/100 ml in 2016. The 2014 IR records 16 of 36 E.coli samples in excess of the instantaneous criterion. Seventeen of 37 E.coli samples exceed the instantaneous criterion within the 2012 data window. 2010 results produce nine of 33 E. coli observations in excess of the instantaneous criterion. 2008 IR found four of 27 E. coli observations in excess of the instantaneous criterion.

2-JKS018.68 (Rt. 8 Bridge at Covington) The 2022 data window finds E.coli impaired based on 2 or more STV hits in the same 90-day period with < 10 samples from 3 excursions out of 35 samples. E.coli exceeds the 235 cfu/100 ml in 10/36 samples (range: 259 to >3000 cfu/100 ml) collected during the 2020 data window. Nine of 36 E.coli samples exceed during the 2018 data window. Six of 24 E.coli samples exceed the instantaneous criterion within the 2016 data window. The 2014 data window finds E.coli exceeds 235 cfu/100 ml instantaneous criterion in seven of 24 samples. There are no additional E.coli data within the 2012 data window. Three of 12 E. coli observations exceed the instantaneous criterion in 2010.

2-JKS015.60 (K-Mart Parking Lot, SE corner) The 2022 data window finds one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean based on two excursions out of 17 samples. The 2020 data window finds one of six E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion at 10,462 cfu/100 ml (9/27/18). Prior to 2020, were no additional E.coli data within the 2012, 2014 or 2016 data windows. 2010 E. coli observations exceed the 235 cfu/100 ml criterion in two of 12 observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I04R_JKS01A00 / Jackson River / Jackson River mainstem from the Westvaco main processing outfall downstream to Dunlap Creek mouth at the watershed boundary with I09R (JU11).	5A	Escherichia coli (E. coli)	2008	L	0.48
VAW-I04R_JKS02A00 / Jackson River / Jackson River mainstem from the Covington water intake downstream to Westvaco main processing outfall (JU11).	5A	Escherichia coli (E. coli)	2008	L	1.28
VAW-I09R_JKS04A00 / Jackson River / Jackson River mainstem from the Covington STP outfall downstream to just above the Lowmoor community (JU21).	5A	Escherichia coli (E. coli)	2010	L	5.92

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I09R_JKS04B14 / Jackson River / Jackson River mainstem from the Potts Creek confluence downstream to the Covington STP outfall (JU21).	5A	Escherichia coli (E. coli)	2010	L	0.32
VAW-I09R_JKS05A00 / Jackson River / Jackson River mainstem from downstream of the Fudge's Bridge to the Potts Creek confluence with the Jackson River (JU21).	5A	Escherichia coli (E. coli)	2010	L	3.01
VAW-I09R_JKS06A00 / Jackson River / Jackson River mainstem from the watershed boundary (I04R) at the mouth of Dunlap Creek downstream to just below the Lexington Avenue Bridge (JU21).	5A	Escherichia coli (E. coli)	2008	L	1.66

Jackson River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.67

Sources: Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: I09R-02-TEMP Wilson Creek

Cause Location: Wilson Creek from the headwaters downstream to the upper end of Douthat Lake pool. (Start Mile: 14.23 End Mile: 7.48 Total Impaired Size: 6.75 Miles)

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: This segment is considered impaired due to exceedances of the temperature WQS. This is carried from the 2004 assessment as no new data are available in the 2020 or 2022 cycles; impairment believed to be naturally occurring. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I09R_WLN03A06 / Wilson Creek Upper / Wilson Creek from the headwaters downstream to the upper end of Douthat Lake pool.	5C	Temperature	2004	L	6.75

Wilson Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			6.75

Sources: Drought-related Impacts; Source Unknown

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James River Basin

Cause Group Code: I09R-03-BAC Jackson River

Cause Location: Jackson River mainstem from the US 60 crossing downstream to the Jackson River confluence with the Cowpasture River.

Cause City/County: Alleghany County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The 5.27 mile 2020 303(d) listing of the Jackson River is a result of Escherichia coli data in exceedance of the 235 cfu/100 ml Escherichia coli (E.coli) instantaneous criterion. This section was previously listed (2012 IR) and delisted (2014 IR).

2-JKS000.38 (Rt. 727 Bridge Iron Gate) - The 2022 data window finds insufficient information due to one Statistical Threshold Value (STV) exceedance in one or multiple 90-day periods but insufficient data to analyze geomean from 3 samples >410 cfu/100 ml out of 35 total samples. The 2020 data window finds E.coli impairment from six exceedances of the 235 cfu/100 ml criterion out of 36 total samples. Exceedances range from 246 to 933 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I09R_JKS01A00 / Jackson River / Jackson River mainstem from the Clifton Forge STP outfall downstream to the Jackson River confluence with the Cowpasture River (JU24).	5A	Escherichia coli (E. coli)	2020	L	3.54
VAW-I09R_JKS02A00 / Jackson River / Jackson River mainstem from the US 60 crossing downstream to the Clifton Forge STP outfall (JU24).	5A	Escherichia coli (E. coli)	2020	L	1.74

Jackson River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.28

Sources: Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I09R-04-TEMP** Karnes Creek

Cause Location: Karnes Creek from its mouth on Jackson River upstream to its headwaters.

Cause City/County: Alleghany County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This initial Aquatic Life Use impairment for temperature on Karnes Cr. is based on data collection during the 2022 data window. 2-KAR001.59 (Private bridge off Rt. 616) - Temp 'IM' from two excursions of the Class VI temperature criterion at 21°C (8/5/19) and 22°C (7/15/19). Previous cycle 'OE' from one temp measurement exceeds Class VI Natural Trout Waters WQS of 20°C at 21.9°C (7/2/14).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I09R_KAR01A00 / Karnes Creek / Karnes Creek mainstem from its mouth on the Jackson River upstream to the beginning of the WQS natural trout water designation (JU22).	5A	Temperature	2022	L	1.41
VAW-I09R_KAR02A02 / Karnes Creek / Karnes Creek mainstem from the WQS designated beginning of natural trout waters upstream to its headwaters (JU22).	5A	Temperature	2022	L	6.68

Karnes Creek

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.09

Sources: Source Unknown

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James River Basin

Cause Group Code: **I11R-01-BAC** **Potts Creek**

Cause Location: Potts Creek mainstem from its confluence on the Jackson River upstream to an unnamed tributary draining Kimberlin Flat; PWS end (JU20).

Cause City/County: Alleghany County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This initial 5.09 mile 2018 303(d) Listing is a result of escherichia coli (E.coli) samples in excess of the WQS 235 cfu/10 ml instantaneous criterion. The Recreational Use is not being met in this section of Potts Creek.

2-POT000.12 (Rt. 18 Bridge near Covington, VA) - The Recreation Use impairment carries during the 2022 data window. One STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Four of 34 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 data window. The 2018 data window finds excursions of the E.coli criterion in four of 36 samples. Exceedances range from 323 to greater than 1,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I11R_POT01A00 / Potts Creek / Potts Creek mainstem from its confluence on the Jackson River upstream to an unnamed tributary draining Kimberlin Flat; PWS end (JU20).	5A	Escherichia coli (E. coli)	2018	L	5.1

Potts Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.1

Sources: Source Unknown

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James River Basin

Cause Group Code: I12R-01-BAC Cowpasture River

Cause Location: Cowpasture River from the headwaters downstream to its confluence with Shaws Fork. (Start Mile: 87.78 End Mile: 75.48 Total Impaired Size: 8.3 Miles)

Cause City/County: Bath County; Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-CWP075.64 (2 exceedances of 12 samples for e-coli) Initial Listing Date: 2016

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I12R_CWP02A10 / Cowpasture River / Cowpasture River from the headwaters downstream to its confluence with Shaws Fork.	5A	Escherichia coli (E. coli)	2016	L	8.31

Cowpasture River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.31

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I13R-01-BAC Bullpasture River

Cause Location: Bullpasture River from the headwaters downstream to its confluence with the Cowpasture River.

Cause City/County: Bath County; Highland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Escherichia coli (E. coli)/5A

Cause Description: The headwaters of the Bullpasture River is considered impaired in the 2006 cycle due to exceedances of the e-coli bacteria standard at station 2-BLP015.32 (2022 cycle, remains impaired- 2 or more STV hits in the same 90-day period with < 10 samples). The downstream segment of the Bullpasture River, just below its confluence with Davis Run downstream to its confluence with the Cowpasture River, is assessed as impaired in 2022 cycle due to exceedances of the e-coli WQS at station 2-BLP000.79 with two or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I13R_BLP01A00 / Bullpasture River / Bullpasture River from just below its confluence with Davis Run downstream to its confluence with the Cowpasture River.	5A	Escherichia coli (E. coli)	2022	L	12.62
VAV-I13R_BLP02A10 / Bullpasture River / Bullpasture River from the headwaters downstream to just below its confluence with Davis Run.	4A	Escherichia coli (E. coli)	2006	L	11.94

Bullpasture River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			24.56

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I13R-02-TEMP Bullpasture River

Cause Location: Bullpasture River from the headwaters downstream to just below its confluence with the Davis Run. (Start Mile: 24.56 End Mile: 12.62 Total Impaired Size: 11.94 Miles) This impairment length was shortened in 2018, lower section fully supporting.

Cause City/County: Bath County; Highland County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at stations: 2-BLP015.32 (3 exceedances of 11 samples for temperature). 2022 cycle- Temperature exceedances 6/36 at station 2-BLP015.32. Initial Listing Date: 2012

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I13R_BLP02A10 / Bullpasture River / Bullpasture River from the headwaters downstream to just below its confluence with Davis Run.	5A	Temperature	2012	L	11.94

Bullpasture River

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				11.94

Sources: Source Unknown

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James River Basin

Cause Group Code: I14R-01-BEN Pheasanty Run

Cause Location: Pheasanty Run from the Coursey Springs Fish Farm discharge downstream to its confluence with the Cowpasture River. (Start Mile: .42 End Mile: 0.00 Total Impaired Size: .42 Miles)

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to a severely impaired benthic assessment in 1998. In order to delist this segment a reference condition for limestone springs must be developed. The segment remains impaired in the current cycle. Initial Listing Date: 1998

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I14R_PTY01A00 / Pheasanty Run / Pheasanty Run from the Coursey Springs Fish Farm discharge downstream to its confluence with the Cowpasture River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.42

Pheasanty Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.42

Sources: Aquaculture (Permitted)

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James River Basin

Cause Group Code: **I14R-04-PH** **Laurel Run**

Cause Location: Laurel Run from the headwaters downstream to its confluence with Dry Run. (Start Mile: 2.03
 End Mile: 0.00 Total Impaired Size: 2.03 Miles)

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA VT10 in the 2006 cycle.
 2020 cycle data (level II) show 0/16 excursions for pH but is insufficient to determine aquatic life use support.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I14R_LAA01A02 / Laurel Run / Laurel Run from the headwaters downstream to its confluence with Dry Run.	5A	pH	2006	L	2.04

Laurel Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.04

Sources: Atmospheric Deposition - Acidity

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James River Basin

Cause Group Code: I15R-01-BAC Stuart Run

Cause Location: Stuart Run from the headwaters downstream to its confluence with the Cowpasture River. (Start Mile: 18.3 End Mile: 0.00 Total Impaired Size: 18.3 Miles)

Cause City/County: Bath County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station 2-STU000.29 (2 exceedances of 12 samples for e-coli) Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I15R_STU01A00 / Stuart Run / Stuart Run from the headwaters downstream to its confluence with the Cowpasture River.	5A	Escherichia coli (E. coli)	2018	L	18.31

Stuart Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 18.31
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Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I16R-01-BAC Cowpasture River

Cause Location: Cowpasture River from its confluence with Mill Creek downstream to the crossing of Withrow Road (private road off State Rt. 632).

Cause City/County: Bath County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment of the Cowpasture River is impaired due to exceedances of the E.coli WQS at station: 2-CWP026.33 (2 or more STV hits in the same 90-day period with < 10 samples). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I16R_CWP01B22 / Cowpasture River / Cowpasture River from its confluence with Mill Creek downstream to the crossing of Withrow Road (private road off State Rt. 632).	5A	Escherichia coli (E. coli)	2022	L	10.11

Cowpasture River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.11

Sources: Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I16R-01-PH Porters Mill Creek

Cause Location: Porters Mill Creek and headwater tributary from the headwaters downstream to its confluence with Mill Creek. (Start Mile: 4.85 End Mile: 0.00 Total Impaired Size: 4.85 Miles)

Cause City/County: Bath County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA VT15 (10 excursions of 14 samples for pH) in 2010. This data is now outside the assessment data window for 2022, however, the impairment carries forward to 2016. Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I16R_XRI01A02 / Porters Mill Creek / Porters Mill Creek and tributary from the headwaters downstream to its confluence with Mill Creek.	5A	pH	2006	L	4.86

Porters Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.86

Sources: Atmospheric Deposition - Acidity

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **I17R-02-PH** North Branch Simpson Creek

Cause Location: North Branch Simpson Creek from the headwaters downstream to its confluence with Simpson Creek (JU36).

Cause City/County: Alleghany County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The 3.93 mile extent of North Branch Simpson Creek is 303(d) listed for Aquatic Life Use during the 2022 cycle based on pH data collections. 2-SPO002.00 (Along North Br Trail) - the 2022 data window finds pH 'IM' from two of two excursions of the Class VI Natural Trout Waters pH 6.0 criterion at 4.8 (3/4/20) and 4.0 (6/1/20). Regional Biologist notes: The watershed is 100% national forest and used for hiking and hunting. The low pH (avg. 4.4) appears to be natural as the specific conductance is very low (avg. 12.0) due to low buffering capacity. Total habitat scores averaged 198 and are some of the highest recorded in BRRO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I17R_SPO01A08 / North Branch Simpson Creek / North Branch Simpson Creek from the headwaters downstream to its confluence with Simpson Creek (JU36).	5C	pH	2022	L	3.94

North Branch Simpson Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.94

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **I19R-01-BAC** **Craig Creek**

Cause Location: Craig Creek mainstem from the mouth of Turnpike Creek extending downstream to the Rt. 311 crossing located downstream of the Abbott community.

Cause City/County: Craig County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2004 initial Listing basis is three of 27 fecal coliform (FC) samples exceeding the former 400 cfu/100 ml WQS instantaneous criterion. The maximum reported is 1100 cfu/100 ml with the remaining values at 900 and 500. These 2004 7.91 mile 303(d) Listed waters remain impaired for bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters.

2-CRG062.29- (Rt. 311 Bridge nearest New Castle) No new data since the 2018 data window where nine of 23 E.coli samples exceed the 235 cru/100 ml instantaneous criterion. Excursions range from 243 to 1050 cfu/100 ml. The 2014 data window produces seven of 24 escherichia coli (E.coli) samples exceeding the 235 cfu/100 ml WQS instantaneous criterion. The exceeding values range from 280 to 1050 cfu/100 ml. The 2010 and 2012 assessments find two of 12 Escherichia coli (E.coli) samples exceeding the current 235 cfu/100 ml WQS instantaneous criterion. E.coli exceeding values are 280 and 400 cfu/100 ml. Data within the 2006 and 2008 data windows find one FC excursion (1100 cfu/100 ml) of the former instantaneous criterion of 400 cfu/100 ml from 15 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I19R_CRG02A02 / Craig Creek / Craig Creek mainstem from downstream of Abbott and the Rt. 311 crossing upstream to the confluence of Trout Creek (JU43).	4A	Escherichia coli (E. coli)	2004	L	6.56
VAW-I19R_CRG02A14 / Craig Creek / Craig Creek mainstem from Trout Creek upstream to the confluence of Turnpike Creek (JU41).	4A	Escherichia coli (E. coli)	2004	L	1.36

Craig Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.92

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **I21R-01-BAC** **Johns Creek**

Cause Location: Johns Creek mainstem from Simpson Branch downstream to near Lovers Leap near New Castle.

Cause City/County: Craig County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 assessment cycle 303(d) lists Johns Creek based on Escherichia coli (E.coli) data collected at 2-JOB000.39. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters (NESTED).

2-JOB000.39 (At New Castle Gage, Rt. 615 Bridge) -Two excursions of the 235 cfu/100 ml instantaneous criterion for E.coli are recorded from 12 observations during the 2020 data window. Exceedances are 313 and 465 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I21R_JOB01A00 / Johns Creek / Johns Creek mainstem from near Lovers Leap upstream of New Castle downstream to its mouth on Craig Creek (JU45).	4A	Escherichia coli (E. coli)	2020	L	2.21

Johns Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.21

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source)

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James River Basin

Cause Group Code: **I21R-02-BAC** **Johns Creek**

Cause Location: Johns Creek mainstem from the confluence of Dicks Creek upstream to the mouth of Eliber Springs Branch Class V.

Cause City/County: Craig County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window lists 4.42 miles of Johns Creek for excursions of the Escherichia coli (E.coli) Water Quality Standard. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters (NESTED). 2-JOB029.50 (Rt. 632 Bridge) - No additional data during the 2022 cycle. E.coli is listed during the 2020 assessment window from four exceedances of the 235 cfu/100 ml instantaneous criterion out of 12 total samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I21R_JOB04A02 / Johns Creek / Johns Creek mainstem from the confluence of Dicks Creek upstream to the mouth of Eliber Springs Branch Class V (JU44).	4A	Escherichia coli (E. coli)	2020	L	4.43

Johns Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.43

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **I21R-02-TEMP** **Johns Creek**

Cause Location: Johns Creek mainstem from the confluence of Dicks Creek upstream to the mouth of Eliber Springs Branch Class V.

Cause City/County: Craig County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The 2020 data window includes a 4.42 mile temperature impairment on Johns Creek due to exceedances of the Class V 21 degree Celsius criterion.

2-JOB029.50 (Rt. 632 Bridge) Temperature exceeds the Class V 21 C criterion in three of 12 samples at 22 (6/14/17), 24 (7/17/17), and 23 (8/16/17) during the 2020 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I21R_JOB04A02 / Johns Creek / Johns Creek mainstem from the confluence of Dicks Creek upstream to the mouth of Eliber Springs Branch Class V (JU44).	5C	Temperature	2020	L	4.43

Johns Creek

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.43

Sources: Loss of Riparian Habitat; Natural Sources; Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I22R-01-BAC Barbours Creek

Cause Location: Barbours Creek from just downstream of the Rt. 617 and 611 junction at the mouth of Valley Branch on downstream to its mouth on Craig Creek. (New Castle Quad).

Cause City/County: Craig County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The 7.15 mile bacteria impairment initially 303(d) Listed in 2004 remains. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters.

2-BAR000.60- (Rt. 614 Bridge) E.coli exceeds the 235 cfu/100 ml instantaneous criterion in two of 11 samples within the 2018 and 2020 data windows. Excursions are 359 cfu/100 ml and 368 cfu/100 ml. The 2004 IR reports the maximum fecal coliform (FC) of 1100 cfu/100 ml and a second at 500; both exceed the former WQS instantaneous criterion of 400 cfu/100 ml from 18 samples. The 2006 IR finds no excursions of the former WQS FC instantaneous criterion from nine samples. The 2008 data window finds no excursions of the aforementioned from 3 samples. There are no bacteria data within the 2010, 2012, 2014 or 2016 assessment data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_BAR01A00 / Barbours Creek / Barbours Creek from its mouth on Craig Creek upstream to the I23 Watershed Boundary located just downstream of the Rt. 617 and 611 junction at the mouth of Valley Branch JU47.	4A	Fecal Coliform	2004	L	7.16

Barbours Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			7.16

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **I22R-01-PH** Mill Creek

Cause Location: Mill Creek mainstem from ~2.0 miles upstream of its mouth on Craig Creek upstream to its headwaters and above the upstream most pond.

Cause City/County: Craig County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: 2-MIU002.97 (Upstream of Upper pond and downstream of former iron mine) Three 2010-2011 observations each of pH are in excess of the WQS acidic minimum criterion of 6.0 Standard Units (SU) at 5.2, 5.4 and 4.4 SU. This is a 2012 initial Listing. There are no additional data and the Aquatic Life Use remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_MIU02A02 / Mill Creek / Mill Creek mainstem from ~2.0 miles upstream of its mouth on Craig Creek upstream to its headwaters and above the upstream most pond (JU48).	5A	pH	2012	L	4.24

Mill Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.24

Sources: Mine Tailings

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James River Basin

Cause Group Code: **I22R-01-TEMP** Barbours Creek

Cause Location: Barbours Creek from its mouth on Craig Creek upstream to the I23 Watershed Boundary located just downstream of the Rt. 617 and 611 junction at the mouth of Valley Branch.

Cause City/County: Craig County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The original 7.15 mile temperature impairment continues with the 2014 Integrated Report (IR). The 2006 IR extended the impairment 6.29 miles (2-BAR010.10 - I23R) from the initial 2002 303(d) Listing (2-BAR000.60 - I22R). The 6.29 mile upstream extension is de-listed with the 2012 Integrated Report with station 2-BAR010.10 recording no exceeding Class VI temperatures of the 20°C WQS criterion from 15 observations.

2-BAR000.60- (Rt. 614 Bridge) There is no additional data during the 2020 data window; the 2022 data window adds one more excursion at 21°C (7/27/20). The 2018 data window finds two of 11 observations exceed the Class VI 20°C natural trout waters criterion at 21°C (6/15/15) and 21°C (8/10/15). Prior to the 2018 IR, there are no additional data beyond the 2004 IR. The 2004 assessment finds temperature exceeds the WQS 20°C natural trout water criterion in three of 18 observations with a maximum of 22°C on 7/10/00. Each of the remaining two temperature excursions occur on 7/08/98 (20.6°C) and 7/12/99 (20.5°C). The 2006 IR data window reveals one of nine temperature measurements in excess of the Class VI criterion. The 2008 data window finds no excursions from three measurements. There are no additional data within the 2016 assessment data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_BAR01A00 / Barbours Creek / Barbours Creek from its mouth on Craig Creek upstream to the I23 Watershed Boundary located just downstream of the Rt. 617 and 611 junction at the mouth of Valley Branch JU47.	5C	Temperature	2002	L	7.16

Barbours Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.16

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **I22R-02-BAC** **Craig Creek**

Cause Location: Craig Creek from an unnamed tributary downstream of Abbott and the Rt. 311 crossing downstream to Barbours Creek confluence with Craig Creek.

Cause City/County: Craig County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The initial bacteria impairment on Craig Creek in this section was 303(d) listed in 2012. During the 2020 data window, the impairment is extended upstream based on data collection at station 2-CRG053.15. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters.

2-CRG053.15 (Rt 311 Bridge nearest New Castle) - The 2020 data window finds two of 12 samples in exceedance of the 235 cfu/100 ml instantaneous Escherichia coli (E.coli) criterion.

2-CRG048.53 (Below New Castle STP) - Data collection associated with this station ID was actually collected at the following two station locations as described below.

2ACRG049.51 (Rt. 616 Bridge above confluence with Johns Cr.) - There is no new data since E.coli exceedances were found in two of 12 samples within the 2018 data window. Values in excess of the 235 cfu/100 ml instantaneous criterion are 355 and 638 cfu/100 ml.

2ACRG048.20 (Off Rt. 615 below New Castle STP) - Note that this station was historically coded incorrectly as 2-CRG048.53. The 2012 initial 303(d) Listing results from E.coli exceedances from two of 12 samples within the 2012 data window. Values in excess of the 235 cfu/10 ml instantaneous criterion are 320 and 700 cfu/100 ml. A downstream station 2-CRG042.34 (Rt. 614 Bridge) records a single exceedance of greater than 2000 cfu/100 ml from 24 samples within the 2014 data window. The exceedance indicates potential for impairment although not impaired via Guidance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I19R_CRG01A14 / Craig Creek / Craig Creek mainstem from the confluence of Johns Creek, the watershed boundary, upstream to an unnamed tributary downstream of Abbott and the Route 311 crossing (JU43).	4A	Escherichia coli (E. coli)	2020	L	8.14
VAW-I22R_CRG05A02 / Craig Creek / Craig Creek mainstem from the confluence of Mill Creek upstream to the Barbours Creek mouth (JU48).	4A	Escherichia coli (E. coli)	2012	L	5.38
VAW-I22R_CRG05B14 / Craig Creek / Craig Creek mainstem from the confluence of Barbours Creek upstream to the Johns Creek mouth (JU46).	4A	Escherichia coli (E. coli)	2012	L	6.06

Craig Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			19.58

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet

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Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I22R-03-BEN Crawford Branch

Cause Location: Crawford Branch mainstem from its headwaters downstream to its confluence with Craig Creek

Cause City/County: Botetourt County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: A Level 3 US Forest Service site 6570 located approximately 0.19 miles from the Crawford Branch mouth on Craig Creek finds the benthic community impaired. A single 1999 MAIS survey score is 11; rating Poor/Fair or moderately impaired; there are no additional data beyond the 2004 Integrated Report (IR). These data are outside the 2006, 2008, 2010, 2012 and 2014 assessment data windows. Comments provided by the US Forest Service recommends not listing this site as drought conditions produced results indicating impairment thus Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_CRD01A04 / Crawford Branch / Crawford Branch headwaters downstream to its mouth on Craig Creek (JU50).	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	1.87

Crawford Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.87

Sources: Drought-related Impacts; Natural Sources

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I22R-04-BAC Little Patterson Creek

Cause Location: Little Patterson Creek from just upstream of the Rt. 684 (Sugar Tree Hollow Rd.) crossing downstream to its confluence with Patterson Creek.

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2004 Integrated Report (IR) initially 303(d) Lists the 4.24 mile fecal coliform (FC) bacteria impairment. Escherichia coli replaces the fecal coliform impairment with the 2012 IR. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters.

Station 2-LIP001.00 (Rt. 682 Bridge - Sugartree Hollow Rd.) There are no new data since the 2018 data window. Seven of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. There are no additional data within the 2014 or 2016 data windows. Five of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2012 data window. Exceeding values range from 250 to 1300 cfu/100 ml. The 2004 IR reports FC exceeds the former 400 cfu/100 ml WQS instantaneous criterion in two of nine samples. The two exceedances are 2800 (2001) and 2100 cfu/100 ml (2001). In both the 2006 and 2008 assessments FC exceeds in two of 12 samples with the same excursions as in previous cycles. No additional data extended into the 2010 data window where three observations did not exceed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_LIP01A04 / Little Patterson Creek / Little Patterson Creek from just upstream of the Rt. 684 (Sugar Tree Hollow Rd.) crossing downstream to its confluence with Patterson Creek (JU49).	4A	Escherichia coli (E. coli)	2012	L	4.25

Little Patterson Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.25

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I22R-05-BAC** Craig Creek

Cause Location: Craig Creek mainstem from the mouth of Wilson Branch downstream to the Craig Creek confluence with the James River.

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This 2016 303(d) initial Listing is due to impairment of the Recreational Use based on escherichia coli (E.coli) bacteria excursions of the WQS instantaneous criterion. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters.

2-CRG016.90 (Rt. 817 pull off from Rt. 615) No new data since the 2018 data window where three of 22 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml. Values in excess of the criterion range from 546 to greater than 2,000 cfu/100 ml. The 2016 Integrated Report (IR) finds two of 11 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml. Values in excess of the criterion are 546 and 650 cfu/100 ml.

2-CRG001.20 (Rt. 818 Bridge) The 2022 data window finds E.coli insufficient from one Statistical Threshold Value (STV) exceedance in one or multiple 90-day periods but insufficient data to analyze geomean based on 1 excursion of the 410 cfu/100 ml STV out of 32 samples. E.coli exceed the 235 cfu/100 ml instantaneous criterion in four of 35 and four of 23 samples within the 2020 and 2018 data windows, respectively. The 2016 data window reveals two of 11 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 325 and 830 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I22R_CRG01A00 / Craig Creek / Craig Creek mainstem from its mouth on the James River upstream to the mouth of Roaring Run (JU50).	4A	Escherichia coli (E. coli)	2016	L	5.96
VAW-I22R_CRG02A00 / Craig Creek / Craig Creek mainstem from the mouth of Roaring Run upstream to the mouth of Stony Run (JU50).	4A	Escherichia coli (E. coli)	2016	L	6.24
VAW-I22R_CRG02B10 / Craig Creek / Craig Creek from Lemons Branch (Silent Dell community) downstream to the Stony Run confluence (Horton community) near the USGS gaging station (JU48).	4A	Escherichia coli (E. coli)	2016	L	4.68
VAW-I22R_CRG03A14 / Lower Craig Creek / Craig Creek mainstem from Wilson Branch downstream to the Lemons Branch mouth (JU48).	4A	Escherichia coli (E. coli)	2016	L	10.71

Craig Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		27.59

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I23R-01-PH** Cove Branch

Cause Location: Cove Branch mainstem from its confluence with Barbours Creek upstream to its headwaters (JU47).

Cause City/County: Craig County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: This 2018 data window initial pH listing is based on data collection during at station 2-CVA002.15. The benthic macroinvertebrate community was sampled in order to validate initial 2008 data window findings by the U.S. Forest Service and results in a de-list for benthic macroinvertebrate communities within the 2018 data window. The pH measurements collected result in this 6.04 mile listing.

2-CVA002.15 (Cove Branch at Potts Arm Trail Crossing, Craig Co.) - There are no new data since the 2018 data window where four of four pH measurements are below the pH 6.0 SU water quality criterion. The excursions are 5.3 (5/25/16), 4.7 (11/2/16), 5.6 (4/1/2015), and 5.5 (10/27/2015).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I23R_CVA01A02 / Cove Branch / Cove Branch mainstem from its confluence with Barbours Creek upstream to its headwaters (JU47).	4C	pH	NA	NA	6.04

Cove Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.04

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **I24R-01-BAC** **Lapsley Run**

Cause Location: Lapsley Run from its confluence with the James River upstream to its headwaters.

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters. Lapsley Run was 303(d) listed in 2016 for the Recreational Use based on Escherichia coli (E.coli) data collection.

2-LAP001.20 (Rt. 726 Bridge) One E.coli sample collected during the 2022 data window finds E.coli insufficient due to no Statistical Threshold Value (STV) exceedances but insufficient data to analyze geometric mean. No new data since the 2016 Integrated Report (IR) which found six of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excessive values range from 275 to 1325 cfu/100 ml. There were no additional data within the 2010, 2012 or 2014 assessment cycles. E.coli exceed the WQS instantaneous criterion in three of nine samples within the 2008 data window. These excursions cause the 2008 initial 303(d) Listing of these waters for 9.01 miles. E.coli values in excess of the criterion are: 800, 420 and 250 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I24R_LAP01A08 / Lapsley Run / Lapsley Run from its confluence with the James River upstream to its headwaters (JU51).	4A	Escherichia coli (E. coli)	2008	L	9.01

Lapsley Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.01

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste

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James River Basin

Cause Group Code: **I25R-01-BAC** Catawba Creek

Cause Location: Catawba Creek from the confluence of Buchanan Branch downstream to the mouth on the James River (JU53) .

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters. Three Catawba Creek stations find nonsupporting fecal coliform (FC) bacteria results through the 2008 - 2012 data windows. In previous cycles two of the stations below (2-CAT000.34 & 2-CAT023.83) have sufficient escherichia coli (E.coli) data to assess. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. This impaired segment is extended downstream to the mouth of Catawba Creek based on collections at 2-CAT000.34. The 2018 data window extended the E.coli impairment upstream 3.23 miles.

2014 E.coli data are sufficient to partially delist the lower portion of Catawba Creek from the Town of Fincastle POTW downstream to the confluence of Catawba Creek with the James River (11.71 miles). Station 2-CAT000.34 (Bridge near Salisbury Furnace) records two of 24 E.coli samples exceeding the WQS instantaneous criterion with a exceedance rate of 8.30%. The remaining waters exhibit impairment for the Recreational Use.

The original 2002 FC bacteria impairment was extended both upstream and downstream with the 2004 assessment. The extension downstream is from the Fincastle POTW to the Catawba Creek confluence with the James River (11.71 miles); now delisted. The upstream extension is from the confluence of Little Catawba Creek downstream to the Roanoke Cement outfalls on Catawba Creek (0.81 miles). The original 2002 11.87 mile impairment began at the Roanoke Cement Co. water intake on Catawba Creek (37°28'12"/80°00'18") extending downstream to the Town Branch confluence with Catawba Creek (37°31'01"/79°52'45").

2-CAT027.64 (Hogan Hollow Rd.) - The 2018 IR finds 13 of 17 Escherichia coli samples in excess of the 235 cfu/100 ml instantaneous criterion.

2-CAT023.83- (Rt. 779 Bridge near Gage) 2022 data window find E.coli insufficient. Nine E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. There are no additional data within the 2016 data window where six of 12 E.coli remaining samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. The 2014 assessment finds eight of 24 escherichia coli (E.coli) samples exceed the instantaneous criterion. Excursions range from 280 to 1950 cfu/100 ml. There are no additional data within the 2012 data window. 2010 data report two of 12 E.coli observations in excess of the 235 cfu/100 ml instantaneous criterion with data through 2008. Exceeding values are 280 and 480 cfu/100 ml. FC exceeds in four of 12 observations with additional data through May 2003 in 2008. Each excursion is in excess of the former WQS 400 cfu/100 ml instantaneous criterion. The maximum exceedance is 1900 cfu/100 ml and the minimum is 500 (2004 upstream extension). The 2006 Integrated Report (IR) finds FC exceeds in four of 12 observations. The maximum exceedance is 1900 cfu/100 ml and the minimum is 500. Exceedance range is the same as in 2004 where FC exceeds in three of nine observations.

2-CAT014.63- (Rt. 606 Bridge, Botetourt Co.) There are no additional E.coli data within the 2014 data window. The 2008 IR finds FC exceeds the former WQS criterion in four of 14 observations with additional data through May 2003. The 2006 IR reports FC exceeds in six of 20 observations. Exceedances range from 500 to the maximum of 1300 cfu/100 ml (original 2002 303(d) Listing). FC exceeds in seven of 27 observations ranging from 500 to the maximum of 2000 cfu/100 ml in 2004.

2-CAT000.34 (Bridge near Salisbury Furnace, Botetourt Co.) The 2020 assessment cycle finds two of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Excursions are 345 (4/27/17) and 860 cfu/100 ml (10/31/17).

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I25R_CAT01A00 / Catawba Creek / Catawba Creek mainstem from Slate Branch downstream to its mouth on the James River (JU53).	4A	Escherichia coli (E. coli)	2020	L	7.48
VAW-I25R_CAT02A00 / Catawba Creek / Catawba Creek mainstem from the Town of Fincastle POTW downstream to the mouth of Slate Branch (JU53).	4A	Escherichia coli (E. coli)	2020	L	4.24
VAW-I25R_CAT03A00 / Catawba Creek / Catawba Creek mainstem from the mouth of Lees Creek downstream to the Town of Fincastle POTW (JU53).	4A	Escherichia coli (E. coli)	2010	L	6.66
VAW-I25R_CAT03A14 / Catawba Creek / Catawba Creek mainstem from the mouth of Stone Coal Creek downstream to the Lees Creek confluence (JU52).	4A	Escherichia coli (E. coli)	2010	L	4.26
VAW-I25R_CAT03B04 / Catawba Creek / Catawba Creek from the Roanoke Cement intake downstream to the mouth of Stone Coal Creek (JU52).	4A	Escherichia coli (E. coli)	2010	L	1.42
VAW-I25R_CAT04A04 / Catawba Creek / Catawba Creek from the Roanoke Cement Outfalls downstream to the Roanoke Cement Intake (JU52).	4A	Escherichia coli (E. coli)	2010	L	0.33
VAW-I25R_CAT04B04 / Catawba Creek / Catawba Creek from the mouth of Little Catawba Creek downstream to the Roanoke Cement outfalls (JU52).	4A	Escherichia coli (E. coli)	2010	L	0.81
VAW-I25R_CAT04C04 / Catawba Creek / Catawba Creek from the Roanoke intake downstream to the mouth of Little Catawba Creek (JU52).	4A	Escherichia coli (E. coli)	2018	L	2.07
VAW-I25R_CAT04D12 / Catawba Creek / Catawba Creek mainstem from Buchanan Branch downstream to the Roanoke intake; public water supply (PWS) designation (JU52).	4A	Escherichia coli (E. coli)	2018	L	1.16

Catawba Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.43

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I25R-01-BEN Catawba Creek

Cause Location: Catawba Creek from Buchanan Branch downstream to the mouth of Little Catawba Creek (JU52).

Cause City/County: Botetourt County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The impaired waters were partially delisted for 9.16 miles with the 2012 assessment; 3.23 miles remain impaired. The James River and Tributaries, Botetourt and Craig Counties Benthic (Sediment) TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Aquatic Life Use impaired waters.

These remaining waters were considered for delist with additional macroinvertebrate data collection. Both upstream (2-CAT028.98) and downstream (2-CAT025.14) sites indicate non-impaired conditions. Additional sites were sampled (2-CAT026.29 & 2-CAT027.64) within the 2018 data window indicating Aquatic Life Use impairment. A Total Maximum Daily Load study was initiated in 2017 to address the Recreational and Aquatic Life Use impairments.

2-CAT027.64 (Hogan Hollow Rd. (Rt. 737) Botetourt, Co.) Bio 'IM' from 2 2017 VSCI scores: 64.3 (Spring) and 53.4 (Fall); and two 2016 VSCI scores: Spring 54.4, Fall 61.3. Two 2016 VSCI surveys (Spring 54.4, Fall 61.3) average 57.9 and indicate Aquatic Life Use impairment within the 2018 data window. Both the riparian zone and the banks are impacted by livestock. The limestone geology increases productivity of algae, macroinvertebrates and fish.

2-CAT026.55 (Off Rt. 779 North of Catawba) There are no additional data beyond the 2008 Integrated Report (IR). This 2008 initial 303(d) Listing for General Standard (Benthic) impairment is based on two 2003 Virginia Stream Condition Index (VSCI) surveys scoring spring 36.4 and fall 56.9. More taxa, including a higher percentage of mayflies were collected in the fall sample. Also, fewer midge larvae (Chironomidae) were present in the fall sample helping to improve the benthic community score. The land use adjacent to and immediately upstream of the station is open pasture. The riparian zone is impacted by the pastures and bank erosion due to cattle access as well as poor bank vegetative protection.

2-CAT026.29 (Off Rt. 779 upstream of Haymaker Br) This station was established as part of the 2016 Probabilistic monitoring network. The 2018 data window finds Aquatic Life use impaired from two 2016 VSCI scores: Spring 57.7, Fall 55.5. The average Stream Condition Index (SCI) score at this station was 56.59. The benthic assemblage in this reach of Catawba Creek has a mix of macroinvertebrates that are both tolerant and sensitive to pollution but is dominated by tolerant taxa.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I25R_CAT04C04 / Catawba Creek / Catawba Creek from the Roanoke intake downstream to the mouth of Little Catawba Creek (JU52).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.07
VAW-I25R_CAT04D12 / Catawba Creek / Catawba Creek mainstem from Buchanan Branch downstream to the Roanoke intake; public water supply (PWS) designation (JU52).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	1.16

Catawba Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

3.23

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Sources: Clean Sediments; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations);
Loss of Riparian Habitat; Non-Point Source; Post-development Erosion and Sedimentation; Silviculture Harvesting

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James River Basin

Cause Group Code: I25R-02-BAC Haymaker Branch

Cause Location: Haymaker Branch mainstem from its confluence with Catawba Creek upstream to its headwaters. This drainage lies wholly within the WQS public water supply (PWS) designation (JU52).

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window finds the initial Recreational Use listing for Haymaker Branch. The James River and Tributaries, Botetourt and Craig Counties Bacteria TMDL is EPA approved 7/12/19 and SWCB approved 6/27/19 and addresses these Recreational Use impaired waters (NESTED 2022 cycle).

2-HAM000.37 (Along Rhodes Ln. [Rt. 663]) - The 2022 data window adds a datapoint and applies the new E.coli criterion to find impairment due to 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. The 2020 data window finds five of 38 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. The minimum excursion is 488 cfu/100 ml and the maximum is 1,722 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I25R_HAM01A02 / Haymaker Branch / Haymaker Branch mainstem from its confluence with Catawba Creek upstream to its headwaters. This drainage lies wholly within the WQS public water supply (PWS) designation (JU52).	4A	Escherichia coli (E. coli)	2020	L	1.37

Haymaker Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.37

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I26R-01-BAC Looney Creek Drainage

Cause Location: The Looney Creek portion of the overall impairment begins at the confluence of Mill and Back Creek (37.498181 / -79.727131) on Looney Creek northeast of Lithia, Virginia, (Montvale Quad) at river mile 2.48. The original 1998 impairment (2.48 miles) ends at the mouth of Looney Creek on the James River. Note: Bacteria collections on Mill Creek (8.29 miles) and Ellis Run (1.60 miles) cause expansion of the original 1998 impairment to include portions of the aforementioned creeks for a total of 12.37 miles. The TMDL Study encompassed these additional drainages and are described in a separate Fact Sheet (I26R-02-BAC).

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Looney Creek Bacteria TMDL Load Duration Study is U.S. EPA approved on 06/21/04 [Fed ID: 20103] and SWCB approved 12/02/04 (formerly VAW-I26R-01). The TMDL Implementation Plan is SWCB approved 4/28/09. Fecal coliform (FC) bacteria exceedances cause the original 1998 2.66 mile Recreational Use impairment in Looney Creek.

2-LMC000.40 (Rt. 625 Bridge) The 2022 data window finds E.coli Insufficient from one STV exceedance in one or multiple 90-day periods; insufficient data to analyze geomean. The 2020 and 2018 data windows find seven of 36 and ten of 36 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion, respectively. Nine of 36 escherichia coli (E.coli) observations exceed the instantaneous criterion within the 2016 data window. Values in excess of the criterion exhibit the same range of excursions as found in 2014. The 2014 data window produces eight of 24 E.coli samples exceed the Water Quality Standards (WQS) 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 450 to greater than 2000 cfu/100 ml. Additional data within the 2012 data window find nine of 24 E.coli samples exceeding the WQS instantaneous criterion. Values in excess of the criterion range from 250 to 1400 cfu/100 ml. The 2010 Integrated Report (IR) finds 13 of 31 E.coli samples exceed the instantaneous criterion. Exceeding values range from 250 to 570 cfu/100 ml. The 2008 IR reports 13 of 33 samples exceed the instantaneous criterion. And in 2006 seven of 19 E.coli samples exceed the instantaneous criterion with the same range of exceedance as 2008 and 2010.

In conducting the TMDL Study two tributary streams within the watershed find the Recreational Use impaired for bacteria (E.coli) as well (2004 Assessment-fecal coliform). Nested bacteria impairments on Ellis Run and Mill Creek are described in a separate fact sheet (I26R-02-BAC).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I26R_LMC01A00 / Looney Creek / Looney Creek mainstem from the confluence of Mill and Back Creeks downstream to its mouth on the James River (JU55).	4A	Escherichia coli (E. coli)	1998	L	2.66

Looney Creek Drainage

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.66

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I26R-01-BEN** Mill Creek, UT (XUL)

Cause Location: Mill Creek, UT (XUL) from just downstream of the Rt. 11 crossing upstream to its headwaters.

Cause City/County: Botetourt County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2010 data window finds the initial 303(d) listing on the Unnamed Tributary to Mill Creek (XUL) from benthic macroinvertebrate community data collected in 2008.

2-XUL001.67 (Downstream of Rt. 799 (Ammen Rd.) crossing)- No additional data within the 2020 or 2022 data windows. The 2016 and 2018 data windows include more recent VSCI surveys (2013-2014) with an average score of 55.2. This additional data results in an assessment of 'Reserve Judgement' until additional data can be collected. There are no additional information beyond the 2010 Integrated Report (IR). The benthic community is impaired for 5.37 miles from two 2008 Virginia Stream Condition Index (VSCI) surveys. 2008 VSCI scores are spring 33.9 and fall 50.9. This is a small second order tributary to Mill Creek. The average VSCI score for all samples was 42.4 indicating a benthic community with many organisms that are tolerant of pollution. Habitat scores indicate a stream reach with badly eroded stream banks, poor vegetative protection on the banks and in the riparian zone excessive deposits of sand and fine sediment on the stream bottom. The watershed consists of pastures, crop fields, and some residential areas.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I26R_XUL01A10 / Mill Creek, UT (XUL) / Mill Creek, UT (XUL) from just downstream of the Rt. 11 crossing upstream to its headwaters (JU55).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	5.38

Mill Creek, UT (XUL)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.38

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Wet Weather Discharges (Non-Point Source)

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James River Basin

Cause Group Code: I26R-02-BAC Ellis Run and Mill Creek

Cause Location: Ellis Run mainstem from the Rt. 645 crossing downstream to its confluence with Back Creek (1.60 miles). And Mill Creek mainstem (8.29 miles) from just downstream of the Rt. 11 crossing on downstream to the Mill Creek confluence with Back Creek.

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Looney Creek Bacteria TMDL Load Duration Study is U.S. EPA approved on 06/21/04 [Fed ID: 20103] and SWCB approval on 12/02/04 (formerly VAW-I26R-01). The TMDL Implementation Plan received SWCB approval 4/28/2009. Fecal coliform (FC) bacteria exceedances cause the original 1998 2.48 mile recreational use impairment in Looney Creek. Additional sample collection associated with TMDL development finds recreational impairment on Ellis Run and Mill Creeks. These bacteria impairments were not specifically addressed by the approved TMDL but are nested within the overall TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

Ellis Run (1.69 miles) and Mill Creek (8.89 miles), tributaries to Back Creek and Looney Creek, originally listed in 2004 for fecal coliform (FC) bacteria remain impaired for the Recreational Use with escherichia coli (E.coli) replacing fecal coliform.

2-ELS000.08- (Rt. 643 Bridge) No new data since five of 18 E.coli samples exceeded the instantaneous criterion within the 2018 data window. The 2016 Integrated Report (IR) finds three of 12 escherichia coli (E.coli) samples exceed the instantaneous criterion. Excessive values range from 265 to greater than 2000 cfu/100 ml. There are no additional data within the 2014 data widow. There are no additional data within the 2012 data window where one of three E.coli samples exceed at 450 cfu/100 ml. Nine of 12 E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml within the 2010 data window. The 2008 IR reveals 14 of 18 E.coli samples exceeding the instantaneous criterion. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml. In 2006 13 of 15 E.coli samples exceed the instantaneous criterion with the same range of exceeding values. Five of six E.coli samples exceed the criterion ranging from 350 to >800 cfu/100 ml in 2004.

2-MIA000.79- (Junction of Routes 11 & 722) No additional data since the 2018 data window where three of 18 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The 2016 IR finds one of 12 E.coli samples in excess of the instantaneous criterion at greater than 2000 cfu/100 ml. The Recreational Use remains impaired due to the magnitude of the single observation in excess of the WQS instantaneous criterion of 235 cfu/100 ml. There were no additional data within the data windows for 2010, 2012 or 2014 IRs. The 2008 IR finds eight of 18 E.coli samples in excess of the instantaneous criterion. Excursions range from 450 cfu/100 ml to 1700. In 2006 E.coli exceeds the instantaneous criterion in seven of 16 samples. Values in excess of the criterion ranged from 300 to 700 cfu/100 ml. The 2004 IR reports two of six E.coli samples exceed the instantaneous criterion at 470 and 700 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I26R_ELS01A02 / Ellis Run / Ellis Run mainstem from the Rt. 645 crossing downstream to its confluence with Back Creek (JU55).	4A	Escherichia coli (E. coli)	2004	L	1.69
VAW-I26R_MIA01A04 / Mill Creek / Mill Creek mainstem from just downstream of the Rt. 11 crossing on downstream to the Mill Creek confluence with Back Creek (JU55).	4A	Escherichia coli (E. coli)	2004	L	8.90

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Ellis Run and Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.59

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I27R-01-BAC James River**

Cause Location: James River from the Looney Cr. mouth downstream to the confluence Cedar Creek (JU58).

Cause City/County: Botetourt County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This initial 7.15 mile 2014 303(d) Listing is a result of escherichia coli (E.coli) samples in excess of the WQS 235 cfu/10 ml instantaneous criterion. The Recreational impairment is extended downstream 9.53 miles with the 2016 Integrated Report (IR). There is no additional data collected at the following stations since the 2016 IR window.

2-JMS309.13 (Gage - Foot Bridge Buchanan) Six of 24 E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion within the 2016 data window. Excessive values range from 600 to 1800 cfu/100 ml. The 2014 Integrated Report (IR) finds three E.coli samples exceed the instantaneous criterion from 24 samples. Values in excess of the instantaneous criterion are 600, 1000 and 1475 cfu/100 ml.

2-JMS298.17 (Pull off of Rt. 608) No additional data beyond the 2016 IR where two of 12 E.coli samples in excess of the WQS instantaneous criterion. Excessive values are 265 and 275 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I27R_JMS01A00 / James River / James River from the Jennings Creek mouth downstream to the confluence of Big Hollow Branch (JU58).	5A	Escherichia coli (E. coli)	2016	L	7.98
VAW-I27R_JMS02A14 / James River / James River from the Looney Cr. mouth downstream to the confluence of Jennings Creek (JU56).	5A	Escherichia coli (E. coli)	2014	L	7.15
VAW-I28R_JMS01A08 / James River / James River from its confluence with Big Hollow Branch downstream to its confluence with Cedar Creek (JU58).	5A	Escherichia coli (E. coli)	2016	L	1.55

James River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 16.68		

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I27R-02-HG** **James River**

Cause Location: James River from the Jennings Creek mouth downstream to its confluence with Cedar Creek.

Cause City/County: Botetourt County; Rockbridge County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The 2022 data window finds the initial 303(d) Impaired Waters listing for this section of the James River for Mercury (Hg) in fish tissue. 2-JMS298.70 (near Alpine Landing above Natural Bridge Station)- Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm is found in one species from the 2019 collections: Carp (3 fish) at 0.31 ppm. The 2020 IR records one exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm from one species during 2017 collections: Flathead Catfish (1 fish) at 0.36 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I27R_JMS01A00 / James River / James River from the Jennings Creek mouth downstream to the confluence of Big Hollow Branch (JU58).	5A	Mercury in Fish Tissue	2022	L	7.98
VAW-I28R_JMS01A08 / James River / James River from its confluence with Big Hollow Branch downstream to its confluence with Cedar Creek (JU58).	5A	Mercury in Fish Tissue	2022	L	1.55

James River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.53

Sources: Source Unknown

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James River Basin

Cause Group Code: **I27R-02-PCB James River**

Cause Location: James River mainstem near Iron Gate (at the confluence of Jackson River and Cowpasture River) downstream to Balcony Falls Dam (historically located at 37.623, -79.444) near the Maury River.

Cause City/County: Botetourt County; Rockbridge County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The 2022 data window extends the James River PCB in fish tissue impairment from the initial 2020 data window 303(d) Impaired Waters Listing based on fish tissue data collection and a 2020 VDH fish consumption advisory. The initial 2020 fish tissue listing included a 9.52 mile segment of the James River (from the Jennings Creek mouth downstream to its confluence with Cedar Creek) and was based on data collected in 2017. The updated fish tissue 303(d) Impaired Waters listing is 59.3 miles in length and extends the listing both upstream and downstream from the initial 2020 303(d) listing.

2020 VDH Fish Consumption Advisory for Upper James River from the head of the James near Iron Gate (at the confluence of Jackson River and Cowpasture River) to Balcony Falls Dam downstream of Glasgow (near the Maury River); Carp: no more than 2 meals / month.

2-JMS345.73 (Route 220- 1st Bridge below Cowpasture) - 2019 one species analyzed for PCB - Carp exceeds DEQ's screening value of 18 ppb; (3 fish composite [70.7-81.7 cm]) at 39.75 ppb, (3 fish composite [75.7-90.1 cm]) at 61.60 ppb, (3 fish composite [85.0-90.2 cm]) at 191.10 ppb, and (3 fish composite [76.8-81.9 cm]) at 62.80 ppb. One of the collection species (Carp) exceeds the VDH "Lower" level of concern of 100ppb.

2-JMS298.70 (near Alpine Landing above Natural Bridge Station) - No new data since 2020 cycle. The 2020 data window finds PCB in fish tissue impaired from 2017 collections. Three species analyzed for PCB: Carp exceeds WQS TV of 20 ppb and VDH "lower" level of concern of 100 ppb; (3 fish composite [74.6-80.0 cm]) at 101.805 ppb and Carp (3 fish composite [77.3-79.5 cm]) at 170.358 ppb. Flathead Catfish exceeds WQS TV of 20 ppb; (1 fish [96 cm]) at 32.705 ppb (Remaining species analyzed Smallmouth Bass (6 fish composite [32.3-41.2 cm]) at 0.00 ppb).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I28R_JMS01A00 / James River / James River from its confluence with Cedar Creek downstream to its confluence with the Maury River.	5A	PCBs in Fish Tissue	2022	H	6.73
VAW-I18R_JMS01A00 / James River / James River mainstem from the confluence of Craig Creek upstream to the confluence of Stull Run (JU40).	5A	PCBs in Fish Tissue	2022	H	7.77
VAW-I18R_JMS02A00 / James River / James River mainstem from the confluence of Stull Run upstream to the confluence of the Jackson and Cowpasture Rivers (JU37).	5A	PCBs in Fish Tissue	2022	H	7.63
VAW-I24R_JMS01A00 / James River / James River mainstem from the Craig Creek mouth downstream to the Catawba Creek mouth (JU51).	5A	PCBs in Fish Tissue	2022	H	5.11
VAW-I24R_JMS01A10 / James River / James River from the Catawba Creek confluence downstream to the mouth of Looney Creek (JU54).	5A	PCBs in Fish Tissue	2022	H	15.40
VAW-I27R_JMS01A00 / James River / James River from the Jennings Creek mouth downstream to the confluence of Big Hollow Branch (JU58).	5A	PCBs in Fish Tissue	2020	H	7.98

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-I27R_JMS02A14 / James River / James River from the Looney Cr. mouth downstream to the confluence of Jennings Creek (JU56).	5A	PCBs in Fish Tissue	2022	H	7.15
VAW-I28R_JMS01A08 / James River / James River from its confluence with Big Hollow Branch downstream to its confluence with Cedar Creek (JU58).	5A	PCBs in Fish Tissue	2020	H	1.55

James River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			59.32

Sources: Source Unknown

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James River Basin

Cause Group Code: **I28R-01-BAC** Cedar Creek

Cause Location: Cedar Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 12.11 End Mile: 0.00 Total Impaired Size: 12.11 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment remains impaired due exceedances of the e-coli WQS at station: 2-CEC000.04 (3 exceedances of 23 samples for e-coli in 2022) and 2-CEC003.60 (15 exceedances of 36 samples for e-coli in 2020). Initial Listing Date: 2002. This impairment is included in the EPA Approved Cedar Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I28R_CEC01A00 / Cedar Creek / Cedar Creek from a point 6.4 miles upstream of the James River downstream to its confluence with the James River.	4A	Escherichia coli (E. coli)	2010	L	6.88
VAV-I28R_CEC02A10 / Cedar Creek / Cedar Creek from the headwaters downstream to a point 6.4 miles upstream of the James River.	4A	Escherichia coli (E. coli)	2010	L	5.23

Cedar Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			12.11

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I28R-02-BAC** Elk Creek

Cause Location: Elk Creek from the headwaters downstream to its confluence with the James River. (Start Mile: 4.00 End Mile: 0.00 Total Impaired Size: 4.00 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the Escherichia coli (E.coli) WQS at station: 2-ELK001.37 (2 exceedances of 10 samples for E.coli). No new data 2022 cycle. Initial Listing Date: 2014

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I28R_ELK01A00 / Elk Creek / Elk Creek from a point .6 miles upstream of the James River downstream to its confluence with the James River.	5A	Escherichia coli (E. coli)	2014	L	0.70
VAV-I28R_ELK02A10 / Elk Creek / Elk Creek from a point just upstream of the confluence with the East Fork Elk Creek downstream to a point .6 miles upstream of its confluence with the James River.	5A	Escherichia coli (E. coli)	2014	L	1.39
VAV-I28R_ELK03A10 / Elk Creek / Elk Creek from a point 3.1 miles upstream of the James River downstream to a point just upstream of its confluence with the East Fork Elk Creek.	5A	Escherichia coli (E. coli)	2014	L	1.42
VAV-I28R_ELK04A10 / Elk Creek / Elk Creek from its confluence with Hopper Creek downstream to a point 3.1 miles upstream of the James River.	5A	Escherichia coli (E. coli)	2014	L	0.48

Elk Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.99

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I28R-03-BAC** **James River**

Cause Location: James River from the mouth of Cedar Creek downstream to its confluence with the Maury River.

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment of the James River is impaired based on high frequency E.coli bacteria data collected at DEQ station 2BJMS287.57 (Two STV exceedances in the same 90-day period represented by 10+ samples, no geomean exceedances). Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I28R_JMS01A00 / James River / James River from its confluence with Cedar Creek downstream to its confluence with the Maury River.	5A	Escherichia coli (E. coli)	2022	L	6.73

James River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.73

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I29R-01-TEMP** **Ramseys Draft**

Cause Location: Ramseys Draft from the headwaters downstream to its confluence with the Calfpasture River.
 (Start Mile: 10.29 End Mile: 0.00 Total Impaired Size: 10.29 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: This segment is impaired due to exceedances of the temperature WQS at station: 2-RAM000.26 (2 exceedances of 12 samples for temperature). 2022 cycle- Aquatic life remains impaired with temperature WQS exceedances (2/17) at station 2-RAM000.26. Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I29R_RAM01A00 / Ramseys Draft / Ramseys Draft from the headwaters downstream to its confluence with the Calfpasture River.	5A	Temperature	2016	L	10.29

Ramseys Draft

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			10.29

Sources: Source Unknown

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James River Basin

Cause Group Code: I30R-01-BAC Calfpasture River

Cause Location: Calfpasture River from its confluence with Tizzle Branch downstream to its confluence with Hamilton Branch. (Start Mile: 26.52 End Mile: 23.72 Total Impaired Size: 2.8 Miles)

Cause City/County: Augusta County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-CFP024.20 (3 exceedances of 12 samples for e-coli in 2014, no new data in 2022). Impairment Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I30R_CFP03A10 / Calfpasture River / Calfpasture River from its confluence with Tizzle Branch downstream to its confluence with Hamilton Branch.	5A	Escherichia coli (E. coli)	2006	L	2.84

Calfpasture River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.84

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I30R-03-BAC Hamilton Branch

Cause Location: Hamilton Branch from the headwaters downstream to its confluence with the Calfpasture River.
 (Start Mile: 6.29 End Mile: 0.00 Total Impaired Size: 6.29 Miles)

Cause City/County: Augusta County; Bath County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station 2AHAM000.02 (8 exceedances of 12 samples for e-coli). No new e-coli data in the 2022 cycle. Initial Listing Date: 2016

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I30R_HAM01A16 / Hamilton Branch / Hamilton Branch from the headwaters downstream to its confluence with the Calfpasture River.	5A	Escherichia coli (E. coli)	2016	L	6.29

Hamilton Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.29

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I30R-03-PH Piney Branch

Cause Location: Piney Branch from the headwaters downstream to its confluence with Guys Run. (Start Mile: 2.33 End Mile: 0.00 Total Impaired Size: 2.33 Miles)

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: UVA RB08. Last samples (12 excursions of 12 samples for pH) in 2010. This data is now outside the assessment data window for 2022, the impairment carries forward. Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I30R_XGR01A06 / Piney Branch / Piney Branch from the headwaters downstream to its confluence with Guys Run.	5A	pH	2006	L	2.33

Piney Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.33

Sources: Atmospheric Deposition - Acidity

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James River Basin

Cause Group Code: I32R-01-BEN Wallace Mill Stream

Cause Location: Wallace Mill Stream from the Laurel Hill Trout Farm (formerly Castaline Trout) discharge downstream to its confluence with the Little Calpasture River. (Start Mile: .91 End Mile: 0.00 Total Impaired Size: .91 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment remains impaired due to due moderately and severely impaired benthic assessments in 1998. No additional benthic surveys have been completed. Initial Listing Date: 1998; This segment is included in the EPA approved Fish Farm TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I32R_XMO01A00 / Wallace Mill Stream / Wallace Mill Stream from the Laurel Hill Trout Farm (formerly Castaline Trout Farm) discharge downstream to its confluence with the Little Calpasture River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.91

Wallace Mill Stream

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.91

Sources: Aquaculture (Permitted)

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James River Basin

Cause Group Code: I32R-02-BEN Little Calfpasture River

Cause Location: Little Calfpasture River from the Lake Merriweather Dam downstream to its confluence with the Calfpasture River. (Start Mile: .81 End Mile: 0.00 Total Impaired Size: .81 Miles)

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-LCF000.02 (Impaired for VSCI) and 2-LCF000.76 (Impaired for VSCI). Remains impaired t station 2-LCF000.02- 41.2 average VSCI of all samples collected in the 2022 cycle. Initial Listing Date: 1996. This impairment is included in the EPA Approved Little Calfpasture River benthic TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I32R_LCF01A00 / Little Calfpasture River / Little Calfpasture River from the Lake Merriweather Dam downstream to its confluence with the Calfpasture River.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.81

Little Calfpasture River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.81

Sources: Upstream Impoundments

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James River Basin

Cause Group Code: I32R-03-BAC Little Calfpasture River

Cause Location: Little Calfpasture River from the headwaters downstream to its confluence with Smith Creek.
 (Start Mile: 23.54 End Mile: 11.18 Total Impaired Size: 12.36 Miles)

Cause City/County: Augusta County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station 2-LCF013.93, no data in 2022. Initial Listing Date: 2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I32R_LCF03A00 / Little Calfpasture River / Little Calfpasture River from a point 17.2 miles upstream of the Maury River downstream to its confluence with Smith Creek.	5A	Escherichia coli (E. coli)	2010	L	5.33
VAV-I32R_LCF04A10 / Little Calfpasture River / Little Calfpasture River from the headwaters downstream to a point 17.2 miles upstream of the Maury River.	5A	Escherichia coli (E. coli)	2010	L	7.03

Little Calfpasture River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.36

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I33R-01-BAC Cedar Grove Branch

Cause Location: Cedar Grove Branch from the headwaters downstream to its confluence with the Maury River.
 (Start Mile: 4.62 End Mile: 0.00 Total Impaired Size: 4.62 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-CGB001.80 (10 exceedances of 23 samples for e-coli in 2012, 3 exceedances 5 samples in 2014/16, no new data in 2022). Initial Listing Date: 2004. This segment is included in the EPA Approved Maury River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I33R_CGB01A00 / Cedar Grove Branch / Cedar Grove Branch from the headwaters downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2008	L	4.62

Cedar Grove Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.62

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I33R-02-BAC Maury River

Cause Location: Maury River from the 5 mile upper limit of the PWS designation for the Lexington raw water intake downstream to its confluence with Kerrs Creek. Total Impairment Size 6.12 Miles (shortened in 2010)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-MRY029.32 (3 exceedances of 12 samples for e-coli in 2020). No new data 2022. Initial Listing Date 2006 (de-listed 2010) (re-listed 2020).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I33R_MRY01A00 / Maury River / Maury River from the 5 mile upper limit of the PWS designation for the Lexington raw water intake downstream to its confluence with Kerrs Creek.	4A	Escherichia coli (E. coli)	2020	L	3.63
VAV-I33R_MRY01B10 / Maury River / Maury River from its confluence with Hays Creek downstream to the 5 mile upper limit of the PWS designation for the Lexington raw water intake.	4A	Escherichia coli (E. coli)	2020	L	9.36

Maury River

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 12.99

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unrestricted Cattle Access; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I33R-03-BAC Kerrs Creek

Cause Location: Kerrs Creek from the headwaters downstream to its confluence with the Maury River. (Start Mile: 11.87 End Mile: 0.00 Total Impaired Size: 11.87 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at stations: 2-KRR001.54 (2 exceedances of 12 samples for e-coli in 2020, no new data 2022) and 2-KRR008.16 (2 exceedances of 6 samples for e-coli in 2012, no new data 2022). Initial Listing Date: 2012. This segment is included in the EPA Approved Maury River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I33R_KRR01A00 / Kerrs Creek / Kerrs Creek from the 5 mile upper limit of the PWS designation for the Maury Service Authority Public Water Intake downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2012	L	3.04
VAV-I33R_KRR02A00 / Kerrs Creek / Kerrs Creek from the headwaters downstream to the 5 mile upper limit of the PWS designation for the Maury Service Authority Public Water Intake.	4A	Escherichia coli (E. coli)	2012	L	8.83

Kerrs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.87

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I34R-01-BAC** **Hays Creek/Moffatts Creek**

Cause Location: Moffatts Creek from the headwaters downstream to its confluence with Hays Creek; Hays Creek from its confluence with Moffatts Creek downstream to its confluence with the Maury River (Start Mile: 8.86, 11.95 End Mile: 0.00, 0.00 Total Impaired Size: 8.86 Miles, 11.95 Miles)

Cause City/County: Augusta County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These segments are impaired due to exceedances of the e-coli bacteria WQS at station: 2-HYS001.41 (12 exceedances of 48 samples for e-coli in 2020, no new data 2022) and 2-HYS007.46 (8 exceedances of 11 samples for e-coli in 2016, no data in 2022). Initial Listing Date: 1998. This segment is included in the EPA approved Hays/Moffatts Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I34R_HYS01A00 / Hays Creek / Hays Creek from Brownsburg downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2008	L	10.03
VAV-I34R_HYS02A10 / Hays Creek / Hays Creek from its confluence with Moffatts Creek downstream to Brownsburg.	4A	Escherichia coli (E. coli)	2008	L	1.92
VAV-I34R_MFT01A00 / Moffatts Creek / Moffatts Creek from the headwaters downstream to its confluence with Hays Creek.	4A	Escherichia coli (E. coli)	2008	L	8.85

Hays Creek/Moffatts Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.8

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I34R-03-BAC** Walker Creek

Cause Location: Walker Creek and tributaries from the headwaters downstream to its confluence with Dutch Hollow Branch. (Start Mile: 8.80 End Mile: 0.00 Total Impaired Size: 8.80 Miles)

Cause City/County: Augusta County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 2-WKS001.03 (17 exceedances of 72 samples for e-coli) and 2-WKS004.59 (4 exceedances of 25 samples for e-coli). Initial Listing Date: 2006. This segment is included in the EPA approved Walker Creek bacteria TMDL. Federal TMDL ID # 34380.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I34R_WKS01A06 / Walker Creek / Walker Creek from the headwaters downstream to its confluence with Dutch Hollow Branch.	4A	Escherichia coli (E. coli)	2006	L	8.8

Walker Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.8

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I34R-04-BAC** **Otts Creek**

Cause Location: Otts Creek from the Route 675 bridge crossing downstream to its confluence with Moffatts Creek. (Start Mile: 5.39 End Mile: 0.00 Total Impaired Size: 5.39 Miles) Mileage changed in 2018 due to segmentation error.

Cause City/County: Augusta County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-OTS000.45. 2020 cycle- 24 exceedances of 48 samples at station 2-OTS000.45. No new data 2022. Initial Listing Date: 2006. This segment is included in the EPA approved Otts Creek bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I34R_OTS01A00 / Otts Creek / Otts Creek from the Route 675 bridge crossing downstream to its confluence with Moffatts Creek.	4A	Escherichia coli (E. coli)	2006	L	5.4

Otts Creek

Recreation	Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				5.4

Sources: Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I35R-02-BAC** Mill Creek

Cause Location: Mill Creek from the headwaters downstream to its confluence with the Maury River. (Start Mile: 9.14 End Mile: 0.00 Total Impaired Size: 9.14 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at station: 2-MIS000.04 (2 exceedances of 12 samples for e-coli in 2014, no data in 2022). Initial Listing Date: 2006. This segment is nested into the EPA Approved Maury River Bacterial TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I35R_MIS01A00 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2008	L	9.14

Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.14

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **I35R-02-BEN** Mill Creek

Cause Location: Mill Creek from the headwaters downstream to its confluence with the Maury River. (Start Mile: 9.14 End Mile: 0.00 Total Impaired Size: 9.14 Miles)

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances General Standard for Benthics at station: 2-MIS000.04 (Impaired for VSCI). Initial Listing Date: 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I35R_MIS01A00 / Mill Creek / Mill Creek from the headwaters downstream to its confluence with the Maury River.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	9.14

Mill Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.14

Sources: Agriculture; Non-Point Source; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I35R-03-BAC Woods Creek

Cause Location: Woods Creek and tributary from the headwaters downstream to its confluence with the Maury River. (Start Mile: 6.06 End Mile: 0.00 Total Impaired Size: 6.06 Miles)

Cause City/County: Lexington; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2AWDS000.10 (2022 cycle-two or more STV exceedances in the same 90-day period with < 10 samples) and 2-WDS002.17 (2022 cycle-two or more STV exceedances in the same 90-day period with < 10 samples). Initial Listing Date: 2012. This segment is included in the EPA Approved (2/2/18) Woods Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I35R_WDS01A00 / Woods Creek / Woods Creek and tributary from the headwaters downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2012	L	6.05

Woods Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.05

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Non-Point Source; Rural (Residential Areas); Sanitary Sewer Overflows (Collection System Failures); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **I35R-03-BEN** Woods Creek

Cause Location: Woods Creek and tributary (including Town Run) from the headwaters downstream to its confluence with the Maury River. (Start Mile: 6.06 End Mile: 0.00 Total Impaired Size: 6.06 Miles)

Cause City/County: Lexington; Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-WDS002.08 (Impaired for VSCI), and 2-WDS002.17 (Impaired for VSCI). Initial Listing Date: 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I35R_TWN01A20 / Town Run / Town Run from the headwaters downstream to its confluence with Woods Creek.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	1.28
VAV-I35R_WDS01A00 / Woods Creek / Woods Creek and tributary from the headwaters downstream to its confluence with the Maury River.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.05

Woods Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.33

Sources: Municipal (Urbanized High Density Area); Non-Point Source; Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I36R-02-BEN Moores Creek

Cause Location: Moores Creek and tributaries from the headwaters downstream to its confluence with the South River. (Start Mile: 9.09 End Mile: 0.00 Total Impaired Size: 9.09 Miles)

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is impaired due to exceedances of the General Standard for Benthics at stations: 2-MRC002.14 (Impaired for VSCI) and 2-MRC003.82 (Impaired for VSCI). Initial Listing Date 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I36R_MRC01A00 / Moores Creek / Moores Creek and tributaries from the headwaters downstream to its confluence with the South River.	5A	Benthic Macroinvertebrates Bioassessments	2006	H	9.09

Moores Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			9.09

Sources: Non-Point Source; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **I36R-03-PH** Saint Marys River

Cause Location: Saint Marys River from a point approximately 1.97 miles above its confluence with Cellar Hollow downstream to its confluence with South River. (Start Mile: 1.97 End Mile: 0.00 Total Impaired Size: 1.97 Miles)

Cause City/County: Augusta County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 2-SMR001.52, remains impaired in 2022 with 21 excursions of 24 samples for pH. Initial Listing Date: 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I36R_SMR01A00 / Saint Marys River / Saint Marys River from a point approximately 1.97 miles above its confluence with South River downstream to its confluence with South River.	5A	pH	2006	L	1.97

Saint Marys River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.97

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I36R-05-BEN Marl Creek X-trib

Cause Location: Tributary to Marl Creek from the headwaters at the intersection of Forest Grove and Mountain View Roads, downstream to its confluence with Marl Creek.

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This tributary of Marl Creek is impaired due to exceedances of the General Standard for Benthics at station: 2AXEM000.35. This listing station was incorrectly named 2-MRL002.62 during the 2012 cycle (cycle first listed).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I36R_XEM01A22 / Marl Creek X-trib / Tributary to Marl Creek from the headwaters at the intersection of Forest Grove and Mountain View Roads, downstream to its confluence with Marl Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.16

Marl Creek X-trib

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.16

Sources: Agriculture; Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I36R-06-BAC South River

Cause Location: South River from its confluence with Moores Creek downstream to its confluence with Irish Creek.
 (Start Mile: 13.56 End Mile: 5.60 Total Impaired Size: 7.96 Miles)

Cause City/County: Augusta County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-STH011.28 (2 exceedances of 11 samples for e-coli in 2016, no new data in 2022). Initial Listing Date; 2012. This segment is included in the EPA Approved Maury River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I36R_STH02A10 / South River / South River from its confluence with the Moores Creek downstream to its confluence with Irish Creek.	4A	Escherichia coli (E. coli)	2012	L	7.96

South River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.96

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: I36R-07-PH South River

Cause Location: South River from its confluence with the Saint Marys River downstream to its confluence with Moores Creek. (Start Mile: 19.89 End Mile: 13.56 Total Impaired Size: 6.33 Miles)

Cause City/County: Augusta County; Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: This segment is impaired due to excursions of the pH WQS at station: 2-STH019.57 (4 excursions of 12 samples for pH), no new data 2022. Initial Listing Date: 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I36R_STH03A12 / South River / South River from its confluence with the Saint Marys River downstream to its confluence with Moores Creek.	5A	pH	2018	L	6.34

South River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.34

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **I37R-02-HG** **Maury River**

Cause Location: Maury River from its confluence with the South River downstream to its confluence with Indian Gap Run.

Cause City/County: Buena Vista; Rockbridge County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This segment is impaired due to the presence of Mercury in fish tissue at station 2-MRY013.88: Three Hg exceeding fish samples: smallmouth bass and largemouth bass in 2017 and smallmouth bass in 2019. Initial Listing Date: 2022.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I37R_MRY03A00 / Maury River / Maury River from its confluence with South River downstream to its confluence with Indian Gap Run.	5A	Mercury in Fish Tissue	2022	L	4.58

Maury River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.58

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I37R-02-PCB Maury River

Cause Location: Maury River from its confluence with the South River downstream to its confluence with the James River. (Start Mile: 16.94 End Mile: 0.00 Total Impaired Size: 16.94 Miles)

Cause City/County: Buena Vista; Rockbridge County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: This segment is impaired due to the presence of PCBs in fish tissue at stations: 2-MRY011.23 and 2-MRY011.86. Additional data collected at DEQ stations in 2017 show the continued presence of PCBs: 2-MRY013.88 (largemouth bass and carp), 2-MRY001.50 (flathead catfish). Initial Listing Date: 2006. VDH Fish Consumption Advisory for PCBs in this segment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I37R_MRY01A00 / Maury River / Maury River from its confluence with Buffalo Creek downstream to its confluence with the James River.	5A	PCBs in Fish Tissue	2006	H	5.11
VAV-I37R_MRY02A00 / Maury River / Maury River from its confluence with Indian Gap Run downstream to its confluence with Buffalo Creek.	5A	PCBs in Fish Tissue	2006	H	7.25
VAV-I37R_MRY03A00 / Maury River / Maury River from its confluence with South River downstream to its confluence with Indian Gap Run.	5A	PCBs in Fish Tissue	2004	H	4.58

Maury River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			16.94

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I37R-03-BAC Poague Run

Cause Location: Poague Run and tributaries from the headwaters downstream to its confluence with the Maury River. (Start Mile: 17.12 End Mile: 0.00 Total Impaired Size: 17.12)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2-PGH002.44 (5 exceedances of 12 samples for e-coli). No new data 2022 cycle. Initial Listing Date: 2014. This segment is included in the EPA Approved Maury River Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I37R_PGH01A00 / Poague Run / Poague Run and tributaries from the headwaters downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2014	L	17.12

Poague Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 17.12
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Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: I38L-01-DO Lexington Reservoir

Cause Location: Lexington Reservoir

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The lake is impaired due to exceedances of the DO WQS. These exceedances have been determined to be a naturally occurring DO impairment in the Hypolimnion during the summer months when the lake is thermally stratified. TSI results indicate that this is naturally occurring. This assessment unit is considered 4C-No TMDL Needed due to natural conditions.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I38L_MOR01A10 / Lexington Reservoir / Lexington Reservoir	4C	Dissolved Oxygen	NA	NA	22.6

Lexington Reservoir

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		22.6	

Sources: Atmospheric Deposition - Acidity; Natural Sources

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James River Basin

Cause Group Code: **I38L-01-PH** **Lexington Reservoir**

Cause Location: Lexington Reservoir

Cause City/County: Rockbridge County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The lake is impaired due to excursions of the pH WQS at 2-MOR003.60 (18 excursions of 66 samples for pH in 2014, no new data in 2022).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I38L_MOR01A10 / Lexington Reservoir / Lexington Reservoir	5A	pH	2010	L	22.6

Lexington Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		22.6	

Sources: Atmospheric Deposition - Acidity; Natural Sources

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James River Basin

Cause Group Code: I38R-01-BAC Buffalo Creek

Cause Location: Buffalo Creek from its confluence with North/South Fork Buffalo Creek downstream to its confluence with the Maury River. (Start Mile: 16.10 End Mile: 0.00 Total Impaired Size: 16.10 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli bacteria WQS at stations: 2-BLD000.22 (2022 cycle, new WQS: 4 exceedances of 22 sample periods: 2 or more STV hits in the same 90-day period with < 10 samples) , 2-BLD004.25 (2014 cycle- 2 exceedances of 12 samples for e-coli), and 2-BLD011.90 (2020 cycle- 2 exceedances of 36 samples for e-coli). Initial Listing Date: 2004. This impairment is included in the EPA Approved Buffalo Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I38R_BLD01A00 / Buffalo Creek / Buffalo Creek from its confluence with an unnamed tributary near Buffalo Bend downstream to its confluence with the Maury River.	4A	Escherichia coli (E. coli)	2008	L	3.96
VAV-I38R_BLD02A04 / Buffalo Creek / Buffalo Creek from its confluence with Colliers Creek downstream to its confluence with an unnamed tributary near Buffalo Bend.	4A	Escherichia coli (E. coli)	2010	L	9.14
VAV-I38R_BLD03A10 / Buffalo Creek / Buffalo Creek from its confluence with South/North Fork Buffalo Creek downstream to its confluence with Colliers Creek.	4A	Escherichia coli (E. coli)	2010	L	2.99

Buffalo Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			16.09

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I38R-02-BAC Colliers Creek

Cause Location: Colliers Creek from the headwaters downstream to its confluence with Buffalo Creek. (Start Mile: 15.11 End Mile: 0.00 Total Impaired Size: 15.11 Miles)

Cause City/County: Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the E.coli WQS at station: 2-CLL001.99 (2022 cycle, new WQS: 5 STV exceedances of 24 sampling periods- Impaired- 2 or more STV hits in the same 90-day period with < 10 samples). Initial Listing Date: 2006. This segment is included in the EPA Approved Colliers Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I38R_CLL01A00 / Colliers Creek / Colliers Creek and headwater tributaries from the headwaters downstream to its confluence with Buffalo Creek.	4A	Escherichia coli (E. coli)	2010	L	15.11

Colliers Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.11

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: I38R-03-BAC South Fork Buffalo Creek

Cause Location: South Fork Buffalo Creek from the headwaters downstream to its confluence with Buffalo Creek.
 (Start Mile: 14.48 End Mile: 0.00 Total Impaired Size: 14.48 Miles)

Cause City/County: Botetourt County; Rockbridge County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This segment is impaired due to exceedances of the e-coli WQS at station: 2022 cycle- 2-BSF000.15: New WQS: 2 or more STV exceedances in the same 90-day period with < 10 samples; 2018 cycle- 2-SBF-8-NBM (2 exceedances of 12 samples for e-coli - Level II data) and 2-SBF-9-NBM (4 exceedances of 12 samples for e-coli - Level II data). Initial Listing Date: 2010. This impairment is included in the EPA Approved South Fork Buffalo Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAV-I38R_SBF01A00 / Buffalo Creek South Fork / South Fork Buffalo Creek from the headwaters downstream to its confluence with Buffalo Creek.	4A	Escherichia coli (E. coli)	2010	L	14.48

South Fork Buffalo Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 14.48

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J01R-01-BAC Appomattox River

Cause Location: Appomattox River from the Suanee Creek confluence to the Deep Creek confluence.

Cause City/County: Amelia County; Appomattox County; Buckingham County; Chesterfield County; Cumberland County; Powhatan County; Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_APP02A02 / Appomattox River / Appomattox River from Fishpond Creek to Vaughans Creek (JA03)	4A	Escherichia coli (E. coli)	2006	L	12.09
VAP-J01R_APP03A02 / Appomattox River / Appomattox River from Vaughans Creek to a point 5 miles upstream of Farmville's raw water intake.	4A	Escherichia coli (E. coli)	2006	L	6.83
VAP-J01R_APP04A02 / Appomattox River / Appomattox River from Farmville's raw water intake to a point 5 miles upstream	4A	Escherichia coli (E. coli)	2006	L	5.01
VAP-J01R_APP05A04 / Appomattox River / Farmville's raw water intake downstream to JA05/JA09 watershed boundary	4A	Escherichia coli (E. coli)	2006	L	2.66
VAP-J01R_APP05B14 / Appomattox River / Appomattox River from the JA05/JA09 watershed boundary to the confluence with Sandy River	4A	Escherichia coli (E. coli)	2014	L	6.56
VAP-J06R_APP05A02 / Appomattox River / The portion of the Appomattox River within J06.	4A	Escherichia coli (E. coli)	2006	L	21.06
VAP-J07R_APP01A98 / Appomattox River / The portion of the Appomattox River within this watershed.	4A	Escherichia coli (E. coli)	2006	L	28.83
VAP-J10R_APP01A98 / Appomattox River / The Appomattox River from river mile 53.70 downstream to the confluence of Deep Creek. The segment was extended in 2006 to incorporate VAP-J10R_APP02A04.	4A	Escherichia coli (E. coli)	2006	L	10.18

Appomattox River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			93.22

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_APP01A02 / Appomattox River / Appomattox River from Suanee Creek to Fishpond Creek (JA02)	4A	Fecal Coliform	2004	L	4.73

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Appomattox River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.73

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-02-BAC** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to the mouth at the Appomattox River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle the segment was impaired for E.coli with a exceedance rate of 3/11, Horsepen Creek is included in the Appomattox Basinwide Bacteria TMDL. During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_HRE01A04 / Horsepen Creek / Horsepen Creek from its headwaters to the mouth at the Appomattox River	4A	Escherichia coli (E. coli)	2010	L	4.01

Horsepen Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.01

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-02-BEN** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to the mouth at the Appomattox River

Cause City/County: Buckingham County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2016 cycle this segment became impaired for benthics, the stream had moderate deposition of sediment and moderately unstable banks. no new data during the 2018 and 2020 cycle. During the 2022 cycle new data was collected and the segment remained impaired for Benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_HRE01A04 / Horsepen Creek / Horsepen Creek from its headwaters to the mouth at the Appomattox River	5A	Benthic Macroinvertebrates Bioassessments	2016	H	4.01

Horsepen Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.01

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J01R-03-BAC Suanee Creek

Cause Location: Suanee Creek from its headwaters to the mouth at the Appomattox River.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33316, 05/21/2004 Station IDs:

2-SUA001.54 (Ambient) E. coli - 4/12 Violation Rate 2-SUA003.80 (Ambient) E. coli - 4/12 Violation Rate

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_SUA01A04 / Suanee Creek / Suanee Creek from its headwaters to the mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2006	L	6.31

Suanee Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.31

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J01R-04-BAC Vaughans Creek

Cause Location: Vaughans Creek from its headwaters to the mouth at the Appomattox River.

Cause City/County: Appomattox County; Buckingham County; Cumberland County; Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 05/21/2004 Station IDs: 2-VNS000.31(Ambient) E. coli - 1/12 Violation Rate 2-VGN003.75 (Ambient) E. coli - 3/12 Violation Rate 2-VGN007.73 (Ambient) E. coli - 8/12 Violation Rate 2VGN-CVW (Clean VA Waterways Physical/Chemical Sampling) E. coli - 4/33 Violation Rate Segment is located in Appomattox River Basinwide TMDL Study Area. During the 2016 cycle the segment had E.coli exceedances at station 2-VNS000.31(1/12),2-VGN003.75(3/12), 2-VGN007.73 (8/12). During the 2018, 2020 and 2022 cycle the segment had no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_VNS01A02 / Vaughans Creek / Vaughans Creek from its confluence with Cabin Branch to its mouth at Appomattox River	4A	Escherichia coli (E. coli)	2006	L	4.31
VAP-J01R_VNS02A10 / Vaughans Creek / Vaughans Creek from its headwaters to its confluence with Cabin Branch	4A	Escherichia coli (E. coli)	2010	L	8.61

Vaughans Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			12.92

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J01R-05-BAC Gross Creek

Cause Location: Gross Creek from its headwaters to its mouth on the Appomattox River

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 05/21/2004 Station ID: Clean Virginia Waterways Sampling 2GSK-APP-CVW E. coli - 3/11 violation rate 2GSK-BLA-CVW E. coli - 1/8 violation rate 2GSK-GRO2-CVW E. coli - 32/43 violation rate 2GSK-GRO3-CVW E. coli - 33/42 violation rate 2GSK-GRO4-CVW E. coli - 32/46 violation rate 2GSK-GROCL-CVW E. coli - 3/11 violation rate 2GSK-GROLWA-CVW E. coli - 10/15 violation rate 2GSK-GROPUT-CVW E. coli - 28/45 violation rate

No new data during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_GSK01A08 / Gross Creek / Gross Creek from its headwaters to its mouth on the Appomattox River	4A	Escherichia coli (E. coli)	2008	L	1.91

Gross Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.91

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-07-BAC Plum Creek**

Cause Location: Plum Creek from its headwaters to its mouth on the Appomattox River

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33316, 05/21/2004 Station ID:
 2-PUM000.29 (Ambient)

During the 2020 and 2022 cycle there was no new E.coli data and the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_PUM01A08 / Plum Creek / Plum Creek from its headwaters to its mouth on the Appomattox River	4A	Escherichia coli (E. coli)	2008	L	3.76

Plum Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.76

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-07-BEN** Plum Creek

Cause Location: Plum Creek from its headwaters to its mouth on the Appomattox River

Cause City/County: Powhatan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 2-PUM000.29 During the 2020 cycle Benthics became impaired from 2016 data. No new data for the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_PUM01A08 / Plum Creek / Plum Creek from its headwaters to its mouth on the Appomattox River	5A	Benthic Macroinvertebrates Bioassessments	2020	H	3.76

Plum Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.76

Sources: Source Unknown

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James River Basin

Cause Group Code: J01R-08-BAC South Fork Appomattox River

Cause Location: South Fork Appomattox River from its headwaters to its mouth at the Appomattox River.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 5/21/2004

During the 2016 cycle the segment had an exceedance rate of 3/12 for E.coli and is nested in the Appomattox TMDL.

During the 2018, 2020, and 2022 cycle no new data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_ARS01A04 / South Fork Appomattox River / Headwaters to the mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2010	L	5.79

South Fork Appomattox River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.79

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-09-BAC** Crane Creek

Cause Location: Crane Creek from its headwaters to its mouth on Vaughans Creek

Cause City/County: Appomattox County; Buckingham County; Cumberland County; Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 5/21/2004

During the 2016 cycle the segment was impaired for E.coli with an exceedance rate of 4/12.

During the 2018 and 2020 cycle the segment remained impaired for E.coli (10/18)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_CNE01A10 / Crane Creek / Crane Creek from its headwaters to its mouth on Vaughans Creek	4A	Escherichia coli (E. coli)	2010	L	5.19

Crane Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.19

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-09-BEN** Crane Creek

Cause Location: Crane Creek from its headwaters to its mouth on Vaughans Creek

Cause City/County: Appomattox County; Buckingham County; Cumberland County; Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 2-CNE000.96 2008/2012-2016 Bio - IM Dairy cows have access to stream, though it is a very wooded area. Habitat consisted of numerous log jams, some good cobble riffles and some gravel riffles. The riffles weren't very embedded but sedimentation was high throughout the rest of the stream. Nitrogen concentrations in the stream were high, indicating a nutrient problem. Extreme seasonal variation in SCI scores, therefore additional monitoring is needed to accurately assess water quality in this stream reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_CNE01A10 / Crane Creek / Crane Creek from its headwaters to its mouth on Vaughans Creek	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.19

Crane Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.19

Sources: Source Unknown

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James River Basin

Cause Group Code: J01R-10-BAC Fishpond Creek

Cause Location: Fishpond Creek from its headwaters to the mouth.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 5/21/2004

During the 2016 cycle the segment was impaired for E.coli at station 2-FSP000.53 with an exceedance rate of 17/36, this segment is nested within the Appomattox E.coli TMDL.

During the 2018 cycle the segment remained impaired for E.coli with an exceedance rate of 21/42.

No new data was collected during the 2020 cycle. During the 2022 cycle the segment remained impaired for E.coli due to exceedances at 2-FSP000.53 (9/40).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_FSP01A06 / Fishpond Creek / Fishpond Creek from its headwaters to the mouth.	4A	Escherichia coli (E. coli)	2010	L	9.5

Fishpond Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.5

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-11-BAC** Rough Creek

Cause Location: Rough Creek from the headwaters to its mouth at the Appomattox River

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33316, 05/21/2004 During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_RGH01A04 / Rough Creek / Rough Creek from the headwaters to its mouth at the Appomattox River	4A	Escherichia coli (E. coli)	2010	L	6.5

Rough Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.5

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J01R-12-BAC Ducker Creek

Cause Location: Ducker Creek from its headwaters to its mouth on the Appomattox River

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 5/21/2004

During the 2016 cycle the segment was impaired for E. coli with an exceedance rate of 4/12 and was nested in the Appomattox TMDL.

During the 2018 cycle the segment remained impaired for E.coli with no new data.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_DKR01A12 / Ducker Creek / From its headwaters to its mouth on the Appomattox River	4A	Escherichia coli (E. coli)	2012	L	5.74

Ducker Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.74

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J01R-13-BAC Appomattox River

Cause Location: Appomattox River from its headwaters to the confluence with the South Fork Appomattox River.

Cause City/County: Appomattox County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle the segment had an exceedance rate of 2/12 E. coli. No new data was collected during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_APP01B04 / Appomattox River / Appomattox River from its headwaters to the confluence with the South Fork Appomattox River.	4A	Escherichia coli (E. coli)	2014	L	7.9

Appomattox River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.9

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J01R-14-BAC** **Holiday Creek**

Cause Location: Holiday Creek to the backwaters of holiday lake

Cause City/County: Appomattox County; Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2018:33316,5/21/2004

During the 2018 cycle the segment was Impaired for E.coli with an exceedance rate of 9/35. This impairment is Nested within the Appomattox River Bacteria TMDL.

During the 2020 cycle there was no new E.coli data and the impairment remains. During the 2022 cycle the segment remained impaired for recreation due to E.coli exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_HOL01B04 / Holiday Creek / Holiday Creek from its headwaters to the backwaters of Holiday Lake.	4A	Escherichia coli (E. coli)	2018	L	6.7

Holiday Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.7

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: J01R-15-BAC Gannaway Creek

Cause Location: Headwaters to Buckingham County Line

Cause City/County: Buckingham County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020:33316,5/21/2004

During the 2020 cycle the segment was Impaired for E.coli with an exceedance rate of 5/11. This impairment is Nested within the Appomattox River Bacteria TMDL. No new data during the 2022 cycle, the E.coli impairment remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J01R_GAN02A20 / Gannaway Creek / Headwaters to Buckingham County Line	4A	Escherichia coli (E. coli)	2020	L	3.08

Gannaway Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.08

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J02R-01-BAC** Spring Creek

Cause Location: Spring Creek from Mud Creek to the Buffalo Creek Dam No. 4

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33328,5/21/2004 Station ID: 2-SPA006.48 (2001 FT/Sed & Appomattox River Basin TMDL Study) E.coli - 4/11 Violation Rate

No new data in the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J02R_SPA02A04 / Spring Creek / Spring Creek from Mud Creek to the Buffalo Creek Dam No. 4	4A	Escherichia coli (E. coli)	2006	L	2.39

Spring Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.39

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J02R-02-BAC Buffalo Creek

Cause Location: Buffalo Creek from the Carey Creek confluence to its mouth at the Appomattox River.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 5/21/2004 Station IDs: 2-BFL011.03 (Ambient, Appomattox Basin wide TMDL Station) E. coli - 8/35 Violation Rate 2-BFL016.60 (Ambient) E. coli - 3/12 Violation Rate 2BFL-BUF15-CVW (Clean Virginia Waterways) E. coli - 3/35 violation rate 2BFL-BUF3-CVW (Clean Virginia Waterways) E. coli - 2/36 violation rate 2BFL-BUF0-CVW (Clean Virginia Waterways) E. coli - 7/27 violation rate

For the 2018 cycle the segment had new data at stations 2-BFL011.03 with an E.coli exceedance rate of 9/34.

During the 2020 cycle the segment was impaired at station 2-BFL016.60 with a 3/12 exceedance rate. During the 2022 cycle the segment remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J02R_BFL01A14 / Buffalo Creek / Buffalo Creek near the mouth in watershed JA09	4A	Escherichia coli (E. coli)	2014	L	0.40
VAP-J02R_BFL02A02 / Buffalo Creek / Buffalo Creek from the Spring Creek confluence to 0.4 miles above the mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2006	L	11.04
VAP-J02R_BFL03A06 / Buffalo Creek / Buffalo Creek from the Spring Creek confluence to Carey Creek.	4A	Escherichia coli (E. coli)	2014	L	4.83

Buffalo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.27

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J03L-01-DO Prince Edward Lake

Cause Location: Prince Edward and Goodwin Lake State Park

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2018 cycle the segment had a DO impairment at station 2DSDY-PEL-1-DCR, This is Level III non agency data, the exceedance rate was 38/83, the exceedances are in the bottom of the lake. no new data was collected during the 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03L_SDY02A06 / Prince Edward Lake / Prince Edward and Goodwin Lake State Park	5C	Dissolved Oxygen	2018	L	26.38

Prince Edward Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		26.38	

Sources: Natural Sources

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James River Basin

Cause Group Code: J03L-01-HAB Prince Edward Lake

Cause Location: Entirety of the lake

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: During the 2022 cycle the segment, the lake was impaired of the recreation use due to an VDH harmful algal bloom advisory. The 2019 advisory lasted 45 days due to elevated microcystin and cylindrospermopsin.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03L_SDY02A06 / Prince Edward Lake / Prince Edward and Goodwin Lake State Park	5A	Harmful Algal Blooms	2022	L	26.38

Prince Edward Lake

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:		26.38	

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **J03R-01-BAC** Little Sandy Creek

Cause Location: Little Sandy Creek from headwaters to SF Road Crossing

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station IDs: 2-LIT005.43 (Appomattox Basin wide TMDL Station) E. coli - 4/12 Violation Rate
no new data for the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03R_LIT02A12 / Little Sandy Creek / From SF Road to headwaters	4A	Escherichia coli (E. coli)	2006	L	3.27

Little Sandy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.27

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J03R-05-BAC** **Sandy River**

Cause Location: Sandy River from Sandy River Reservoir Dam to its mouth at Bush River

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33319, 05/21/2004 Station ID: 2-SDY003.00 (Ambient) E. coli - 3/24 Violation Rate

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03R_SDY01A00 / Sandy River / Sandy River from Sandy River Reservoir Dam to its mouth at Bush River	4A	Escherichia coli (E. coli)	2008	L	3.44

Sandy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.44

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J03R-06-BEN** **Sandy River**

Cause Location: Sandy River from the backwaters of Sandy River Reservoir to the Prince Edward Lake Dam.

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

2DSDY008.80 (2009 & 2012 Bio) IM - This stream had marginal bank stability, obvious sediment deposition, and marginal epifaunal substrate. 2009 biologist field notes indicate that every surface was covered in algae. The water was very sluggish and there were beaver dams upstream and downstream.

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03R_SDY02A12 / Sandy River / From the backwaters of Sandy River Reservoir to the Prince Edward Lake Dam	5A	Benthic Macroinvertebrates Bioassessments	2014	H	4.08

Sandy River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.08

Sources: Erosion and Sedimentation

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J03R-07-BEN** North Branch Sandy River

Cause Location: Headwaters to the confluence with Acorn Creek

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle the segment became impaired for Benthics

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03R_SNN02A20 / North Branch Sandy River / Headwaters to the confluence with Acorn Creek	5A	Benthic Macroinvertebrates Bioassessments	2020	H	2.4

North Branch Sandy River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.4

Sources: Erosion and Sedimentation

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J04R-01-BAC Bush River

Cause Location: Bush River from the confluence with Millers Creek to its mouth on the Appomattox River.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID: 2-BSR002.82 (Ambient, Appomattox Basin wide TMDL Station) E. Coli - 3/24 Violation Rate

No new data during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J03R_BSR03A02 / Bush River / Bush River from Sandy River to Appomattox River	4A	Escherichia coli (E. coli)	2008	L	0.81
VAP-J04R_BSR02A02 / Bush River / Bush River from the confluence with Millers Creek downstream to its confluence with Sandy River.	4A	Escherichia coli (E. coli)	2006	L	4.41

Bush River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.22

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J04R-01-BEN Bush River

Cause Location: Bush River from its headwaters to the confluence with Mountain Creek.

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station IDs: 2-BSR012.33 (2014 FPM) FS Benthic Assessment 2-BSR017.69 (2008 Bio) IM Benthic Assessment - This site was monitored in order to supplement probabilistic monitoring data from probabilistic monitoring site 2-BSR018.10, which can only be accessed via private land and cannot be revisited. Bush River has evidence of extremely high flows with very high sedimentation occurring instream. The habitat assessment scores very low for bank stability and bank vegetative protection. In the fall of 2008 a new clear-cut was noted on the right bank. The riffles had become more embedded, reducing available habitat for benthic macro invertebrates. 2-BSR018.10 (2005 Probmon) J Rating Benthic Assessment - Condition of stream drastically different seasonally, therefore an accurate assessment is not possible without additional data. This site was part of the probabilistic monitoring program and can only be accessed via private land, therefore it will not be revisited. Seasonal difference noted. Abundant algal floc dominated riffles in spring but was not present in fall.

During the 2018 and 2020 cycle there was no new data. During the 2022 cycle new benthic data was collected at station 2-BSR017.69 and determined to still be impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_BSR01B10 / Bush River / Bush River from its headwaters to the confluence with Mountain Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	11.49

Bush River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.49

Sources: Agriculture; Erosion and Sedimentation; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J04R-02-BAC Bush River, Upper

Cause Location: Bush River from its headwaters to the confluence with Mountain Creek.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 33318, 8/30/2004 Station IDs: 2-BSR017.69 (Ambient) E. Coli - 3/12 Violation Rate
 During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_BSR01B10 / Bush River / Bush River from its headwaters to the confluence with Mountain Creek.	4A	Escherichia coli (E. coli)	2016	L	11.49

Bush River, Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.49

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J04R-02-BEN** Mountain Creek

Cause Location: Mountain Creek from the dam to the mouth at Bush River

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: Station ID: 2-MTC001.24 (Ambient, Bio) IM - 2008 Bio This monitoring station was characterized by sluggish flow, marginal habitat, considerable sediment deposition, and unstable banks with little vegetative protection. 2-MTC005.27 (2014 Bio) FS - This site had decent habitat but sedimentation was occurring.

During the 2018 cycle the segment was impaired for benthics at station 2-MTC001.24.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_MTC01A10 / Mountain Creek / Mountain Creek from the dam to the mouth at Bush River.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	2.18

Mountain Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.18

Sources: Dam or Impoundment; Erosion and Sedimentation; Natural Sources

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J04R-03-BAC Mountain Creek

Cause Location: Mountain Creek from its headwaters to its mouth on Bush River.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2018:33316,5/21/2004

During the 2018 cycle the segment was impaired for E.coli with an exceedance rate of 3/28 at station 2-MTC001.24. The E.coli impairment is nested within the Appomattox Watershed Bacteria TMDL.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_MTC01A10 / Mountain Creek / Mountain Creek from the dam to the mouth at Bush River.	4A	Escherichia coli (E. coli)	2018	L	2.18
VAP-J04R_MTC01B20 / Mountain Creek / Mountain Creek from the headwaters to the dam.	4A	Escherichia coli (E. coli)	2018	L	6.80

Mountain Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.98

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J04R-04-BAC** **Evans Creek**

Cause Location: Evans Creek from its headwaters to its mouth on Bush River.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020:33316,5/21/2004

During the 2020 cycle the segment was impaired for E.coli with an exceedance rate of 2/12 at station 2DECP001.24 The E.coli impairment is nested within the Appomattox Watershed Bacteria TMDL. No new data has been collected since 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_EVN01A20 / Evans Creek / From the Headwaters to the Mouth at Bush River	4A	Escherichia coli (E. coli)	2020	L	4.44

Evans Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.44

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J05L-01-HGFT** Briery Creek Lake

Cause Location: Briery Creek Lake

Cause City/County: Prince Edward County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish Tissue metals: HG in 2sp(Reardear sunfish, largemouth Bass) 2/3(IM) 2018 FT PCB ok

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J05L_BRI01L98 / Briery Creek Lake / Briery Creek Lake	5A	Mercury in Fish Tissue	2020	L	819.67

Briery Creek Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	819.67	

Sources: Atmospheric Deposition - Toxics

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J05R-01-BAC Briery Creek

Cause Location: Briery Creek from the Briery Creek Lake Dam to the confluence with the Bush River.

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle the segment remained impaired for E.coli at Both stations

During the 2020 cycle new data was collected at station 2-BRI001.00 with a E.coli exceedance rate of 13/42.

During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J05R_BRI01A98 / Briery Creek / Briery Creek from the Briery Creek Lake Dam to the confluence with the Bush River.	4A	Escherichia coli (E. coli)	2006	L	10.48

Briery Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.48

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: J05R-01-BEN Briery Creek

Cause Location: Briery Creek from the Briery Creek Lake Dam to the confluence with the Bush River.

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 and 2020 cycle the segment remained impaired for benthics at station 2DBRI007.10. During the 2022 cycle new benthic data was collected at station 2-BRI004.01, the segment remained impaired for benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J05R_BRI01A98 / Briery Creek / Briery Creek from the Briery Creek Lake Dam to the confluence with the Bush River.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	10.48

Briery Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.48

Sources: Dam or Impoundment; Erosion and Sedimentation

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J05R-02-BAC Tanyard Branch

Cause Location: Tanyard Branch from Route 646 downstream to its mouth at Briery Creek

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33332,05/21/2004 Station ID: 2-TNY000.51 (Appomattox Basinwide TMDL Station)
 E. coli - 2/10 Violation Rate

During the 2018, 2020 and 2022 cycle the segment had no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J05R_TNY01A04 / Tanyard Branch / Tanyard Branch from Route 646 downstream to its mouth at Briery Creek	4A	Escherichia coli (E. coli)	2006	L	0.46

Tanyard Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.46

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J05R-03-BEN** Rice Creek

Cause Location: Rice Creek from its headwaters to its mouth on Bush River.

Cause City/County: Prince Edward County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

2DRCE001.21 (2009 FPM) This site was sampled as part of the Probabilistic Monitoring program and is immediately downstream of a dam. The next bridge is approximately 0.25 miles downstream.

Non-target due to proximity to dam. Will follow up at nearest bridge if accessible.

2DRCE002.44 (2012,2020 Bio) IM - This site has unstable banks and sediment deposition. Habitat availability improved somewhat in the fall. This site was monitored as a follow-up to probabilistic station 2DRCE001.21 that was located on private property and could not be revisited.

During the 2018 and 2020 cycle there was no new data. During the 2022 cycle new benthic data was collected at station 2DRCE002.44, the segment remained impaired for benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J04R_RCE01A12 / Rice Creek / From its headwaters to its mouth on Bush River	5A	Benthic Macroinvertebrates Bioassessments	2014	H	4.59

Rice Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.59

Sources: Erosion and Sedimentation

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J05R-04-BAC** Little Briery Creek

Cause Location: Little Briery Creek from the headwaters to Briery Creek Lake

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020:33332,05/21/2004

During the 2020 cycle the segment had an E.coli exceedance rate of 2/12 at station 2DLTK003.42. This segment is located within Appomattox River Basin Bacteria TMDL - EPA Approved 8/30/04 and will be nested. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J05R_LTK01A20 / Little Briery Creek / Headwaters to Briery Creek Lake	4A	Escherichia coli (E. coli)	2020	L	3.79

Little Briery Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.79

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J06R-01-BAC** **Angola Creek**

Cause Location: Angola Creek from its headwaters to its mouth on the Appomattox River.

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle the segment was impaired for E.coli with an exceedance rate of 4/12 at station 2-ANG003.35 and 5/11 at station 2-ANG001.27. No new data was collected for the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_ANG01A00 / Angola Creek / Angola Creek from its headwaters to the confluence with an unnamed tributary downstream of Route 664.	4A	Escherichia coli (E. coli)	2006	L	4.24
VAP-J06R_ANG02A00 / Angola Creek / Angola Creek from an unnamed tributary downstream of Route 664 to the mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2006	L	2.74

Angola Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.98

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J06R-03-BAC** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to the mouth at Big Guinea Creek.

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:
 2-HRP000.42 (TMDL Monitoring) E. coli -2/10 Violation Rate

No new data for the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_HRP01A00 / Horsepen Creek / Horsepen Creek from its headwaters to the mouth at Big Guinea Creek.	4A	Escherichia coli (E. coli)	2006	L	3.99

Horsepen Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.99

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J06R-03-BEN** **Horsepen Creek**

Cause Location: Horsepen Creek from its headwaters to the mouth at Big Guinea Creek.

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

2-HRP000,42 (2007-2012 Bio) Impaired Benthic Assessment

Small, sandy stream in low area that is likely inundated often and may dry during drought. The benthic macroinvertebrate population is probably influenced by these flow fluctuations. Habitat scores were low for sediment deposition, pool variability, bank stability, bank vegetative protection and epifaunal substrate. SCI scores straddled the impairment threshold until 2012. Sediment and organic pollution are likely stressors in this stream.

No new data for the 2018 and 2020 cycle. During the 2022 cycle the segment remained impaired for benthics due to new data collected from station 2-HRP000.35.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_HRP01A00 / Horsepen Creek / Horsepen Creek from its headwaters to the mouth at Big Guinea Creek.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	3.99

Horsepen Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.99

Sources: Source Unknown

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James River Basin

Cause Group Code: J06R-04-BAC Saylers Creek

Cause Location: Saylers Creek from the Amelia/Nottoway County line to its confluence with the Appomattox River.

Cause City/County: Amelia County; Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station IDs: 2-SYL001.26 (Ambient, Appomattox Basinwide TMDL Station) E. coli - 9/23 Violation Rate 2SAY*-SAY7-CVW (Clean VA Waterways Bacteria Sampling) E. coli - 7/36 Violation Rate

During the 2016 cycle the segment was impaired for E.coli at both stations.

During the 2018, 2020, and 2022 cycle the segment had no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_SYL01A98 / Saylers Creek / Saylers Creek from the Amelia/Nottoway County line to its confluence with the Appomattox River.	4A	Escherichia coli (E. coli)	2004	L	5.13

Saylers Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.13

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J06R-05-BEN** **Big Guinea Creek**

Cause Location: Big Guinea Creek from its headwaters to the mouth at the Appomattox River.

Cause City/County: Cumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle the segment became impaired for Benthics at station 2-BGU005.67. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_BGU01A98 / Big Guinea Creek / Big Guinea Creek from its headwaters to the mouth at the Appomattox River.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	8.73

Big Guinea Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.73

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J06R-06-BAC** Little Saylers Creek

Cause Location: Little Saylers Creek from headwaters to Saylers Creek

Cause City/County: Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:33327, 5/21/2004

Station IDs:

2-LIU000.70 (Appomattox Basin wide TMDL Station)

E. coli - 5/10 Violation Rate

2-LIU002.75 (Appomattox Basin wide TMDL Station)

E. coli - 4/10 Violation Rate

2LIU-SAY5-CVW (Clean VA Waterways Sampling)

E. coli - 33/56 Violation Rate

2LIU-SAY6-CVW (Clean VA Waterways Sampling)

E. coli - 19/37 Violation Rate

During the 2018 and 2020 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_LIU01A02 / Little Sayler's Creek / Little Sayler's Creek from headwaters to Sayler's Creek	4A	Escherichia coli (E. coli)	2006	L	6.78

Little Saylers Creek

Recreation

Estuary (Sq. Miles)
Reservoir (Acres)
River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 6.78

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J06R-07-BAC** **Stock Creek**

Cause Location: Stock Creek from its headwaters to the mouth at the Appomattox River

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 05/21/2004

During the 2016 cycle the segment was impaired for E. coli with an exceedance rate of 6/12.

During the 2018 cycle the segment was impaired for E.coli with an exceedance rate of 3/12.

During the 2020 and 2022 cycle there was no new data.

Segment located within the Appomattox Basinwide Bacteria TMDL Study Area

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_SCK01A06 / Stock Creek / Stock Creek from its headwaters to the mouth at the Appomattox River	4A	Escherichia coli (E. coli)	2006	L	8.7

Stock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.7

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: J06R-08-BAC Green Creek

Cause Location: Headwaters to its mouth at the Appomattox River

Cause City/County: Cumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 05/21/2004 Station ID:

2-GRF000.98 (Ambient) E. coli - 7/12 Violation Rate During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_GRF01A04 / Green Creek / Headwaters to its mouth at the Appomattox River	4A	Escherichia coli (E. coli)	2008	L	5.15

Green Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.15

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J06R-09-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its headwaters to its mouth at the Appomattox River

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33316, 05/21/2004

During the 2016 cycle the segment was impaired for E.coli with an exceedance rate of 4/12.

During the 2018, 2020 and 2022 cycle the segment had no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J06R_SND01A04 / Sandy Creek / Headwaters to its mouth at the Appomattox River	4A	Escherichia coli (E. coli)	2016	L	8.29

Sandy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.29

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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James River Basin

Cause Group Code: **J07L-01-CHLA** **Amelia Lake**

Cause Location: Amelia Lake

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: During the 2020 cycle the segment was impaired for Chlorophyll a Chla 2017=14.95/2018=44.3.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J07L_XLW01A00 / Amelia Lake / Amelia Lake in its Entirety	5A	Chlorophyll-a	2020	L	98.32

Amelia Lake

Aquatic Life

Chlorophyll-a - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	98.32	

Sources: Agriculture

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: J07R-02-BAC Rocky Ford Creek

Cause Location: Rocky Ford Creek from it headwaters downstream to the confluence with Fighting Creek.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Rocky Ford Creek was initially assessed as not supporting of the Recreation use goal in the 2004 cycle based on fecal coliform violations at the Rt. 603 bridge (2-RFD002.58).

During the 2008 cycle, the E. coli exceedance rate was 4/10 and the impairment was converted to E. coli. The TMDL due date was maintained.

During the 2010 cycle there was no new data since the 2008 cycle.

During the 2012 cycle there was no new data since the 2008 cycle.

During the 2014 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 6/12 at station 2-RFD002.58.

During the 2016 cycle no new data was collected so the segment remains impaired for E.coli. During the 2018 cycle the segment was impaired for E.coli with an exceedance rate of 14/24. During the 2020 cycle there was no new data. During the 2022 cycle the segment remained impaired due to E.coli exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J07R_RFD01A00 / Rocky Ford Creek / Rocky Ford Creek from its headwaters to the confluence with Fighting Creek.	4A	Escherichia coli (E. coli)	2008	L	5.72

Rocky Ford Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.72

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J07R-03-BAC** Butterwood Creek

Cause Location: The mainstem of Butterwood Creek.

Cause City/County: Powhatan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Butterwood Creek was assessed as not supporting the Recreation Use due to a fecal coliform exceedance rate of 2/10 at the Route 603 bridge (2-BTR000.50). No additional E. coli data was collected.

Butterwood Creek was assessed as not supporting the Recreation Use during the 2010 cycle due to a E.coli exceedance rate of 4/12 at the Route 603 bridge (2-BTR000.50). In the 2010 cycle the monitoring data changed from Fecal coliform to E.coli and the original listing date changed but the TMDL due date stayed the same (2018). During the 2012 cycle the segment remained impaired for recreation use since there was no new data since the 2010 cycle. During the 2014 cycle the segment remained impaired for recreation use since there was no new data since the 2010 cycle. No new data has been collected since 2010 cycle, the segment will remain impaired for recreation until further sampling is conducted. New data was collected in 2022 cycle but remained insufficient due to not enough data to analyze geometric mean, therefore it will remain impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J07R_BWD01A00 / Butterwood Creek / Butterwood Creek from its headwaters to its mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2010	L	5.62

Butterwood Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.62

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J08R-01-BAC Flat Creek

Cause Location: Flat Creek from Nibbs Creek to the Appomattox River.

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Flat Creek was assessed not supporting of the Recreation use support goal based on fecal coliform standard violations recorded at the Route 604 bridge (2-FLA001.95). In the current cycle, the bacteria impairment switched to E. coli.

Bacteria TMDL for Flat Creek was included in the Appomattox River development report and was approved by EPA 8/30/2004. The segment is now assessed at Cat 4A.

In 2010 cycle the segment remained impaired for E coli with an exceedance rate of 15/37. In 2012 cycle the segment remained impaired for E coli with an exceedance rate of 22/44. In 2014 cycle the segment remained impaired for E coli with an exceedance rate of 25/54. In 2016 cycle the segment remained impaired for E coli with an exceedance rate of 20/48 at station 2-FLA001.95. In the 2018 cycle the segment remained impaired for E.coli with an exceedance rate of 12/38 at station 2-FLA001.95 and 2/4 at station 2DFLA002.67. During the 2020 cycle the segment remained impaired for E.coli at station 2DFLA002.67 with an exceedance rate of 13/27. During the 2022 cycle the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J08R_FLA01A00 / Flat Creek / Flat Creek from the confluence with Nibbs Creek to the mouth at the Appomattox River.	4A	Escherichia coli (E. coli)	2006	L	4.1

Flat Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.1

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: J08R-02-BAC Flat Creek

Cause Location: Mainstem from its headwater to Nibbs

Cause City/County: Amelia County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: For 2008 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3 out of 10 at route 642 bridge (2-FLA018.71). A Bacteria TMDL for a downstream portion of Flat Creek was included in the Appomattox River development report and was approved by EPA 8/30/2004. This newly impaired segment is assessed at Cat 4A.

For 2010 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3/10 at route 642 bridge (2-FLA018.71). and 5/17 at station 2-FLA013.95, and 7/17 at station 2-FLA028.98.

For 2012 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3/10 at route 642 bridge (2-FLA018.71). and 11/41 at station 2-FLA013.95, and 14/41 at station 2-FLA028.98.

For 2014 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3/12 at route 642 bridge (2-FLA018.71). and 12/53 at station 2-FLA013.95, and 19/52 at station 2-FLA028.98.

For 2016 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3/12 at route 642 bridge (2-FLA018.71). and 8/48 at station 2-FLA013.95, and 15/47 at station 2-FLA028.98.

For 2018 assessment the segment was assessed as impaired for recreational use due to E. Coli exceedance rate of 3/12 at route 642 bridge (2-FLA018.71). and 5/42 at station 2-FLA013.95, and 14/41 at station 2-FLA028.98.

During the 2020 cycle the segment remained impaired for recreational use due to E.coli exceedance rates of 9/54 at station 2-FLA013.95 and 23/54 at station 2-FLA028.98. During the 2022 cycle the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J08R_FLA02A02 / Flat Creek / Headwaters to confluence with Nibbs Creek. Segment extended during the 2006 cycle.	4A	Escherichia coli (E. coli)	2008	L	29.9

Flat Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		29.9

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J09R-01-BAC** Nibbs Creek

Cause Location: Nibbs Creek from Amelia Courthouse Sewage Treatment Plant to confluence with Flat Creek.

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Nibbs Creek was assessed in 1998 as fully supporting but threatened of the Recreation use goals based on sampling at the Route 609 bridge. The segment was identified to Virginia for listing consideration during the next cycle. The segment was subsequently listed as impaired during the 2002 cycle, therefore the TMDL was due in 2010.

In addition, during the year 2002 cycle, an UT to Nibbs Creek was considered impaired for Recreation Use based on monitoring at the Rt. 609 bridge (2-XQK000.15 and previously called PL-43B). The TMDL for this segment was due in 2014.

In the 2006 cycle, the bacteria impairment switched to E. coli. Bacteria TMDL for Nibbs Creek was included in the Appomattox River development report and was approved by EPA 8/30/2004. The segment is now assessed at Cat 4A for recreation use.

In 2010 cycle E.coli exceedances were still present. 7/9 exceedances at station 2-NBB001.54, and 4/8 at station 2-NBB003.65.

In 2012 cycle the segment remained impaired for the recreation use due to E.coli exceedances. There was no new data at station 2-NBB001.54 so that remains impaired, and 3/11 at station 2-NBB002.92.

There is no new data for the 2014 cycle so impairments will remain. There is no new data for the 2016 and 2018 cycle so impairment for E.coli will remain. During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 6/12 at stations 2-NBB001.54 and 2-NBB002.92. During the 2022 cycle the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J09R_NBB01A98 / Nibbs Creek / Nibbs Creek from the Amelia Courthouse STP to the confluence with Flat Creek. Segment also includes an UT to Nibbs Creek from station 2-XQK000.15 (Hog Farm station PL-43B).	4A	Escherichia coli (E. coli)	2006	L	5.47

Nibbs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.47

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J09R-02-BAC** Nibbs Creek

Cause Location: Start of Nibbs Creek at the confluence of North and South Branches to the site of the previous Amelia courthouse STP.

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: For 2010 assessment the segment was assessed as impaired for recreational use due to E.coli an exceedance rate of 4/12.

During the 2012 cycle the segment was impaired for E. coli with an exceedance rate of 13/35.

During the 2014 cycle the segment was impaired for E. coli with an exceedance rate of 17/47.

During the 2016 cycle the segment was impaired for E. coli with an exceedance rate of 18/47.

During the 2018 cycle the segment was impaired for E. coli with an exceedance rate of 18/42. During the 2020 cycle the E.coli impairment remains at station 2-NBB005.84 with an exceedance rate of 22/51. During the 2022 cycle the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J09R_NBB01B10 / Nibbs Creek / Start of Nibbs Creek at the confluence of North and South Branches to the site of the previous Amelia courthouse STP.	4A	Escherichia coli (E. coli)	2010	L	0.64

Nibbs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.64

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: J09R-03-BAC Nibbs Creek

Cause Location: From Rt. 301 Bridge to the confluence of North and South Branches

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle the segment was impaired for recreation with an E.coli exceedance rate of 8/11 at station 2-NBX001.10. This impairment will be nested into the Appomattox TMDL.

During the 2014 cycle there was no new data, the segment remains impaired for E.coli.

During the 2016 cycle no new data was collected so the segment remains impaired for E.coli

During the 2018 cycle the segment remained impaired for benthics and E.coli with an exceedance rate of 10/13.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 9/12 at station 2DNBX002.33. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J09R_NBX01A12 / Nibbs Creek South Branch / Headwaters to the confluence of North and south branches. Changed from NBB to NBX in 2018 cycle	4A	Escherichia coli (E. coli)	2012	L	5.87

Nibbs Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.87

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: J09R-04-BEN Nibbs Creek South Branch

Cause Location: Nibbs Creek South Branch

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle the segment became impaired for aquatic life due to Benthics at station 2DNBX002.33. During the 2016 cycle no new data was collected so the segment remains impaired for benthics at station 2DNBX002.33. During the 2018 cycle the segment remained impaired for benthics. During the 2020 cycle no new benthic data was collected and it remains impaired. During the 2022 cycle new benthic data was collected and it remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J09R_NBX01A12 / Nibbs Creek South Branch / Headwaters to the confluence of North and south branches. Changed from NBB to NBX in 2018 cycle	5A	Benthic Macroinvertebrates Bioassessments	2014	H	5.87

Nibbs Creek South Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.87

Sources: Source Unknown

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James River Basin

Cause Group Code: J10R-01-BEN UT to Appomattox River

Cause Location: Mainstem to Appomattox

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle this segment is impaired for aquatic life use due to benthic impairment at fresh water probabilistic monitoring station 2-XUE000.31

During the 2010 cycle this segment is impaired for aquatic life use due to benthic impairment at fresh water probabilistic monitoring station 2-XUE000.31.

During the 2012 cycle this segment will remain impaired for aquatic life use due to benthic impairment at fresh water probabilistic monitoring station 2-XUE000.31 because there is no new data in the data window.

There was no data in the window during the 2014, 2016, 2018, 2020 and 2022 cycle so the impairment will still remain until further analysis.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J10R_XUE01A06 / UT to Appomattox River / Headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.5

UT to Appomattox River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.5

Sources: Source Unknown

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James River Basin

Cause Group Code: **J10R-02-DO** **Goodes Creek**

Cause Location: from the dam of the pond located at approximately 2.73 miles from the mouth to the Appomattox

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle the segment was impaired for aquatic life use due to low DO with an exceedance rate of 2/14 at station 2-GOC001.19., and assessed as Category 5C.

During the 2012 cycle the segment was impaired aquatic life use due to low DO with an exceedance rate of 3/23 at station 2-GOC001.19.

During the 2014,2016, 2018, 2020 and 2022 cycle there was no new data so the impairment remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J10R_GOC01A08 / Goodes Creek / from the dam of the pond located at approximately 2.73 miles from the mouth to the Appomattox	5C	Dissolved Oxygen	2010	L	2.92

Goodes Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: J10R-03-BAC Smacks Creek

Cause Location: Headwaters to mouth

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2010 cycle this segment was impaired for recreation use due to E. Coli with an exceedance rate of 2/12 at station 2-SMK002.57.

The 2012 cycle this segment was impaired for recreation use due to an E. Coli exceedance rate of 3/11 at station 2-SMK006.57, and station 2-SMK002.57 remained impaired for E.Coli since no new data had been collected there since 2010 cycle. During the 2014, 2016,2018, 2020 and 2022 cycle there was no new data, so the impairments remain.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J10R_SMK01A06 / Smacks Creek / Headwaters to mouth	4A	Escherichia coli (E. coli)	2010	L	9.07

Smacks Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.07

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J10R-03-DO** Smacks Creek

Cause Location: Headwaters to mouth

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The 2012 cycle the segment was impaired for aquatic life use at station 2-SMK006.57 for DO with an exceedance rate of 3/9. During the 2014, 2016,2018, 2020 and 2022 cycle there was no new data, so the impairments remain.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J10R_SMK01A06 / Smacks Creek / Headwaters to mouth	5C	Dissolved Oxygen	2012	L	9.07

Smacks Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.07

Sources: Natural Sources

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James River Basin

Cause Group Code: **J11L-02-DO** **Lake Nottoway (Lee Lake)**

Cause Location: Extent of backwater for Lake Nottoway (Lee Lake)

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2022 cycle the segment became impaired for Dissolved Oxygen with an exceedance rate of 3/23 at station 2-LDJ000.60.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11L_LDJ01A98 / Lake Nottoway (Lee Lake) / Extent of backwater for Lake Nottoway (Lee Lake)	5A	Dissolved Oxygen	2022	L	161.07

Lake Nottoway (Lee Lake)

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	161.07	

Sources: Dam or Impoundment; Natural Sources

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James River Basin

Cause Group Code: **J11R-03-BAC** **Bland Creek**

Cause Location: Bland Creek from its headwaters to the confluence with Cellar Creek

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle the segment was impaired recreation use for E.coli at station 2-BLO001.85(5/36). During the 2014 cycle the segment was delisted and fully supporting. During the 2016 cycle the segment was impaired for E. Coli (6/48). During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_BLO01A00 / Bland Creek / Bland Creek from its headwaters to the confluence with Cellar Creek.	4A	Escherichia coli (E. coli)	2012	L	6.51

Bland Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.51

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J11R-03-DO** **Bland Creek**

Cause Location: Bland Creek from its headwaters to the confluence with Cellar Creek

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle the segment was impaired for aquatic life use due to low D.O. with an exceedance rate of 2/12 at station 2-BLO001.85 .

During the 2012 cycle the segment was impaired for aquatic life use due to low D.O. at station 2-BLO001.85(10/35).

During the 2014 cycle the segment was impaired for aquatic life use due to low D.O. at station 2-BLO001.85(13/47).

During the 2016 cycle the segment was impaired for DO(15/46). During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_BLO01A00 / Bland Creek / Bland Creek from its headwaters to the confluence with Cellar Creek.	5C	Dissolved Oxygen	2010	L	6.51

Bland Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.51

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J11R-04-BAC Cellar Creek

Cause Location: Cellar Creek from its headwaters to mouth at Deep Creek

Cause City/County: Amelia County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for recreation use with an E.coli exceedance rate of 2/10 at station 2-CLR004.04, And an exceedance rate of 2/12 at station 2-CLR007.04.

During the 2012 cycle Both stations were impaired for recreation use with E.coli exceedance rates of 2/10 at station 2-CLR004.04, and 8/36 at station 2-CLR007.04.

During the 2014 cycle the segment remained impaired for recreation use for E.coli, New data was only collected at station 2-CLR007.04 with an exceedance rate of 12/48 for E.coli.

During the 2016 cycle the segment remained impaired for E. Coli at station 2-CLR007.04 with an exceedance rate of 12/46. The impaired area and cause group code was extended to include the lower impairment in VAP-J11R_CLR01B10(lower Cellar). Lower cellar became impaired for e.coli during the 2016 cycle. The lower station 2-CLR001.23 was impaired for e.coli with an exceedance rate of 14/46 and also nested within the Appomattox TMDL.

During the 2018 and 2020 cycle there was no new data. During the 2022 cycle new data was collected and the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_CLR01A00 / Cellar Creek / Cellar Creek from its headwaters downstream to the confluence with Bland Creek. Segment expanded during the 2010 cycle.	4A	Escherichia coli (E. coli)	2010	L	10.97
VAP-J11R_CLR01B10 / Cellar Creek / From the confluence of Bland Creek to the mouth at Deep Creek	4A	Escherichia coli (E. coli)	2016	L	2.70

Cellar Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.67

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J11R-04-DO** **Cellar Creek**

Cause Location: From the confluence of Bland Creek to the mouth at Deep Creek

Cause City/County: Amelia County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle the segment was impaired for aquatic life use with a D.O. exceedance rate of 5/35 at station 2-CLR001.23.

During the 2014 cycle the segment was impaired for aquatic life use with a DO exceedance rate of 9/47 at station 2-CLR001.23.

During the 2016 cycle the segment was impaired for DO with an exceedance rate of 14/46.

During the 2018, 202 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_CLR01B10 / Cellar Creek / From the confluence of Bland Creek to the mouth at Deep Creek	5C	Dissolved Oxygen	2012	L	2.7

Cellar Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.7

Sources: Natural Sources

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J11R-05-BAC** **Woody Creek**

Cause Location: Woody Creek from its headwaters to its mouth at Deep Creek.

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for E.coli at station 2-WDY003.04 with an exceedance rate of 2/12, And nested with the Deep Creek TMDL and classified category 4A.

During the 2012 cycle the segment was impaired for E.coli at station 2-WDY003.04 with an exceedance rate of 8/36, and at station 2DWDY005.35 with an exceedance rate of 2/2.

During the 2014 cycle the segment was impaired for E.coli at station 2-WDY003.04 with an exceedance rate of 12/48, and at station 2DWDY005.35 with an exceedance rate of 2/2.

During the 2016 cycle the segment was impaired for E.coli at station 2-WDY003.04 with an exceedance rate of 11/47, and no new data was collected at station 2DWDY005.35.

During the 2018 cycle the segment remained impaired for E.coli with an exceedance rate of 5/29 at station 2-WDY003.04. During the 2020 and 2022cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_WDY01A00 / Woody Creek / Woody Creek from its headwaters to its mouth at Deep Creek.	4A	Escherichia coli (E. coli)	2010	L	7.98

Woody Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.98

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J11R-06-BAC** Lees Creek

Cause Location: from its headwaters to Lake Nottoway (Lee Lake)

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for E. Coli with an exceedance rate of 2/11.

During the 2012 cycle the segment was impaired for E. Coli with an exceedance rate of 8/32.

During the 2014 cycle the segment was impaired for E. Coli with an exceedance rate of 12/42.

During the 2016 cycle the segment was impaired for E. Coli with an exceedance rate of 13/42.

During the 2018 cycle the segment was impaired for E. Coli with an exceedance rate of 8/24. During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_LDJ01A10 / Lees Creek / From it's headwater to Lake Nottoway (Lee Lake)	4A	Escherichia coli (E. coli)	2010	L	3.32

Lees Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.32

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J11R-07-BAC** UT to Winningham Creek(easternmost)

Cause Location: East UT to Winningham Creek at Rt. 632 from its headwaters to the mouth

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 3/3 at station 2-XZN001.15.

During the 2012 cycle this segment was impaired for recreation use with a E.coli exceedance rate of 27/27 at station 2-XZN001.15.

During the 2014 cycle this segment was impaired for recreation use with a E.coli exceedance rate of 39/39 at station 2-XZN001.15.

During the 2016 cycle the segment was impaired for E.coli with an exceedance rate of 48/48.

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_XZN01A10 / UT to Winningham Creek (easternmost) / East UT to Winningham Creek at Rt. 632 from its headwaters to the mouth	4A	Escherichia coli (E. coli)	2010	L	2.16

UT to Winningham Creek(easternmost)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.16

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J11R-08-BAC Beaverpond Creek

Cause Location: Beaverpond Creek from its headwaters to the confluence with Beaverpond

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 3/11 at station 2-BVP006.58. This will be nested in the Appomattox TMDL.

During the 2014, 2016, 2018, 2020 and 2022 cycle there was no new data so the segment remains impaired for E. coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_BVP01A00 / Beaverpond Creek / Beaverpond Creek from its headwaters to the limit of Beaver Pond.	4A	Escherichia coli (E. coli)	2012	L	6.48

Beaverpond Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.48

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: J11R-09-BAC Sweathouse Creek

Cause Location: Sweathouse Creek from the headwaters to the confluence with Deep Creek

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle this segment was impaired for E.coli with an exceedance rate of 4/34.

During the 2014 cycle this segment was impaired for E.coli with an exceedance rate of 6/45.

During the 2016 cycle this segment was impaired for E.coli with an exceedance rate of 8/45.

During the 2018 cycle this segment was impaired for E.coli with an exceedance rate of 7/28.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_SWT01A00 / Sweathouse Creek / Sweathouse Creek from the headwaters to the confluence with Deep Creek.	4A	Escherichia coli (E. coli)	2012	L	11.41

Sweathouse Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.41

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J11R-10-BAC** **Winningham Creek**

Cause Location: Winningham Creek from the headwaters to the confluence with Deep Creek

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During 2012 cycle the segment became impaired for recreation use with a E.coli exceedance rate of 6/14 at station 2-WGM003.15.

During the 2014, 2016, 2018, 2020 and 2022 cycle there was no new data and the segment remains impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_WGM01A00 / Winningham Creek / Winningham Creek from its headwaters to its mouth at Deep Creek.	4A	Escherichia coli (E. coli)	2012	L	5.94

Winningham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.94

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J11R-11-BAC UT to Winingham Creek(West)

Cause Location: West UT to Winingham Creek from its headwaters to the mouth

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle the segment became impaired for E.coli with an exceedance rate of 9/27.

During the 2014 cycle the segment remained impaired for E.coli with an exceedance rate of 13/39.

During the 2016 cycle the segment remained impaired for E.coli with an exceedance rate of 16/48.

During the 2018 cycle the segment remained impaired for E.coli with an exceedance rate of 8/27. During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_XFT01A10 / UT to Winingham Creek / West UT to Winingham Creek at Rt. 632 from its headwaters to mouth	4A	Escherichia coli (E. coli)	2012	L	2.07

UT to Winingham Creek(West)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.07

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J11R-12-BAC** Deep Creek

Cause Location: Deep Creek from Beaverpond Creek to the mouth.

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2010 Cycle the segment became impaired for E. coli with an exceedance rate of 4/21.

During the 2012 cycle the segment remained impaired for E. Coli with an exceedance rate of 13/38.

During the 2014 cycle the segment remained impaired for E. Coli with an exceedance rate of 18/48.

During the 2016 cycle the segment remained impaired for E. Coli with an exceedance rate of 16/48. During the 2018 cycle the segment remained impaired for E. Coli with an exceedance rate of 12/43.

During the 2020 cycle the segment remained impaired for E. Coli with an exceedance rate of 16/54. During the 2022 cycle the segment remained impaired for E. Coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_DPC01C02 / Deep Creek / Deep Creek from Beaverpond Creek to the mouth.	4A	Escherichia coli (E. coli)	2010	L	1.66

Deep Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.66

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J11R-13-BAC Rocky Run**

Cause Location: Rocky Run from the headwaters to the confluence with Deep Creek

Cause City/County: Amelia County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle this segment was impaired for E. Coli with an exceedance rate of 7/22, and will be nested in the Appomattox TMDL.

During the 2014 cycle this segment was impaired for E. Coli with an exceedance rate of 12/32.

During the 2016 cycle this segment was impaired for E. Coli with an exceedance rate of 14/41.

During the 2018 cycle this segment was impaired for E. Coli with an exceedance rate of 10/23.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_RKN01A12 / Rocky Run / Rocky Run from its headwaters to the confluence with Deep Creek	4A	Escherichia coli (E. coli)	2012	L	3.43

Rocky Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.43

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **J11R-14-BAC** **West Creek**

Cause Location: Mainstem of West Creek

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: VAP-J11R-14 VAP-J11R-06(old)

West Creek was initially impaired for fecal coliform in 2002. In the 2006 cycle, E. coli. was added as an impairing cause.

Bacteria TMDL for West Creek was included in the Appomattox River development report and was approved by EPA 8/30/2004. The segment is now assessed as Cat. 4A, however as of the 2006 assessment cycle the EPA TMDLID was not available.

During the 2006, this segment had E. coli exceedance rate of 3/19.

During the 2008 cycle, the segment had an E.coli exceedance rate of 3/20, and the TMDLID became available.

During the 2010 cycle the segment was fully supporting for all that it was monitored for.

During the 2012 cycle there has been no new data since 2008 cycle, and remains fully supporting

During the 2014 cycle there has been no new data since 2008 cycle, and remains fully supporting

During the 2016 cycle the segment became impaired for E.coli with an exceedance rate of 2/11 at station 2-WET004.96. A TMDL was completed in 2004 for West Creek.

During the 2018 cycle the segment was impaired for E.coli with an exceedance rate of 8/29.

During the 2020 cycle the segment was impaired for E.coli with an exceedance rate of 16/53. During the 2022 cycle the segment was impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J11R_WET02A00 / West Creek / West Creek from the confluence with Tanners Branch downstream to the confluence with Deep Creek.	4A	Escherichia coli (E. coli)	2006	L	7.37

West Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.37

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J12R-01-BAC Winticomack Creek

Cause Location: Winticomack Creek from Long Branch to its mouth at the Appomattox River.

Cause City/County: Amelia County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for recreation use for E.coli at station 2-WTK001.50 with an exceedance rate of 2/10, and was nested with the Appomattox TMDL.

There has been no new data since the 2010 cycle.

During the 2016, 2018, 2020 and 2022 cycle no new data was collected for E.coli, therefore the segment will remain impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J12R_WTK02A00 / Winticomack Creek / Winticomack Creek from the confluence with Long Branch to the confluence with the Appomattox River.	4A	Escherichia coli (E. coli)	2010	L	4.07

Winticomack Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.07

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J12R-01-BEN** Winticomack Creek

Cause Location: Winticomack Creek from Long Branch to its mouth at the Appomattox River.

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2010 cycle the segment was impaired for aquatic life use for Benthics at station 2-WTK001.50.

There has been no new data since the 2010 cycle.

During the 2016 cycle the segment was impaired for Benthics, new data was collected in 2013.

During the 2018 and 2020 cycle no new data was collected. During the 2022 cycle new data was collected and the segment remained impaired for Benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J12R_WTK02A00 / Winticomack Creek / Winticomack Creek from the confluence with Long Branch to the confluence with the Appomattox River.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	4.07

Winticomack Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.07

Sources: Source Unknown

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James River Basin

Cause Group Code: J12R-06-DO Horsepen Branch

Cause Location: Headwaters to mouth

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Horsepen Branch is assessed as not supporting for aquatic life use goals based on a dissolved oxygen exceedance rate 2/15 and a pH violation rate of 6/15 at the Rt. 622 bridge (2-HOI001.85).

Source of the DO and pH exceedances may be attributed to natural conditions

For 2008 it was assessed as not supporting for aquatic life based on a DO and pH exceedances at station at HOI001.85, exceedance rate was 1/15 for DO and 7/15 for pH.

For the 2010 cycle the segment was impaired for pH with an exceedance rate of 5/12. And the DO was fully supporting and delisted

no new data since 2010 cycle

During the 2016 cycle the segment had insufficient data to fully assess.

During the 2018 cycle the segment became impaired for DO with an exceedance rate of 3/13.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J12R_HOI01A00 / Horsepen Branch / Horsepen Branch from its headwaters to the confluence with the Appomattox River.	5C	Dissolved Oxygen	2006	L	4.44

Horsepen Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.44

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J12R-06-PH Horsepen Branch

Cause Location: Headwaters to mouth

Cause City/County: Amelia County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Horsepen Branch is assessed as not supporting for aquatic life use goals based on a dissolved oxygen exceedance rate 2/15 and a pH violation rate of 6/15 at the Rt. 622 bridge (2-HOI001.85).

Source of the DO and pH exceedances may be attributed to natural conditions

For 2008 it was assessed as not supporting for aquatic life based on a DO and pH exceedances at station at HOI001.85, exceedance rate was 1/15 for DO and 7/15 for pH.

For the 2010 cycle the segment was impaired for pH with an exceedance rate of 5/12. And the DO was fully supporting and delisted

no new data since 2010 cycle

During the 2016 cycle the segment had insufficient data to fully assess.

During the 2018 cycle the segment remained impaired for pH with an exceedance rate of 2/13.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J12R_HOI01A00 / Horsepen Branch / Horsepen Branch from its headwaters to the confluence with the Appomattox River.	5C	pH	2006	L	4.44

Horsepen Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.44

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J12R-08-BAC Appomattox River

Cause Location: Appomattox River from Deep Creek To Lake Chesdin

Cause City/County: Amelia County; Chesterfield County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: For the 2008 cycle The segment was impaired for Recreation use due to E.coli exceedance rate of 2/11 at station 2-APP037.08. Although not specifically addressed in the TMDL the Segment was assessed as Cat. 4A because it was in the study area for the Bacteria TMDL for the Appomattox.

During the 2010 cycle the segment remained impaired for recreation use with a E.coli exceedance rate of 2/11 at station 2-APP037.08.

During the 2012 cycle there had been no new data collected since 2008 cycle.

During the 2014 cycle the segment remained impaired for recreation use with a E.coli exceedance rate of 3/12 at station 2-APP037.08.

During the 2016 cycle the segment remained impaired for E.coli with an exceedance rate of 5/24 at station 2-APP037.

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J12R_APP01A08 / Appomattox River / From Deep Creek Downstream to Lake Chesdin	4A	Escherichia coli (E. coli)	2008	L	8.78

Appomattox River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.78

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J13R-01-DO** **Namozine Creek**

Cause Location: Namozine Creek from its headwaters to the confluence with Tylers Branch.

Cause City/County: Amelia County; Dinwiddie County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle the segment was impaired for DO with a exceedance rate of 6/12.

During the 2018 cycle the segment was impaired for DO with a exceedance rate of 9/24.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J13R_NMZ01A00 / Namozine Creek / Namozine Creek from its headwaters to the confluence with Tylers Branch.	5C	Dissolved Oxygen	2016	L	12.91

Namozine Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			12.91

Sources: Natural Sources

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J13R-01-PH** **Namozine Creek**

Cause Location: Namozine Creek from its headwaters to the confluence with Tylers Branch.

Cause City/County: Amelia County; Dinwiddie County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2018 cycle the segment was impaired for pH with a exceedance rate of 4/24. During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J13R_NMZ01A00 / Namozine Creek / Namozine Creek from its headwaters to the confluence with Tylers Branch.	5C	pH	2018	L	12.91

Namozine Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			12.91

Sources: Natural Sources

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J14L-02-DO** **Lake Chesdin**

Cause Location: Lake Chesdin in its entirety

Cause City/County: Chesterfield County; Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2022 cycle the segment had Pooled DO data that was not supporting with an overall exceedance rate of 57/450(13%).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J14L_APP01A00 / Lake Chesdin / Extent of backwater for Lake Chesdin	5A	Dissolved Oxygen	2022	L	3164.42

Lake Chesdin

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)
3164.42

River
(Miles)

Sources: Dam or Impoundment

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J14R-02-BAC Stoney Creek

Cause Location: Stoney Creek from headwaters to the limit with Lake Chesdin

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020: 33319, 05/21/2004

During the 2020 cycle recreation use became impaired for E.coli with an exceedance rate of 8/12 at station 2DSTY001.96, this will be nested within the Appomattox TMDL that was EPA approved in 2004. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J14R_STY01A08 / Stoney Creek / Headwaters to Lake Chesdin	4A	Escherichia coli (E. coli)	2020	L	2.59

Stoney Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.59

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J14R-03-BAC Whipponock Creek

Cause Location: Whipponock Creek from its headwaters to the limit of Lake Chesdin.

Cause City/County: Chesterfield County; Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 2/15 at station 2-WNK003.38. This Recreation impairment was nested with the Appomattox TMDL that was approved on 8/30/2004.

During the 2012 cycle the segment remained impaired for recreation use for E.coli since there has been no new data since the 2010 cycle.

During the 2014 cycle the segment remained impaired for recreation use with a E.coli exceedance rate of 4/17 at station 2-WNK003.38.

During the 2016 cycle the segment remained impaired for E.coli with an exceedance rate of 5/23. During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J14R_WNK01A00 / Whipponock Creek / Whipponock Creek from its headwaters to the limit of Lake Chesdin.	4A	Escherichia coli (E. coli)	2010	L	6.82

Whipponock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.82

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J14R-03-DO Whipponock Creek

Cause Location: Whipponock Creek from its headwaters to the limit of Lake Chesdin.

Cause City/County: Chesterfield County; Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle the segment became impaired due to a DO exceedance rate of 3/23.

During the 2018, 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J14R_WNK01A00 / Whipponock Creek / Whipponock Creek from its headwaters to the limit of Lake Chesdin.	5C	Dissolved Oxygen	2016	L	6.82

Whipponock Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			6.82

Sources: Natural Sources

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **J15L-01-HAB** Wilcox lake

Cause Location: entire lake

Cause City/County: Petersburg

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: During the 2022 cycle, the lake was impaired of the recreation use due to a VDH harmful algal bloom advisory. The 2019 advisory lasted 66 days due to elevated microcystin and cylindrospermopsin.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15L_XOV01A22 / Wilcox Lake / Wilcox Lake	5A	Harmful Algal Blooms	2022	L	18.15

Wilcox lake

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:		18.15	

Sources: Non-Point Source; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J15R-01-BAC Appomattox River

Cause Location: The Appomattox River from the Rohoic Creek to the fall line at the Route 1/301 bridge.

Cause City/County: Chesterfield County; Dinwiddie County; Petersburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle the segment became impaired for bacteria with an E.coli exceedance rate of 5/36 at station 2-APP012.79. The bacteria TMDL for the Appomattox River was completed and approved by EPA on 8/30/2004. The segment is assessed as Cat. 4A. During the 2022 cycle the segment remained impaired with high frequency data for geometric mean and STV.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_APP01A12 / Appomattox River / The Appomattox River from the Rohoic Creek to the fall line at the Route 1/301 bridge. Virginia Scenic River	4A	Escherichia coli (E. coli)	2020	L	1.95

Appomattox River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.95

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J15R-02-BAC Oldtown Creek

Cause Location: Oldtown Creek from the confluence with Big Branch downstream to its tidal limit.

Cause City/County: Chesterfield County; Colonial Heights

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: In 2006, the segment was also assessed as not supporting for recreation use due to a fecal coliform exceedance rate of 2/12 at station 2-OTC001.54.

In 2008 there was no new data, and was not assessed for E.coli.

For the 2010 cycle The segment was impaired for E.coli (exceedance rate 2/12) at station 2-OTC001.54, and is Nested into the Appomattox TMDL.

For the 2012 cycle The segment was impaired for E.coli (exceedance rate 2/12) at station 2-OTC001.54.

No new data has been collected since 2014 cycle so the segment remains impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01A00 / Oldtown Creek / Oldtown Creek from the confluence with Big Branch to the fall line.	4A	Escherichia coli (E. coli)	2020	L	4.23

Oldtown Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.23

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01A00 / Oldtown Creek / Oldtown Creek from the confluence with Big Branch to the fall line.	4A	Fecal Coliform	2006	L	4.23

Oldtown Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.23

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J15R-02-BEN** **Oldtown Creek**

Cause Location: Oldtown Creek from the confluence with Big Branch downstream to its tidal limit.

Cause City/County: Chesterfield County; Colonial Heights

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: For the 2010 cycle the segment was impaired for aquatic life use from Benthics at station 2-OTC001.54.

For the 2012 cycle the segment was impaired for Benthics at station 2-OTC001.54.

During the 2014, 2016, 2018 and 2020 cycle there has been no new data collected so the segment remains impaired for Benthics. During the 2022 cycle the segment had new benthic data that was impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01A00 / Oldtown Creek / Oldtown Creek from the confluence with Big Branch to the fall line.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	4.23

Oldtown Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.23

Sources: Source Unknown

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James River Basin

Cause Group Code: **J15R-03-BAC** **Harrison Creek**

Cause Location: The mainstem of Harrison Creek.

Cause City/County: Chesterfield County; Colonial Heights

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The segment was assessed not supporting of the Recreation use support goal based on fecal coliform violations at USGS stations 02041758 and 02041760.

In 2006, the bacteria impairment switched from fecal coliform to E. coli. Monitoring at DEQ station 2-HRA000.85 recorded E. coli exceedances at a rate of 2/4.

In 2008 cycle E. coli exceedance rate at station 2-HRA000.85 was 6/16.

no new data since 2008 cycle.

The segment remained impaired for E.coli, no new data has been collected since 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_HRA01A04 / Harrison Creek / Headwaters to mouth at Appomattox River.	4A	Escherichia coli (E. coli)	2006	L	3.23

Harrison Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.23

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J15R-04-BAC** **Poor Creek**

Cause Location: The mainstem of Poor Creek.

Cause City/County: Petersburg

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: In 2004, the segment was assessed not supporting of the Recreation use support goal based on fecal coliform exceedances at USGS station 02041745.

No additional data to assess for the 2006 cycle.

For 2008, 2010, 2012, and 2014 cycle there was no new data.

For 2016, 2018, 2020 and 2022 cycle E.coli was not monitored so the impairment remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_POR01A04 / Poor Creek / Headwaters to mouth at Appomattox River	4A	Fecal Coliform	2004	L	3.14

Poor Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			3.14

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **J15R-05-BEN** **Rohoic Creek**

Cause Location: Mainstem Rohoic Creek from headwaters to mouth including tributaries

Cause City/County: Dinwiddie County; Petersburg

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2012 cycle the segment became impaired for aquatic life use for Benthics at station 2-RHC000.58.

During the 2014, 2016, 2018 and 2020 cycle there was no new data so the Benthic Impairment remains. During the 2022 cycle new benthic data was collected and the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_RHC01A06 / Rohoic Creek / Headwaters to mouth at Appomattox River	5A	Benthic Macroinvertebrates Bioassessments	2012	H	13.46

Rohoic Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			13.46

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J15R-06-BAC Lieutenant Run

Cause Location: The mainstem Lieutenant Run to mouth of Appomattox

Cause City/County: Petersburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 2008, this segment was assessed as not supporting for the recreation use due to an E. coli exceedance rate of 4/10 at station 2-LTC000.08.

no new data since 2008 cycle.

During the 2012 cycle the segment remained impaired for recreation use with a E.coli exceedance rate of 4/10 at station 2-LTC000.08 and 3/12 at station 2-LTC001.35.

New data has not been collected since 2014 cycle the segment remained impaired for E.coli since there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_LTC01A08 / Lieutenant Run / From the headwaters to the mouth of the Appomattox	4A	Escherichia coli (E. coli)	2008	L	3.5

Lieutenant Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.5

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J15R-07-BAC** Ashton Creek

Cause Location: The mainstem Ashton Creek

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 2006, this segment was assessed as not supporting for the recreation use due to an E. coli exceedance rate of 2/9 at the Rt. 746 bridge (2-ASH001.26).

In 2008 the segment was impaired for recreation use, the E.coli exceedance rate was 2/11 at station 2-ASH001.26.

During the 2018 cycle the segment remained impaired for E.coli with an exceedance rate of 4/12.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_ASH01A06 / Ashton Creek / Headwaters to mouth at Appomattox River 02080207	4A	Escherichia coli (E. coli)	2006	L	7.81

Ashton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.81

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J15R-08-BEN** Oldtown Creek

Cause Location: Headwaters to the confluence of Big Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 cycle the segment became impaired for Benthics.

During the 2020 cycle there was no new data. During the 2022 cycle the segment remained impaired for Benthics with new data collected in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01B08 / Oldtown Creek / Headwaters to the confluence of Big Branch	5A	Benthic Macroinvertebrates Bioassessments	2018	H	6.23

Oldtown Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water

Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
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6.23

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J15R-08-DO** Oldtown Creek

Cause Location: Headwaters to the confluence of Big Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: For the 2018 Cycle the segment was impaired for DO with an exceedance rate of 2/14. During the 2020 cycle there was no new data. During the 2022 cycle not enough data was collected to make an assessment determination so the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01B08 / Oldtown Creek / Headwaters to the confluence of Big Branch	5C	Dissolved Oxygen	2018	L	6.23

Oldtown Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)

River
(Miles)
6.23

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J15R-08-PH** Oldtown Creek

Cause Location: Headwaters to the confluence of Big Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: For the 2010 Cycle the segment was impaired for aquatic life use with a pH exceedance rate of 2/10 at station 2-OTC005.38.

For the 2012 Cycle the segment was impaired for aquatic life use with a pH exceedance rate of 2/14 at station 2-OTC005.38.

During the 2014 cycle there was no new data so the pH remained impaired.

For the 2016 Cycle the segment was impaired for pH with an exceedance rate of 2/16 at station 2-OTC005.38.

For the 2018 Cycle the segment was impaired for pH with an exceedance rate of 2/14. During the 2020 cycle there was no new data. During the 2022 cycle not enough data was collected to make an assessment determination so the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_OTC01B08 / Oldtown Creek / Headwaters to the confluence of Big Branch	5C	pH	2010	L	6.23

Oldtown Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.23

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J15R-09-BAC** **Cattail Run**

Cause Location: The mainstem Cattail Run

Cause City/County: Chesterfield County; Dinwiddie County; Petersburg; Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 5/12 at station 2-CLC000.62. The segment will be nested in the Appomattox TMDL.

No new data has been collected since 2014 cycle and the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J15R_CLC01A12 / Cattail Run / Mainstem of Cattail Run	4A	Escherichia coli (E. coli)	2012	L	4.27

Cattail Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.27

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J16R-01-BAC Swift Creek

Cause Location: Swift Creek from Turkey Creek downstream to the normal pool of Swift Creek Reservoir.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 1998 the segment was listed as fully supporting but threatened of the Recreation Use goal. During the 2002 cycle, the segment was downgraded to partially supporting. During the year 2004 cycle, the segment was assessed not supporting of the Recreation use goal based on fecal coliform exceedances at the Route 657 bridge (2-SFT036.00). The fecal TMDL was due in 2014.

Bacteria TMDL for Swift Creek was included the TMDL for the Appomattox River development report and was approved by EPA 8/30/2004. The segment is now assessed as Cat 4A, however as of the 2006 assessment cycle the EPA TMDLID was not available.

Swift Creek was initially assessed for fecal coliform in 2002 . In the 2006 cycle, the bacteria impairment switched to E. coli. During the 2006 cycle, the exceedance rate for E. coli was 4/22 at 2-SFT036.00.

For the 2008 cycle there was an impairment for recreation use, the E.coli. exceedance rate was 4/23 at station 2-SFT036.00.

During the 2010 cycle the segment was still impaired for recreation use with a E.coli exceedance rate of 2/19 at station 2-SFT036.00.

there is no new data since 2010 cycle. During the 2016, 2018, 2020 and 2022 cycle the segment remains impaired for E.coli since no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J16R_SFT01A00 / Swift Creek / Swift Creek from the confluence with Turkey Creek downstream to the limit of Swift Creek Reservoir.	4A	Escherichia coli (E. coli)	2006	L	1.8

Swift Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.8

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J16R-02-DO** **Blackman Creek**

Cause Location: Mainstem from its headwaters to its mouth at the confluence of Deep Creek and Horsepen Creek

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The segment is considered impaired of the Aquatic Life Use based on a dissolved oxygen exceedances at the Route 668 bridge (2-BCM000.79). In addition, phosphorus was listed as an observed effect in the segment.

The DO standards exceedance rate for Blackman Creek was 6/12 at the Rt. 668 bridge. However, it is suspected the low DO is due to natural conditions of the watershed. Therefore, for the 2006 cycle, Blackman Creek is assessed as Cat. 5C.

The segment also had observed effects for violation in Total Phosphorus standards with exceedences of 2/12.

The 2008 cycle the segment was impaired for the aquatic life use. the exceedence rate for DO was 6/12 at station 2-BCM000.79.

There is no new data since the 2008 and 2020 cycle.

There is no new data for the 2014 cycle.

During the 2016 cycle the segment was impaired for DO(4/12) at station 2-BCM000.79. There is no new data for the 2018 cycle. During the 2022 cycle the segment remained impaired for DO with new data (1/10).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J16R_BCM01A04 / Blackman Creek / Headwaters to mouth HUC: 02080207	5C	Dissolved Oxygen	2004	L	4.57

Blackman Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.57

Sources: Natural Sources

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: J16R-03-BAC Horsepen Creek

Cause Location: Headwaters to Mouth

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Bacteria TMDL for Horsepen Creek was included the TMDL for the Appomattox River development report and was approved by EPA 8/30/2004. The segment is now assessed as Cat 4A.

During the 2018 cycle the segment was impaired for E.coli(3/9) at station 2-HEP000.23.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J16R_HEP01A04 / Horsepen Creek / Headwaters to mouth	4A	Escherichia coli (E. coli)	2018	L	3.58

Horsepen Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.58

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J16R-03-PH** **Horsepen Creek**

Cause Location: Headwaters to Mouth

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2018 cycle the segment was impaired for pH(7/9) at station 2-HEP000.23.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J16R_HEP01A04 / Horsepen Creek / Headwaters to mouth	5C	pH	2018	L	3.58

Horsepen Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.58

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J17E-01-BAC** **Swift Creek**

Cause Location: Mainstem from confluence with Timsbury Creek downstream to mouth

Cause City/County: Chesterfield County; Colonial Heights

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 2006 this segment was assessed as not supporting for the recreation use due to an E. coli violation rate of 3/4 at 2DSFT001.18.

Although this segment was not specifically addressed in the Appomattox bacteria TMDL report, The upstream and downstream portions of the Appomattox were included, therefore this segment will be addressed in the implementation phase and is assessed as Cat. 4A.

in 2008 this segment was impaired for the recreation use with a violation rate of 5/16 at station 2DSFT001.18.

There was no new data since the 2008 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17E_SFT01D04 / Swift Creek / Tidal Swift Creek from the confluence with Timsbury Creek downstream to the mouth at the Appomattox River APPTF.	4A	Escherichia coli (E. coli)	2006	L	0.087

Swift Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.087		

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: J17L-01-DO Swift Creek Lake

Cause Location: Swift Creek Lake

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: In 2006 the reservoir was impaired for DO in bottom waters during summer months due to stratification and the lake being drained in 2003. The Trophic State Index (TSI) is acceptable except for Secchi TSI = 67 (TSI >60). Since the Secchi TSI is larger than the Phos and Chl_a TSIs, the Secchi TSI is ignored and the segment is considered naturally impaired due to stratification.

For 2008 cycle there was no new data; Swift Creek Lake does not have defined nutrient criteria therefore the segment was moved to Cat 5A.

During the 2010 cycle the segment was impaired for aquatic life use with a DO exceedance rate of 9/58 at station 2-SFT022.14.

No new data since the 2010 cycle, the DO impairment remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17L_SFT01A98 / Swift Creek Lake / Swift Creek Lake	5A	Dissolved Oxygen	2006	L	107.74

Swift Creek Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		107.74	

Sources: Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Dam or Impoundment

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James River Basin

Cause Group Code: J17L-02-BAC Lakeview Reservoir

Cause Location: Lakeview Reservoir

Cause City/County: Chesterfield County; Colonial Heights

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle the segment was impaired for E.coli with an exceedence rate of 3/14 at 2-SFT006.10.

No new data during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17L_SFT02A08 / Lakeview Reservoir / Backwater to dam	4A	Escherichia coli (E. coli)	2016	L	43.5

Lakeview Reservoir

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		43.5	

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J17R-01-BEN** **Swift Creek**

Cause Location: Swift Creek from the Swift Creek Lake dam downstream to its confluence with Licking Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: For the 2010 cycle the segment was impaired for Benthics at station 2-SFT019.02.

During the 2012 cycle the segment was impaired at station 2-SFT019.02 for Benthics. During the 2014, 2016, 2018 and 2020 cycle there was no new data so the segment remains impaired for Benthics. During the 2022 cycle new benthic data was collected and the segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT01B98 / Swift Creek / Swift Creek from the Swift Creek Lake dam downstream to the confluence with Licking Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	7.26

Swift Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.26

Sources: Dam or Impoundment; Source Unknown

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James River Basin

Cause Group Code: **J17R-01-DO** **Swift Creek**

Cause Location: Swift Creek from the Swift Creek Lake dam downstream to its confluence with Licking Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: In 1998, Swift Creek was assessed as threatened of the Aquatic Life Use due to dissolved oxygen exceedances. In 2002, the segment was considered partially supporting of the Aquatic Life use support goal based on water quality monitoring performed at the Route 655 bridge (2-SFT019.15). During the year 2004 cycle, the segment continued to show dissolved oxygen problems.

In 2006, the DO exceedance rate was 3/22 at the Rt. 655 bridge. However, it is suspected the low DO violations in this segment of Swift Creek are due to an upstream impoundment, therefore will be assessed as Cat. 5C.

In 2008 cycle, the DO exceedance rate was 4/26 at the Rt. 655 bridge. However, it is suspected the low DO violations in this segment of Swift Creek are due to an upstream impoundment, therefore will be assessed as Cat. 5C.

In the 2010 cycle the segment remained impaired for DO with an exceedance rate of 5/33. It is suspected the low DO exceedances in this segment of Swift Creek are due to an upstream impoundment, therefore will be assessed as Cat. 5A.

During the 2012 cycle the segment was impaired for aquatic life use for DO at station 2-SFT019.15. However, it is suspected the low DO exceedances in this segment of Swift Creek are due to an upstream impoundment, therefore will be assessed as Cat. 5C.

During the 2014, 2016, and 2018 cycle there was no new data so the segment remains impaired for DO.

During the 2020 cycle the segment remained impaired for DO with an exceedance rate of 2/12 at station 2-SFT019.15. During the 2022 cycle the segment remained impaired for DO with an exceedance rate of 6/27 at station 2-SFT019.15.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT01B98 / Swift Creek / Swift Creek from the Swift Creek Lake dam downstream to the confluence with Licking Creek.	5A	Dissolved Oxygen	2002	L	7.26

Swift Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			7.26

Sources: Dam or Impoundment; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

James River Basin

Cause Group Code: **J17R-03-BAC** **Franks Branch**

Cause Location: Franks Branch from the headwaters to the mouth at Swift Creek.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020:33316, 05/21/2004 During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 5/12 at station 2-FNK001.12 Bacteria TMDL for the Appomattox River development report was completed and approved by EPA on 8/30/2004. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_FNK01A00 / Franks Branch / Franks Branch from the headwaters to the mouth at Swift Creek.	4A	Escherichia coli (E. coli)	2020	L	10.36

Franks Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.36

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: J17R-04-BAC Swift Creek

Cause Location: Swift Creek from the confluence with Licking Creek downstream to its confluence with Franks Branch.

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, this segment of Swift Creek was assessed as not supporting for Recreation use due to an E. coli exceedance rate of 3/9 that was recorded at the Rt. 631 bridge (2-SFT012.84).

Bacteria TMDL for the Appomattox River development report was completed and approved by EPA on 8/30/2004. Though allocations were calculated for Swift Creek, this segment was not included in the study. Additional monitoring is recommended to better determine if the bacteria impairment will improve with implementation of the TMDL. Therefore this segment will be assessed as Cat. 4A

There was a pH exceedance rate of 7/24 recorded by Chesterfield Co at WQ-12, which is co-located with 2-SFT012.84. These data were not acceptable for an impairment but was assessed as an observed effect for low pH.

For the 2008 cycle the E.coli exceedance rate was 3/11 at station 2-SFT012.84 and still impaired for the recreation use and was changed to category 4A since the TMDL was completed for other portions of swift creek.

For the 2010 cycle the segment remained impaired for recreation use with a E.coli exceedance rate of 3/11 at station 2-SFT012.84.

no new data since 2010 cycle

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT02B00 / Swift Creek / Swift Creek from the confluence with Licking Creek downstream to the confluence with Franks Branch.	4A	Escherichia coli (E. coli)	2006	L	5.12

Swift Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.12

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J17R-05-PH** **Church Branch**

Cause Location: From headwaters to the mouth at Franks Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: For the 2008 cycle the violation rate for pH was 8/8. This segment was assessed as Insufficient information with observed effects of pH, since methodology used for samples was uncertain.

For the 2010 cycle the segment was impaired for aquatic life use with a pH exceedance rate of 8/9 at station 2-CUR001.58.

For the 2012 cycle the segment was impaired for aquatic life use with a pH exceedance rate of 12/13 at station 2-CUR001.58.

No new data has been collected since 2012 cycle, the segment remains impaired for pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_CUR01A08 / Church Branch / From headwaters to the mouth at Franks Branch	5C	pH	2010	L	2.64

Church Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.64

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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James River Basin

Cause Group Code: **J17R-06-BAC** Nuttree Branch

Cause Location: The mainstem of Nuttree Branch

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED2018:33316, 5/21/2004

During the 2018 cycle the segment became impaired for E.coli with an exceedance rate of 3/11 at station 2-NUT000.62.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_NUT01A06 / Nuttree Branch / Nuttree Branch from headwaters to mouth at Swift Creek.	4A	Escherichia coli (E. coli)	2018	L	5.58

Nuttree Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.58

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **J17R-06-BEN** Nuttree Branch

Cause Location: The mainstem of Nuttree Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2012 cycle the segment was impaired for aquatic life use for Benthics at station 2-NUT000.62. During the 2014,2016 and 2018 cycle there was no new data so the segment remained impaired for Benthics. During the 2020 cycle there was no new data. During the 2022 cycle the segment had new benthic data collected and the segment remained impaired for Benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_NUT01A06 / Nuttree Branch / Nuttree Branch from headwaters to mouth at Swift Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	5.58

Nuttree Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.58

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: **J17R-06-DO** **Nuttree Branch**

Cause Location: The mainstem of Nuttree Branch

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: For the 2010 cycle 2 new stations were added Station 2-NUT002.22 was impaired for aquatic life use with a DO violation rate of 2/9. During the 2022 cycle the segment had new data that was fully supporting at station 2-NUT000.62(0/26) the Dissolved Oxygen remained impaired due to listing station not having any new data collected.

During the 2012 cycle the segment was impaired for aquatic life use with a DO violation rate of 2/13 at station 2-NUT002.22.

During the 2014 and 2016 cycle there was no new data so the segment remained impaired for DO.

During the 2018 cycle the DO remains impaired with exceedances at station 2-NUT002.22(3/12).

During the 2020 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_NUT01A06 / Nuttree Branch / Nuttree Branch from headwaters to mouth at Swift Creek.	5A	Dissolved Oxygen	2010	L	5.58

Nuttree Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			5.58

Sources: Non-Point Source; Source Unknown

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James River Basin

Cause Group Code: J17R-07-PH Second Branch

Cause Location: Second Branch from Headwaters downstream to confluence with Mann Creek

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: For the 2010 cycle the segment was impaired for pH at station 2-SEC008.84(A) with an exceedance rate of 4/12. The Chesterfield Co. stations are impaired with observed effects for pH and DO.

For the 2012 cycle the segment is impaired for aquatic life use for pH at station 2-SEC008.84(A) with an exceedance rate of 4/16. The Chesterfield Co. and ACB stations are impaired with observed effects for pH and DO.

During the 2014, 2016, 2018, 2020 and 2022 cycle there was no new data so the segment remained impaired for pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SEC01B06 / Second Branch / Second Branch from headwaters downstream to confluence with Mann Creek	5C	pH	2010	L	6.22

Second Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.22

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: **J17R-08-DO** **Swift Creek**

Cause Location: Swift Creek from the Swift Creek Reservoir dam downstream to its confluence with Reedy Creek.

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: For the 2010 cycle 2 DEQ stations (2-SFT030.65, 2-SFT027.38) were added and both stations were impaired for aquatic life use for DO.

There has been no new data since 2010 cycle. During the 2018 and 2020 cycle the segment had level II citizen data for aquatic life that shows insufficient data. During the 2022 cycle the segments Dissolved Oxygen impairment was moved to 4C. Continuous monitoring demonstrated that low DO conditions downstream from the reservoir are caused by the impoundment. Based on this recent monitoring and recommendations in the Stressor Analysis, this segment should be reclassified from Category 5A to Category 4C (impaired but not needing a TMDL).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT01A00 / Swift Creek / Swift Creek from the Swift Creek Reservoir dam downstream to the confluence with Reedy Creek.	4C	Dissolved Oxygen	NA	NA	3.78

Swift Creek

Aquatic Life	Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	
	3.78

Sources: Dam or Impoundment; Natural Sources

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James River Basin

Cause Group Code: **J17R-09-BEN** **Swift Creek**

Cause Location: Swift Creek from Reedy Branch to the limit of Swift Creek Lake

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5C

Cause Description: For the 2010 cycle the segment was impaired for aquatic life use for Benthics at station 2-SFT025.32.

For the 2012 cycle the segment was impaired for aquatic life use for Benthics at station 2-SFT025.32.

During the 2014, 2016, 2018 and 2020 cycle there was no new data and the segment remained impaired for Benthics. During the 2022 cycle new benthic data was collected and the segment remained impaired for benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT02A00 / Swift Creek / Swift Creek from Reedy Branch to the limit of Swift Creek Lake.	5C	Benthic Macroinvertebrates Bioassessments	2010	H	2.88

Swift Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.88

Sources: Source Unknown

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James River Basin

Cause Group Code: **J17R-09-DO** **Swift Creek**

Cause Location: Begins at the confluence with Reedy Branch and extends to Swift Creek Lake

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2022 cycle the segment became impaired for DO with an exceedance rate of 2/15 at 2-SFT025.32.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_SFT02A00 / Swift Creek / Swift Creek from Reedy Branch to the limit of Swift Creek Lake.	5C	Dissolved Oxygen	2022	L	2.88

Swift Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.88

Sources: Source Unknown

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James River Basin

Cause Group Code: **J17R-11-DO** **Long Swamp**

Cause Location: The mainstem of Long Swamp

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: For the 2010 cycle the segment was assessed as not supporting for Aquatic Life use due to a pH exceedance rate of 6/11 at station 2-LNS000.69.

there has been no new data since 2010 cycle.

During the 2016 cycle the segment was impaired for DO(4/11). No new data for the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_LNS01A10 / Long Swamp / From its headwater to the mouth at Swift Creek	5C	Dissolved Oxygen	2016	L	3.73

Long Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.73

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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James River Basin

Cause Group Code: **J17R-11-PH** Long Swamp

Cause Location: The mainstem of Long Swamp

Cause City/County: Chesterfield County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: For the 2010 cycle the segment was assessed as not supporting for Aquatic Life use due to a pH exceedance rate of 6/11 at station 2-LNS000.69.

there has been no new data since 2010 cycle.

During the 2016 cycle the segment was impaired for pH(2/11). No new data for the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_LNS01A10 / Long Swamp / From its headwater to the mouth at Swift Creek	5C	pH	2010	L	3.73

Long Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.73

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Appendix 4 - Fact Sheets for
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James River Basin

Cause Group Code: J17R-12-BAC Licking Creek

Cause Location: From the confluence with Second Branch to swift creek

Cause City/County: Chesterfield County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: For the 2010 cycle the segment was impaired for recreation use with a E.coli exceedance rate of 3/12 at station 2-LIA000.50, and was nested into the Appomattox TMDL.

There has been no new data since 2010 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-J17R_LIA01A10 / Licking Creek / From the confluence with second Branch, to Swift Creek	4A	Escherichia coli (E. coli)	2010	L	0.47

Licking Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.47

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: JMSMH-SAV-BAY Chesapeake Bay segment JMSMH

Cause Location: This cause encompasses the complete CBP segment JMSMH.

Cause City/County: Isle Of Wight County; James City County; Newport News; Portsmouth; Suffolk; Surry County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Aquatic Life Use Aquatic Plants [Macrophytes] use is impaired based on not meeting the SAV criteria. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_BAL01A06 / Ballard Creek & Bay-James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. From end of tidal water downstream almost to confluence with James R. CBP segment JMSMH. Portion of DSS Restricted # 062-164 (effective 20191015).	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAT-G11E_CKT01A04 / Chuckatuck & Brewers Creeks / South shore trib to James R., confluence upstream of Nansemond R. From headwaters of Brewers and Chuckatuck Creeks downstream to end of SF condemnation at Route 17 Bridge, Carrollton Blvd. Portion of CBP segment JMSMH. DSS shellfish harvesting condemnation # 062-080 (effective 20201015).	4A	Aquatic Plants (Macrophytes)	2006	L	0.731
VAT-G11E_CKT02A12 / Chuckatuck Creek and Mouth in James / South shore trib to James R, confluence upstream of Nansemond River. Segment includes DSS OPEN shellfish area from Carrollton Bridge downstream to mouth. Portion of CBP segment JMSMH. DSS OPEN shellfish direct harvesting condemnation # 062-080 (effective 20201015).	4A	Aquatic Plants (Macrophytes)	2014	L	0.714
VAT-G11E_CYP01A06 / Cypress Creek / South shore tributary to Pagan R, confluence near Smithfield. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 061-064 (effective 20180530).	4A	Aquatic Plants (Macrophytes)	2006	L	0.263
VAT-G11E_DEP01A02 / Deep Creek - Lower / Located in Menchville area. Tributary to Warwick R. From Warwick Yacht Club downstream to mouth. CBP segment JMSMH. DSS (ADMIN) shellfish direct harvesting condemnation # 058-034 A (effective 20090518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.100

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JMS01A06 / James River - Gravel Neck to Pagan River / From start of JMSMH salinity boundary (Hog Isl. Cr.) downstream to line between Jail Pt (Mulberry Isle) to Days Pt (mouth Pagan R). CBP segment JMSMH. DSS (OPEN) shellfish condemnation # 059-069 & 058-183(effective 20201113).	4A	Aquatic Plants (Macrophytes)	2006	L	40.260
VAT-G11E_JMS01C08 / James River - Carter Grove Area / Mainstem along north shore, from near Carter Grove. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 059-067 A (effective 20100901).	4A	Aquatic Plants (Macrophytes)	2014	L	0.404
VAT-G11E_JMS02A06 / James River - Jail Point to Hilton Village / Mainstem from line between Jail Pt (Mulberry Isle) to Days Pt (Mouth Pagan R) downstream to line Hilton Village (Newport News)/Kings Creek (Isle of Wight). CBP segment JMSMH. DSS (OPEN) shellfish harvesting condemnation # 061-064 & 058-034 (effective 20201113).	4A	Aquatic Plants (Macrophytes)	2006	L	24.697
VAT-G11E_JMS03A06 / James River - Along Lower North Shore / Mainstem along north shore, from Jail Point (Mulberry Isle) downstream to line following Rt. 664. CBP segment JMSMH. Portions of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518) & 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	3.943
VAT-G11E_JMS03B06 / James River - Hilton Beach Area / North shore James R. NW of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.110
VAT-G11E_JMS03C06 / James River - Huntington Beach Area / North shore James R. near foot of James R. Bridge. Mainstem along north shoreline beach in Hilton Village area. CBP segment JMSMH. Portion of DSS (ADMIN) shellfish condemnation # 058-034 A (effective 20090518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAT-G11E_JMS04A06 / James River - Hilton Village to Craney Island / Mainstem from a line between Hilton Village (Newport News)/Kings Creek (Isle of Wight) downstream to the end of DSS (OPEN) shellfish harvesting condemnation # 059-069 (effective 20141219). CBP segment JMSMH.	4A	Aquatic Plants (Macrophytes)	2006	L	24.879
VAT-G11E_JMS06A10 / James River - Outside Mouth Streeter & Hoffer Creeks / Mainstem area at Mouth of Streeter & Hoffer Creeks @ SW corner Craney Island. CBP segment JMSMH. DSS (ADMIN) shellfish condemnation # 064-018 A (effective 20080530).	4A	Aquatic Plants (Macrophytes)	2014	L	0.156

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_JOG01A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From headwaters to SR 669, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish harvesting (Admin-PROHIBITED) # 061-064 B, D, E, F (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.229
VAT-G11E_JOG02A08 / Jones Creek - Tributary to Pagan River / South shore trib. to Pagan R. near confluence with James R. From SR 669 to mouth, including tidal tributaries. CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 B & M1 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.102
VAT-G11E_KIN01A06 / Kings Creek & Bay - James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. CBP segment JMSMH. From end of tidal waters downstream to end of DSS shellfish direct harvesting condemnation # 062-164 (effective 20180912).	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAT-G11E_KIN02A18 / Kings Creek & Bay Mouth-James R. South Shore Tributary / South shore tributary to James R., upstream of James R. Bridge. North of Ragged Island area. CBP segment JMSMH. Lower Kings Cr to mouth at Ballard Bay # 062-164 (effective 20191015).	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAT-G11E_LAW01A00 / Lawnes Creek (Tributary to James River) / South shore tributary to James R. near Hog Island WMA. Hog Isl. area, opposite Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 060-206 A (effective 20141231).	4A	Aquatic Plants (Macrophytes)	2006	L	0.291
VAT-G11E_MRS01A06 / Morrisons Creek - Mulberry Island / North shore tributary to James R. on Mulberry Island. Downstream of Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 058-183 (effective 20201113).	4A	Aquatic Plants (Macrophytes)	2006	L	0.127
VAT-G11E_PGN01A08 / Pagan River - Upstream of Chalmers Point / Located in Smithfield area. South shore tributary to James R. From end of tidal water downstream to approx. RM 7.00. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.062

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_PGN01B18 / Pagan River - Upper Middle / Located in Smithfield area. South shore tributary to James R. From downstream of Crook Ln to Unnamed N Trib at Goose Hill Way. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20180530).	4A	Aquatic Plants (Macrophytes)	2014	L	0.065
VAT-G11E_PGN01C18 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Middle Pagan segment that Includes Morris Cr ends before Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.058
VAT-G11E_PGN02A08 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. North of Town of Smithfield downstream Azalea Dr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	1.030
VAT-G11E_PGN02B14 / Pagan River - Middle / Located in Smithfield area. South shore tributary to James R. Lower portion from Moonefield Dr to Morris Cr. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.162
VAT-G11E_PGN02C18 / Pagan River - Lower SF Open / Located in Smithfield area. South shore tributary to James R. From Morris Creek downstream to River Ave. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting condemnation # 061-064 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.084
VAT-G11E_PGN02D16 / Pagan River - Middle / Located in Smithfield area. South shore tributary on the East shore to James R. Portion near Battery Park. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting conditionally approved # 061-064 (effective 20201113).	4A	Aquatic Plants (Macrophytes)	2014	L	0.020
VAT-G11E_PGN03A10 / Pagan River - Mouth Area / Located in Smithfield area. South shore tributary to James R. From the edge of shellfish condemnation #061-064A to. downstream to mouth. Portion of CBP segment JMSMH. DSS OPEN and conditionally approved shellfish direct harvesting condemnation # 061-064 & S158 (effective 20201113).	4A	Aquatic Plants (Macrophytes)	2014	L	0.889
VAT-G11E_RIC01A06 / Ragged Island Creek / North shore tributary to James R. on Mulberry Island. Downstream of Mulberry Point. From end of tidal waters downstream to mouth. Portion of CBP segment JMSMH. DSS Restricted shellfish direct harvesting condemnation # 062-080 B (effective 20201015).	4A	Aquatic Plants (Macrophytes)	2006	L	0.295

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_SFF02A08 / Skiffes Creek System [Admin Cond] / Located west of Lee Hall area, flows along the James City Co./NN City boundary. From dam downstream to mouth, including tidal tribs. Portion of CBP segment JMSMH. DSS (ADMIN) shellfish direct harvesting condemnation # 059-023 A (effective 20081215).	4A	Aquatic Plants (Macrophytes)	2014	L	0.452
VAT-G11E_SFF03A10 / Skiffes Creek - Mouth / Located west of Lee Hall area, flows across the James City Co./NN City boundary. From Goose Island to point on opposite shore. Portion of CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (effective 20201113).	4A	Aquatic Plants (Macrophytes)	2014	L	0.060
VAT-G11E_TTS01A16 / Titus Creek / Located in Isle of Wight County. Tributary of Jones Creek, which flows into the Pagan River. Shellfish Prohib # 061-064E (20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAT-G11E_TYB01A00 / Tylers Beach Boat Basin / Located in the Bailey Beach area. Adjacent to the James River. Opposite Mulberry Island. NW corner of Burwell Bay. From end of tidal waters downstream to mouth. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 060-206 B (20141231).	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAT-G11E_WIL01A18 / Williams Creek / Located off of North shore tributary to Pagan River. Portion of CBP segment JMSMH. Portion of DSS shellfish direct harvesting ADMIN condemnation # 061-064 C (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2014	L	0.060
VAT-G11E_WWK01A08 / Warwick River - Upper Tidal Portion / Located in Menchville area. Tributary to James R. From end of tidal waters downstream approx. to Denbigh Landing. Portion of CBP segment JMSMH. Portion of DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A (20090518).	4A	Aquatic Plants (Macrophytes)	2014	L	0.283
VAT-G11E_WWK02A08 / Warwick River - Middle Tidal Portion / Located in Menchville area. From approx. Denbigh Landing area downstream to Denbigh Park area. CBP segment JMSMH. DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A (20090518).	4A	Aquatic Plants (Macrophytes)	2014	L	0.075
VAT-G11E_WWK03A08 / Warwick River - Lower Tidal Portion / Located in Menchville area. Tributary to James R. From Lucas Cr to downstream to mouth. Portion of CBP segment JMSMH. DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A, B (20090518).	4A	Aquatic Plants (Macrophytes)	2014	L	2.434

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G11E_WWK03B18 / Warwick River - Middle-Lower Tidal Portion / Located in Menchville area. Tributary to James R. From Denbigh Park to Approx. Lucas Cr. Portion of CBP segment JMSMH. DSS (ADMINISTRATIVE) shellfish direct harvesting condemnation # 058-034 A (20090518).	4A	Aquatic Plants (Macrophytes)	2014	L	0.077
VAT-G11E_ZZZ01A00 / Unsegmented estuaries - James R. Tribs / Tributaries to James R., Mulberry Island area & NW Ragged Isl. From end of tidal water downstream to confluence. CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 059-069 (20141219) 58-183 (20201113).	4A	Aquatic Plants (Macrophytes)	2006	L	0.358
VAT-G11E_ZZZ02A00 / Unsegmented estuaries - Warwick R. Tribs / Tributaries to Warwick R., NE of Mulberry Island area. From end of tidal water downstream to confluence with Warwick R. CBP segment JMSMH. DSS (Admin Cond) shellfish direct harvesting condemnation # 058-034 A (20090518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.119
VAT-G13E_BEN01A04 / Bennett Creek - Tributary to Nansemond R. [No TMDL] / Eastern shore trib. to Nansemond R., near confluence with James R. Bennett Harbor area. From headwaters to mouth, including tidal tributaries. Portion of CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Aquatic Plants (Macrophytes)	2006	L	0.542
VAT-G13E_BHN01A00 / Bleakhorn Creek - Tributary to Nansemond R. Mouth / Western shore trib. to Nansemond R., near confluence with James R. Eclipse area near Crittenden. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 B (20140826).	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAT-G13E_BML01A06 / Burnetts Mill Creek - Tributary to Upper Nansemond R. / Eastern shore trib. to upper Nansemond R., south of the Nansemond area. Drains the Beamon area. From headwaters to mouth. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (20170823).	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAT-G13E_KNC01A00 / Knotts Creek - Tributary to E. shore Nansemond R. / Eastern shore trib. to Nansemond R., near confluence with James R. Belleville and Huntersville areas. From headwaters to mouth, including tidal tributaries. CBP segment JMSMH. DSS shellfish direct harvesting condemnation # 063-046 A (20140826).	4A	Aquatic Plants (Macrophytes)	2006	L	0.122

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_NAN01A00 / Nansemond River - Upper / Upper Nansemond River, within city of Suffolk. Extends from most upstream point in river at Lake Meade Dam (RM 19.8) downstream to Rt. 58/460 crossing (RM 15.2). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.269
VAT-G13E_NAN02A06 / Nansemond River - Upper Middle / Downstream of Suffolk. From Rt 58/460 (RM 15.1) crossing downstream to confluence with the Western Branch Reservoir (RM 11.9). CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A (20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.209
VAT-G13E_NAN03A06 / Nansemond River - Lower Middle / In area of Western Branch Reservoir. From confluence with Western Br. (RM 11.8) downstream to Holidays Pt. CBP segment JMSMH. Portion of DSS shellfish condemnation # 063-008 A & C1 (20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	2.833
VAT-G13E_NAN04A00 / Nansemond River - Lower [No TMDL] / Nansemond R mouth. From Olds Cove downstream to mouth. CBP segment JMSMH. DSS (OPEN) condemnation 063-046 (effective 20140826) & 063-008 (effective 20170823).	4A	Aquatic Plants (Macrophytes)	2006	L	6.303
VAT-G13E_NAN04C10 / Nansemond River - Lower DSS Condemned at Knotts Cr / Nansemond R at confluence Knotts Cr. CBP segment JMSMH. DSS condemnation # 063-046 B (effective 20140826).	4A	Aquatic Plants (Macrophytes)	2014	L	0.467
VAT-G13E_SGL01A00 / Shingle Creek - Tributary to Nansemond R. / NE of Suffolk, near Rt 642. From end of tidal waters (0.2 mi upstream of Portsmouth Blvd) downstream to confluence with Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.040
VAT-G13E_STR01A04 / Star & Oyster House Creeks - Tributary to Nansemond R. / Eastern shore tributary to Nansemond R. Adjacent to the Naval Communication station at Driver. From headwaters to confluence with Nansemond R. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.046
VAT-G13E_WBN01A06 / Western Branch - Tributary to Nansemond R. / Western shore branch off the Nansemond River south of the Reids Ferry area. Downstream of the Western Branch Reservoir, prior to reaching the Nansemond River. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.106

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G13E_ZZZ01A00 / Unsegmented Estuaries - Upper Nansemond R. / Upper Nansemond River unsegmented tributaries with a DSS condemnation. CBP segment JMSMH. DSS shellfish condemnation # 063-008 A, B (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.097
VAT-G13E_ZZZ02A08 / Unsegmented Estuaries - Lower Nansemond R. / Lower Nansemond River unsegmented tributaries without a DSS condemnation. CBP segment JMSMH. DSS (OPEN) shellfish direct harvesting condemnation # 063-046 (20160926) # 063-008 (20200915) or no DSS.	4A	Aquatic Plants (Macrophytes)	2014	L	0.061
VAT-G15E_HOF01A06 / Hoffer Creek / Located along south shore of Hampton Roads Harbor. Entirety of Hoffer Cr. South shore trib to James R. west of Craney Isl. (at mouth of Elizabeth R). CBP segment JMSMH. DSS (ADMIN) shellfish harvesting condemnation # 064-018 A (effective 20080530).	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAT-G15E_JMS05A06 / James River - Newport News Point to NW Corner Craney Isl. / Line following the Rt. 664 crossing mid-river, SW to mid-mouth Nansemond R. to SW tip Craney Isl. Line. The NW line from NW tip Craney Isl. to Lincoln Pk. CBP segment JMSMH. DSS (ADMIN) cond # 056-007 A, B, C (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2014	L	3.611
VAT-G15E_SRE01A06 / Streeter Creek / Located along south shore of Hampton Roads Harbor. Entirety of Streeter Cr. South shore trib to James R. near Craney Isl. (at mouth of Elizabeth R).CBP segment JMSMH. DSS (ADMIN) shellfish harvesting condemnation # 064-018 A (effective 20080530).	4A	Aquatic Plants (Macrophytes)	2006	L	0.030

Chesapeake Bay segment JMSMH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
118.51		

Chesapeake Bay segment JMSMH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
118.51		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Sources; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: JMSPH-SAV-BAY Chesapeake Bay segment JMSPH

Cause Location: This cause encompasses the complete CBP segment JMSPH.

Cause City/County: Hampton; Newport News; Norfolk; Portsmouth

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Aquatic Life Use Aquatic Plants [Macrophytes] use is impaired based on not meeting the SAV criteria. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_HAI01A06 / Hampton River / Located between Cherry Acres & East Hampton areas of Hampton, north shore tributary to Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	0.547
VAT-G15E_JMS01A00 / James River at Hampton Roads Harbor / Mainstem from a line between Lincoln Park and the NW corner of Craney Isl. downstream to mouth at Hampton Roads Tunnel. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	25.540
VAT-G15E_JMS01B06 / James River - King/Lincoln Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAT-G15E_JMS01C06 / James River - Anderson Park Beach Area / Located NE of Newport News Point, along the northern shore of Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAT-G15E_MIG01A10 / Mill Creek, Trib to Hampton Roads Harbor / Mill Creek, north shore tributary to Hampton Roads Harbor. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2020	L	0.915
VAT-G15E_WLY01A06 / Willoughby Bay [Less Beach Area] / Located adjacent to mouth of James River at Hampton Roads, southeast of Hampton Roads Bridge Tunnel. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	2.476

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_WLY03A06 / Willoughby Bay - Beach Area / Located along the northern shore portion of Willoughby Bay along Willoughby Spit. CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	0.142
VAT-G15E_ZZZ01A00 / Unsegmented estuaries in Hampton Roads Harbor / Non segmented areas of G15 within the Hampton Roads Harbor area (Incl. Mill Cr.). CBP segment JMSPH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 A (effective 20120529).	4A	Aquatic Plants (Macrophytes)	2006	L	0.005

Chesapeake Bay segment JMSPH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
29.646		

Chesapeake Bay segment JMSPH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
29.646		

Sources: Agriculture; Source Unknown; Urban Runoff/Storm Sewers

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James River Basin

Cause Group Code: **JMSTFL-SAV-BAY** **James River Tidal Freshwater (Lower) Estuary**

Cause Location: The James River Lower Tidal Freshwater Estuary.

Cause City/County: Charles City County; Chesterfield County; Hopewell; Prince George County; Surry County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The James River from the Appomattox River to the Chickahominy River was originally listed on the 1998 list as fully supporting but threatened of the Aquatic Life Use goal based on chlorophyll a exceedances. During the 1998 cycle, EPA extended the segment upstream to the fall line and downgraded the river to not supporting of the Aquatic Life Use, citing nutrient concerns.

During the 2006 cycle, the Chesapeake Bay water quality standards were implemented. The lower tidal Freshwater James River from the Appomattox to the oligohaline boundary fails the Shallow Water Use SAV acreage requirements. There is insufficient information to assess the water clarity acreage criteria in the 2022 cycle.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, the segment is Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_APP01A12 / Appomattox River / Portion of the Appomattox River within CB segment JMSTF1 State Scenic River	4A	Aquatic Plants (Macrophytes)	2006	L	0.113
VAP-G02E_JMS03A06 / James River / The James River from the upstream extent of JMSTF1 to the downstream extent of PWS. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.633
VAP-G02E_XGJ01A06 / XGJ - Appomattox River, UT / Tidal limit to mouth at the Appomattox River. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.003
VAP-G02E_XGK01A06 / XGK - James River, UT / Tidal limit to mouth near James River/Appomattox River confluence JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-G03E_BLY01A98 / Bailey Creek/Cattail Creek / The tidal portions of Bailey Creek and Cattail Creek. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.114
VAP-G03E_GRV01A02 / Gravelly Run / Tidal limit to mouth at James River JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-G03E_GUN01B00 / Gunns Run / Gunns Run from the head of tide at rivermile 2.64 to the mouth. JMSTF1	4A	Aquatic Plants (Macrophytes)	2008	L	0.042
VAP-G03E_JMS01A00 / James River / The mainstem of the James River from the confluence with the Appomattox River downstream to Powell Creek. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	10.194

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G03E_JMS01B10 / James River / The mainstem of the James River from the confluence with Powell Creek downstream to Queen Creek. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	3.485
VAP-G03E_PTH01A00 / Poythress Run / The tidal portion of Poythress Run. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-G03E_PWL01A02 / Powell Creek / The estuarine portion of Powell Creek. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.396
VAP-G03E_QEE01A06 / Queens Creek / Tidal limit to mouth JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.226
VAP-G03E_ZZZ01A14 / Unsegmented estuaries in G03 / Unsegmented portion of watershed JL07 JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.267
VAP-G03E_ZZZ01C14 / Unsegmented estuaries in G03 / Unsegmented portion of watershed JL09 JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.335
VAP-G04E_BNG01A04 / Brandon Gut / Tidal portion of Brandon Gut JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAP-G04E_JMS01A02 / James River / The James River from the confluence with Queens Creek downstream to Buoy 74 at Brandon Point JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	7.756
VAP-G04E_JMS03A04 / James River / Buoy 74 at Brandon Point (rivermile 55.94) to the tidal freshwater/oligohaline boundary at approximately river mile 52.08. JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	3.756
VAP-G04E_KEN01A06 / Kennon Creek / Tidal limit to mouth JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.054
VAP-G04E_UCK01A06 / Upper Chippokes Creek / Tidal limit to mouth at James River JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	1.017
VAP-G04E_ZZZ01A14 / Unsegmented estuaries in G04 / Unsegmented portion of watershed JL11 JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.082
VAP-G04E_ZZZ01B14 / Unsegmented estuaries in G04 / Unsegmented portion of watershed JL12 JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.231
VAP-G04E_ZZZ01C14 / Unsegmented estuaries in G04 / Unsegmented portion of watershed JL13 JMSTF1	4A	Aquatic Plants (Macrophytes)	2006	L	0.348

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James River Tidal Freshwater (Lower) Estuary

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	29.068		

James River Tidal Freshwater (Lower) Estuary

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shallow-Water Submerged Aquatic Vegetation			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	29.068		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **JMSTFU-SAV-BAY** **James River Tidal Freshwater (Upper) Estuary**

Cause Location: The James River Tidal Freshwater Upper estuary, which extends from the fall line to approximately the Appomattox River, including tributaries.

Cause City/County: Charles City County; Chesterfield County; Henrico County; Richmond

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The mainstem James River from the Appomattox River to the Chickahominy River was originally listed on the 1998 list as fully supporting but threatened of the Aquatic Life Use goal based on chlorophyll a exceedances. During the 1998 cycle, EPA extended the segment upstream to the fall line and downgraded the river to not supporting of the Aquatic Life Use, citing nutrient concerns.

The Chesapeake Bay Water Quality Standards were implemented in the 2006 cycle.

The Upper Tidal Freshwater James River from the fall line to the Appomattox fails the Shallow Water Subuse's submerged aquatic vegetation (SAV) acreage criterion. There is insufficient information to assess the water clarity acreage criterion. The TMDL was approved by the EPA on 12/29/2010; therefore, the segment is considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G01E_GIL01A18 / Gillies Creek / Tidal portion of Gillies Creek JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.001
VAP-G01E_JMS01A02 / James River / The James River from the fall line near Mayos Bridge to river mile 108.76. State Scenic River JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.239
VAP-G01E_JMS02A02 / James River / The James River from river mile 108.76 to river mile 108.63. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-G01E_JMS03A02 / James River / The James River from river mile 108.63 to the confluence with Proctors Creek at river mile 2-JMS097.94. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	1.229
VAP-G01E_KAN01A14 / Kanawha Canal / Tidal portion of Kanawha Canal JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.001
VAP-G01E_ZZZ01A14 / Unsegmented estuaries in G01 / Unsegmented estuaries in JL01 JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAP-G01E_ZZZ01B14 / Unsegmented estuaries in G01 / Unsegmented estuaries in JL02 JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-G01E_ZZZ01C14 / Unsegmented estuaries in G01 / Unsegmented estuaries in JL03 JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-G02E_FOM01A22 / Fourmile Creek / The tidal portion of Fourmile Creek watershed. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.027

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-G02E_JMC01A10 / James River - Old Channel (aka Farrar Gut) / The old channel of the James River JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.511
VAP-G02E_JMS01A00 / James River / The James River from Proctors Creek to 5 miles above the old American Tobacco raw water intake. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.078
VAP-G02E_JMS02A00 / James River / The James River from 5 miles above the old American Tobacco intake to 5 miles above City Point at Hopewell. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	2.790
VAP-G02E_JMS02B18 / James River / The James River from 5 miles above City Point at Hopewell to the downstream extent of JMSTFu. JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	1.182
VAP-G02E_XMT01A08 / XMT - UT to James River / Shirley Plantation Cove JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.137
VAP-G02E_XQW01A08 / XQW - James River, UT / Tidal pools on Farrar Island JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.395
VAP-G02E_ZZZ02A14 / Unsegmented estuaries in G02 / Unsegmented portion of JL05 within PWS JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.066
VAP-G02E_ZZZ02B14 / Unsegmented estuaries in G02 / Unsegmented portion of JL06 within PWS JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.057
VAP-G02E_ZZZ03B18 / Unsegmented estuaries in G02 / Unsegmented portion of JL06 not in PWS JMSTFu	4A	Aquatic Plants (Macrophytes)	2006	L	0.980

James River Tidal Freshwater (Upper) Estuary

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
7.746		

James River Tidal Freshwater (Upper) Estuary

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
7.746		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **LAFMH-DO-BAY** Chesapeake Bay segment LAFMH (Lafayette River)

Cause Location: This cause encompasses the complete Lafayette River

Cause City/County: Norfolk

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer based on the 30-day dissolved oxygen criteria. There is insufficient data to assess remaining shorter-term dissolved oxygen criteria for this use. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_KMK01A12 / Knitting Mill Creek / Creek off of Lafayette River near Colonial Place. CBP segment ELIPH. BIBI segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.027
VAT-G15E_LAF01A06 / Lafayette River - Upper / Located east of Craney Isl. From headwaters (approx. RM 7.5) downstream to past Rt 337 (Hampton Blvd bridge, RM 1.75) near Edgewater Haven. CBP segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	1.743
VAT-G15E_LAF02A06 / Lafayette River - Lower / Located east of Craney Isl. From Rt. 337 (Hampton Blvd bridge, RM 1.75) downstream to the mouth. CBP segment LAFMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.404

Chesapeake Bay segment LAFMH (Lafayette River)

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.174		

Chesapeake Bay segment LAFMH (Lafayette River)

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
2.174		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **SBEMH-DO-BAY** Chesapeake Bay segment SBEMH (Southern Branch, Elizabeth River)

Cause Location: This cause encompasses the complete CBP segment SBEMH

Cause City/County: Chesapeake; Norfolk; Portsmouth

Use(s): Aquatic Life; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. There is insufficient data to assess the remaining shorter-term dissolved oxygen criteria for these uses. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BLM01A22 / Bells Mill Creek - SB Elizabeth R. S. shore tributary / SB Elizabeth R S shore tributary SW of Great Bridge Locks. CBP & BIBI segment SBEMHa. Portion of DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.023
VAT-G15E_DEC01A06 / Deep Creek, Southern Br. Elizabeth R. / South of I-64 crossing of Southern Br. E shore trib to Southern Br. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.209
VAT-G15E_DEC02A18 / Deep Creek, Southern Br. Elizabeth R.- Mouth / South of I-64 crossing of Southern Br. E shore trib to Southern Br. Mouth of Creek North of Interstate 64. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.075
VAT-G15E_GIL01A10 / Gilligan Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.012
VAT-G15E_GIL02A10 / Gilligan Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.011
VAT-G15E_JON01A10 / Jones Cr - Upper, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Upper portion no Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.027

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_JON02A10 / Jones Cr - Lower, trib to SB Eliz R / Trib to E shore SB Eliz R, adjacent to Jones Cr. Opposite Paradise Cr. Lower portion with Deep Water Use. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.017
VAT-G15E_MAI01A10 / Mains Cr. - SB Eliz R. E shore Tributary / SB Eliz R. E shore upstream tributary, SE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.013
VAT-G15E_MDM01A10 / Milldam Cr trib S. Br. Elizabeth R. / Tributary to E shore SB Elizabeth R. N of Gilmerton Br. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.071
VAT-G15E_NMC01A00 / New Mill Creek - Southern Br. Elizabeth R. / Located south of I-64 crossing of Southern Br. Eastern shore trib to Southern Br, downstream of locks. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.082
VAT-G15E_NTN01A10 / Newton Cr trib to SB Eliz R / Tributary to E shore SB Eliz R. NE of Deep Cr. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.038
VAT-G15E_PAR01A06 / Paradise Creek - Upper, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. No Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.025
VAT-G15E_PAR02A10 / Paradise Creek - Lower, trib. to S. Br. Elizabeth R. / South of Norfolk Naval Shipyard. Eastern shore trib to Southern Br. Entirety of Creek. With Deep Water Use. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.028
VAT-G15E_SBE01A00 / Southern Branch, Elizabeth R. - Upper / South of I-64 crossing. From headwaters @ Great Br Locks downstream to I-64 crossing @ Deep Cr. (RM 6.86). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.636

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_SBE02A06 / Southern Branch, Elizabeth R. - Middle / From I-64 crossing @ Deep Cr. confluence (RM 6.86) downstream to the Jordan Bridge (RM 2.30). CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	1.055
VAT-G15E_SBE02B20 / Southern Branch, Elizabeth R. - Middle / Shore along Chesapeake Deep Water Terminal south of Paradise Creek. CBP segment SBEMH. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.015
VAT-G15E_SBE02C22 / Southern Branch, Elizabeth R. - Middle / Buffer of station 2CSBE005.84 outside of Newton Creek tributary. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.005
VAT-G15E_SBE03A06 / Southern Branch, Elizabeth R. - Lower / North of the Jordan Bridge. From the Jordan Bridge, Rt. 337 (RM 2.30) downstream to the mouth, confluence with the mainstem Elizabeth R. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMIN) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.545
VAT-G15E_STJ01A04 / Saint Julian Creek / Northwest of Gilmerton Bridge. Eastern shore tributary to Southern Br. Entirety of Creek. CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.133
VAT-G15E_STM01A10 / Steamboat Creek / South Shore trib to E. Branch. CBP segment EBEMH. BIBI segment EBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.058
VAT-G15E_XFR01A10 / UT to SB Elizabeth R. S shore estuary SE of Mill Cr. / SB Eliz S shore estuary SE of Mill Cr. CBP & BIBI segment SBEMH. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.008
VAT-G15E_XQT01A10 / UT to SB Elizabeth R. N shore creek near Great Bridge Locks / SB Elizabeth R. upstream N shore creek north of Great Bridge Locks. CBP & BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.045

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_XQU01A10 / SB Eliz N shore creek SW of Mains Cr. / SB Elizabeth R. upstream N shore creek SW of Mains Cr. CBP & BIBI segment SBEMHa. DSS (ADMIN-COND) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.020
VAT-G15E_ZZZ02A08 / Unsegmented estuaries in SBEMH / CBP segment SBEMH. BIBI segment SBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.058

Chesapeake Bay segment SBEMH (Southern Branch, Elizabeth River)

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	3.206		

Chesapeake Bay segment SBEMH (Southern Branch, Elizabeth River)

Deep-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.444		

Chesapeake Bay segment SBEMH (Southern Branch, Elizabeth River)

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	3.206		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Industrial/Commercial Site Stormwater Discharge (Permitted); Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Source Unknown; Sources Outside State Jurisdiction or Borders; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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James River Basin

Cause Group Code: **WBEMH-DO-BAY** Chesapeake Bay segment WBEMH (Western Branch, Elizabeth River)

Cause Location: This cause encompasses the complete CBP segment WBEMH

Cause City/County: Chesapeake; Portsmouth

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-G15E_BAB01A06 / Bailey Creek, Western Branch Elizabeth R. / Western shore tributary to the Western Branch. Entirety of creek including tributaries. Located in the area of Charlton Village to Ahoy Acres. CBP segment WBEMH. Portion of DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.041
VAT-G15E_DPT01A06 / Drum Point Creek - Western Branch, Elizabeth R. / Western shore trib to the Western Br. Entirety of creek including tributaries. Located in the area of Charlton Village to Ahoy Acres. CBP segment WBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish condemnation # 065-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.148
VAT-G15E_GOE01A06 / Goose Creek - Western Branch, Elizabeth R. / Headwaters tributary to the Western Branch. Entirety of creek including tributaries. Located in the area of Charlton Village to Ahoy Acres. CBP segment WBEMH. Portion of the DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.049
VAT-G15E_WBE01A02 / Western Branch, Elizabeth R. - Upper / Located between Stewart Manor and Point Elizabeth areas. From headwaters (RM 8.5) downstream to Sterns Creek (RM 3.5). BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.561
VAT-G15E_WBE02A00 / Western Branch, Elizabeth R. - Lower / Located between the Point Elizabeth and Lovett Point areas. From Sterns Creek confluence (RM 3.5) downstream to the mouth. CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMIN) condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	1.457
VAT-G15E_ZZZ04A08 / Unsegmented estuaries in WBEMH / CBP segment WBEMH. BIBI segment WBEMHa. DSS (ADMINISTRATIVE) shellfish condemnation # 056-007 E (effective 20120529).	4A	Dissolved Oxygen	2006	L	0.560

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Chesapeake Bay segment WBEMH (Western Branch, Elizabeth River)

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.814		

Chesapeake Bay segment WBEMH (Western Branch, Elizabeth River)

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.814		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **CRRMH-DO-BAY** Corrotoman River Mesohaline Estuary (CRRMH)

Cause Location: The Corrotoman River and its tidal tributaries (CRRMH).

Cause City/County: Lancaster County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The mainstem Corrotoman River was included in EPA's 1998 Overlist. The Chesapeake Bay water quality standards were implemented during the 2006 cycle.

The Corrotoman River mesohaline estuary fails the Chesapeake Bay Open Water Subuse's summer 30-day mean dissolved oxygen criterion. In the 2022 cycle, the segment also fails the Open Water rest-of-year criteria. There is insufficient data to assess the other dissolved oxygen criteria.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, CRRMH is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BES01A98 / Bells Creek / As described in VDH shellfish condemnation 58B, 4/28/1997. CRRMH	4A	Dissolved Oxygen	2006	L	0.055
VAP-E26E_BLD01A98 / Belwood Swamp / Tidal limit to its mouth at the Western Branch Corrotoman River. CRRMH	4A	Dissolved Oxygen	2006	L	0.009
VAP-E26E_CRR01A00 / Corrotoman River / The mainstem of the Corrotoman River within segment CRRMH.	4A	Dissolved Oxygen	1998	L	3.769
VAP-E26E_CTM01A00 / Eastern Branch Corrotoman River / The boundaries are described in VDH shellfish condemnations 021-058B, -C, and -D, 11/15/2020. Expanded in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.485
VAP-E26E_CTM01B10 / Eastern Branch Corrotoman River / Portion of VDH shellfish condemnation 058C, 4/28/1997 open on 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.046
VAP-E26E_CTM01C20 / Eastern Branch Corrotoman River / Described in VDH shellfish condemnation 021-058S61, 11/15/2020. Shortened in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.091
VAP-E26E_CTM02A08 / Eastern Branch Corrotoman River, UT / Described in VDH Shellfish Condemnation 021-058E, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.010
VAP-E26E_CTM03A08 / Eastern Branch Corrotoman River / Downstream boundary of VDH condemnation 021-058C, 4/28/1997 to mouth. CRRMH	4A	Dissolved Oxygen	2006	L	0.758

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTO01A02 / Western Branch Corrotoman River / As described in VDH shellfish condemnation 021-132A, 11/15/2020, not otherwise segmented. Segment expanded in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.452
VAP-E26E_CTO01B12 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 included in 021-132S64, 11/15/2020 Split in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.202
VAP-E26E_CTO01C22 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 open in VDH-DSS condemnation 021-132, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.100
VAP-E26E_CTO02A06 / Western Branch Corrotoman River / Mainstem downstream of SFC 132A, 4/28/1997 CRRMH	4A	Dissolved Oxygen	2006	L	1.209
VAP-E26E_DAS01A02 / Davis Creek / As described in VDH-DSS SFC 021-132S63, 11/15/2020. Segment shrank in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.029
VAP-E26E_EWE01A00 / Ewells Prong / Portion of VDH condemnation 187A, 4/28/1997 open on 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.002
VAP-E26E_EWE01B20 / Ewells Prong / As described in VDH shellfish condemnation 021-187S53, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.034
VAP-E26E_EWE02A08 / Ewells Prong / Portion of VDH Shellfish Condemnation 021-187B, 10/17/2012 not included on 187A, 4/28/1997. CRRMH	4A	Dissolved Oxygen	2006	L	0.012
VAP-E26E_HLS01A00 / Hills Creek / As described in VDH shellfish condemnation 021-058A, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.038
VAP-E26E_HLS01B20 / Hills Creek / The portion of VDH shellfish condemnation 58A, 4/28/1997 seasonally condemned/open (021-058S59, 11/15/2020). CRRMH	4A	Dissolved Oxygen	2006	L	0.024
VAP-E26E_JON01A08 / John Creek / Described in VDH-DSS Condemnation 021-132C, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_JON02A08 / John Creek / Downstream of condemnation 021-132C, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.016
VAP-E26E_LIT01A06 / Little Branch / Tidal limit to mouth at Western Branch Corrotoman River CRRMH	4A	Dissolved Oxygen	2006	L	0.114
VAP-E26E_LOW01A08 / Lowrey Creek / Described in VDH Shellfish Condemnation 021-132S62, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.028
VAP-E26E_MIP01A00 / Millenbeck Prong / Portion of VDH shellfish condemnation 187B, 4/28/1997 open on 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.004
VAP-E26E_MIP01B20 / Millenbeck Prong / Described in VDH shellfish condemnation 021-187S101, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.037
VAP-E26E_MOR01A08 / Moran Creek / Described in VDH Condemnation 021-198S56, 11/15/2020. Size reduced in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.038
VAP-E26E_MOR01B12 / Moran Creek / Described in VDH-DSS condemnation 021-198S57, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.010
VAP-E26E_MOR01C22 / Moran Creek, UT / Described in VDH Condemnation 021-198D, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.011
VAP-E26E_MOR02A08 / Moran Creek / Downstream of condemnations 021-198, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.095
VAP-E26E_MYE01A00 / Myer Creek / As described in VDH shellfish condemnation 198, 4/28/1997. Merged in the 2020 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.081
VAP-E26E_MYE01B02 / Myer Creek, UT / As described in VDH-DSS SFC 021-198S58, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.026
VAP-E26E_MYE01D18 / Myer Creek / Portion of VDH-DSS condemnation 021-198A, 11/15/2020 open in 198, 4/28/1997. Merged in the 2022 cycle CRRMH	4A	Dissolved Oxygen	2006	L	0.094
VAP-E26E_MYE03A08 / Myer Creek / Downstream of condemnations to mouth at Corrotoman River. CRRMH	4A	Dissolved Oxygen	2006	L	0.470

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_SEN01A00 / Senior Creek / As described in VDH shellfish condemnation 021-132B, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.030
VAP-E26E_SEN01B20 / Senior Creek / As described in VDH shellfish condemnation 021-132S105, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.040
VAP-E26E_TAY01A00 / Taylor Creek / As described in VDH-DSS condemnations 021-198B and -C, 11/15/2020. Size reduced slightly in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.068
VAP-E26E_TAY02A08 / Taylor Creek / Described in VDH Shellfish Condemnation 021-198S55, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.024
VAP-E26E_TAY03A12 / Taylor Creek / Portion of VDH-DSS condemnation 205, 4/28/1997 open 11/15/2020. Split in the 2022 cycle CRRMH	4A	Dissolved Oxygen	2006	L	0.056
VAP-E26E_TAY03B22 / Taylor Creek / Described in VDH-DSS condemnation 021-198S103, 11/15/2020. CRRMH	4A	Dissolved Oxygen	2006	L	0.042
VAP-E26E_TON01A00 / Town Creek / The boundaries are described in VDH shellfish condemnation 021-187S54, 10/31/2018. CRRMH	4A	Dissolved Oxygen	2006	L	0.057
VAP-E26E_WHR01A00 / Whitehouse Creek / As described in VDH shellfish condemnation 021-187SS52, 11/15/2020. Expanded in the 2022 cycle. CRRMH	4A	Dissolved Oxygen	2006	L	0.083
VAP-E26E_ZZZ02A14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA70 CRRMH	4A	Dissolved Oxygen	2006	L	0.105
VAP-E26E_ZZZ02C14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA72 CRRMH	4A	Dissolved Oxygen	2006	L	0.471

Corrotoman River Mesohaline Estuary (CRRMH)

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	9.358		

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Corrotoman River Mesohaline Estuary (CRRMH)

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
9.358		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **CRRMH-SAV-BAY** **Corrotoman River Mesohaline Estuary (CRRMH)**

Cause Location: The Corrotoman River and its tidal tributaries (CRRMH).

Cause City/County: Lancaster County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The mesohaline Corrotoman River (CRRMH) has been impaired of the Chesapeake Bay Shallow Water Subuse since the 2012 cycle. CRRMH does not meet the Shallow Water Subuse's submerged aquatic vegetation acreage criterion and there is insufficient information to assess the water clarity acreage criterion.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, CRRMH is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BES01A98 / Bells Creek / As described in VDH shellfish condemnation 58B, 4/28/1997. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.055
VAP-E26E_BLD01A98 / Belwood Swamp / Tidal limit to its mouth at the Western Branch Corrotoman River. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.009
VAP-E26E_CRR01A00 / Corrotoman River / The mainstem of the Corrotoman River within segment CRRMH.	4A	Aquatic Plants (Macrophytes)	2012	L	3.769
VAP-E26E_CTM01A00 / Eastern Branch Corrotoman River / The boundaries are described in VDH shellfish condemnations 021-058B, -C, and -D, 11/15/2020. Expanded in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.485
VAP-E26E_CTM01B10 / Eastern Branch Corrotoman River / Portion of VDH shellfish condemnation 058C, 4/28/1997 open on 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.046
VAP-E26E_CTM01C20 / Eastern Branch Corrotoman River / Described in VDH shellfish condemnation 021-058S61, 11/15/2020. Shortened in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.091
VAP-E26E_CTM02A08 / Eastern Branch Corrotoman River, UT / Described in VDH Shellfish Condemnation 021-058E, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.010
VAP-E26E_CTM03A08 / Eastern Branch Corrotoman River / Downstream boundary of VDH condemnation 021-058C, 4/28/1997 to mouth. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.758

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTO01A02 / Western Branch Corrotoman River / As described in VDH shellfish condemnation 021-132A, 11/15/2020, not otherwise segmented. Segment expanded in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.452
VAP-E26E_CTO01B12 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 included in 021-132S64, 11/15/2020 Split in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.202
VAP-E26E_CTO01C22 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 open in VDH-DSS condemnation 021-132, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.100
VAP-E26E_CTO02A06 / Western Branch Corrotoman River / Mainstem downstream of SFC 132A, 4/28/1997 CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	1.209
VAP-E26E_DAS01A02 / Davis Creek / As described in VDH-DSS SFC 021-132S63, 11/15/2020. Segment shrank in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.029
VAP-E26E_EWE01A00 / Ewells Prong / Portion of VDH condemnation 187A, 4/28/1997 open on 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.002
VAP-E26E_EWE01B20 / Ewells Prong / As described in VDH shellfish condemnation 021-187S53, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.034
VAP-E26E_EWE02A08 / Ewells Prong / Portion of VDH Shellfish Condemnation 021-187B, 10/17/2012 not included on 187A, 4/28/1997. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.012
VAP-E26E_HLS01A00 / Hills Creek / As described in VDH shellfish condemnation 021-058A, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.038
VAP-E26E_HLS01B20 / Hills Creek / The portion of VDH shellfish condemnation 58A, 4/28/1997 seasonally condemned/open (021-058S59, 11/15/2020). CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.024
VAP-E26E_JON01A08 / John Creek / Described in VDH-DSS Condemnation 021-132C, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_JON02A08 / John Creek / Downstream of condemnation 021-132C, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.016
VAP-E26E_LIT01A06 / Little Branch / Tidal limit to mouth at Western Branch Corrotoman River CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.114
VAP-E26E_LOW01A08 / Lowrey Creek / Described in VDH Shellfish Condemnation 021-132S62, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.028
VAP-E26E_MIP01A00 / Millenbeck Prong / Portion of VDH shellfish condemnation 187B, 4/28/1997 open on 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.004
VAP-E26E_MIP01B20 / Millenbeck Prong / Described in VDH shellfish condemnation 021-187S101, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.037
VAP-E26E_MOR01A08 / Moran Creek / Described in VDH Condemnation 021-198S56, 11/15/2020. Size reduced in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.038
VAP-E26E_MOR01B12 / Moran Creek / Described in VDH-DSS condemnation 021-198S57, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.010
VAP-E26E_MOR01C22 / Moran Creek, UT / Described in VDH Condemnation 021-198D, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.011
VAP-E26E_MOR02A08 / Moran Creek / Downstream of condemnations 021-198, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.095
VAP-E26E_MYE01A00 / Myer Creek / As described in VDH shellfish condemnation 198, 4/28/1997. Merged in the 2020 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.081
VAP-E26E_MYE01B02 / Myer Creek, UT / As described in VDH-DSS SFC 021-198S58, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.026
VAP-E26E_MYE01D18 / Myer Creek / Portion of VDH-DSS condemnation 021-198A, 11/15/2020 open in 198, 4/28/1997. Merged in the 2022 cycle CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.094
VAP-E26E_MYE03A08 / Myer Creek / Downstream of condemnations to mouth at Corrotoman River. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.470

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_SEN01A00 / Senior Creek / As described in VDH shellfish condemnation 021-132B, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.030
VAP-E26E_SEN01B20 / Senior Creek / As described in VDH shellfish condemnation 021-132S105, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.040
VAP-E26E_TAY01A00 / Taylor Creek / As described in VDH-DSS condemnations 021-198B and -C, 11/15/2020. Size reduced slightly in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.068
VAP-E26E_TAY02A08 / Taylor Creek / Described in VDH Shellfish Condemnation 021-198S55, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.024
VAP-E26E_TAY03A12 / Taylor Creek / Portion of VDH-DSS condemnation 205, 4/28/1997 open 11/15/2020. Split in the 2022 cycle CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.056
VAP-E26E_TAY03B22 / Taylor Creek / Described in VDH-DSS condemnation 021-198S103, 11/15/2020. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.042
VAP-E26E_TON01A00 / Town Creek / The boundaries are described in VDH shellfish condemnation 021-187S54, 10/31/2018. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.057
VAP-E26E_WHR01A00 / Whitehouse Creek / As described in VDH shellfish condemnation 021-187SS52, 11/15/2020. Expanded in the 2022 cycle. CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.083
VAP-E26E_ZZZ02A14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA70 CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.105
VAP-E26E_ZZZ02C14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA72 CRRMH	4A	Aquatic Plants (Macrophytes)	2012	L	0.471

Corrotoman River Mesohaline Estuary (CRRMH)

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
9.358		

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Corrotoman River Mesohaline Estuary (CRRMH)

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shallow-Water Submerged Aquatic Vegetation			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	9.358		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E01R-01-BAC** **Thumb Run**

Cause Location: Begins at the confluence of West Branch Thumb Run and East Branch Thumb Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-THU004.69 at Route 688 (Leeds Manor Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Thumb Run Watershed bacteria TMDL (Eq ID POL0117) was approved by the EPA on 05/31/2002 (Fed ID 24413). The SWCB approved the TMDL on 06/17/2004. A bacteria TMDL Implementation Plan for the Thumb Run watershed (ID 98) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_THU01A00 / Thumb Run / Segment begins at the confluence of West Branch Thumb Run and East Branch Thumb Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2010	L	7.68

Thumb Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.68

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E01R-01-BEN** **Thumb Run, East Branch**

Cause Location: Begins at the headwaters of East Branch Thumb Run and continues downstream until the confluence of East Branch to the mainstem Thumb Run.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of three biological monitoring events in 2011 and 2012 at DEQ station 3-THM001.40 at Route 647 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_THM01A02 / Thumb Run, East Branch / Segment begins at the headwaters of East Branch Thumb Run and continues downstream until the confluence of East Branch to the mainstem Thumb Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	6.59

Thumb Run, East Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.59

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E01R-02-BAC** **Thumb Run, West Branch**

Cause Location: Begins at the headwaters of West Branch Thumb Run and continues downstream until the confluence of West Branch to the mainstem Thumb Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-THW004.68 at Route 635 (Hume Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of West Branch Thumb Run because the downstream Thumb Run Watershed bacteria TMDL (Fed ID 24413, 05/31/2002) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0117). A bacteria TMDL Implementation Plan for the Thumb Run watershed (ID 98) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_THW01A02 / Thumb Run, West Branch / Segment starts at the headwaters of West Branch Thumb Run and continues downstream until the confluence of West Branch to the mainstem Thumb Run.	4A	Escherichia coli (E. coli)	2002	L	12.09

Thumb Run, West Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.09

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E01R-02-BEN Unnamed Tributary to Thumb Run, West Branch

Cause Location: Segment begins at the headwaters of an unnamed tributary to West Branch Thumb Run and continues downstream until the confluence with West Branch Thumb Run.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of two biological monitoring events in 2011 at DEQ station 3-XHU000.04 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_XHU01A14 / Unnamed Tributary to Thumb Run, West Branch / Segment begins at the headwaters of an unnamed tributary to West Branch Thumb Run and continues downstream until the confluence with West Branch Thumb Run.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	0.8

Unnamed Tributary to Thumb Run, West Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			0.8

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E01R-03-BAC** **Rappahannock River**

Cause Location: Begins at the headwaters of the Rappahannock River and continues downstream until the confluence with Fiery Run. Begins again at the confluence with the Jordan River, at rivermile 175.58, and continues downstream until the confluence with an unnamed tributary to the Rappahannock River, at rivermile 173.41.

Cause City/County: Fauquier County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP175.51 at Route 647 (2020 Assessment): E. coli bacteria criterion excursions (7 of 33 samples - 21.2%). DEQ station 3-RPP186.59 at Route 635: The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

The Upper Rappahannock River Watershed bacteria TMDL for the Rappahannock River (1) watershed (Eq ID POL0516) was approved by the EPA on 01/23/2008 (Fed ID 33913). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_RPP02A00 / Rappahannock River / Segment begins at the confluence with the Jordan River, at rivermile 175.58, and continues downstream until the confluence with an unnamed tributary to the Rappahannock River, at rivermile 173.41.	4A	Escherichia coli (E. coli)	2006	L	2.28
VAN-E01R_RPP03A04 / Rappahannock River / Segment begins at the headwaters of the Rappahannock River and continues downstream until the confluence with Fiery Run.	4A	Escherichia coli (E. coli)	2020	L	7.77

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.05

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E01R-03-BEN** **Hittles Mill Stream**

Cause Location: Begins at the confluence with Bearwallow Creek and Bolton Branch and continues downstream to the confluence with Jordan River.

Cause City/County: Rappahannock County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017 and 2018 at DEQ station 3-HIT003.43 at Route 631 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_HIT01A14 / Hittles Mill Stream / Segment begins at the confluence with Bearwallow Creek and Bolton Branch and continues downstream to the confluence with Jordan River.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	3.83

Hittles Mill Stream

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.83

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E01R-04-BAC** **Thumb Run, East Branch**

Cause Location: Begins at the headwaters of East Branch Thumb Run and continues downstream until the confluence of East Branch to the mainstem Thumb Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-THM001.40 at Route 647 (Cresthill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Thumb Run, East Branch because the downstream Thumb Run Watershed bacteria TMDL (Fed ID 24413, 05/31/2002) included modeling, source identification, and reductions that covered the entire Thumb Run watershed (Eq ID POL0117). The bacteria TMDL Implementation Plan for the Thumb Run watershed (ID 98) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_THM01A02 / Thumb Run, East Branch / Segment begins at the headwaters of East Branch Thumb Run and continues downstream until the confluence of East Branch to the mainstem Thumb Run.	4A	Escherichia coli (E. coli)	2004	L	6.59

Thumb Run, East Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.59

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E01R-05-BAC** **Fiery Run**

Cause Location: Begins at the headwaters of Fiery Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 3-FIR002.35 at Route 635.

A new TMDL is not required for this impaired segment of Fiery Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33913, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (1) watershed (Eq ID POL0516).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_FIR01A04 / Fiery Run / Segment begins at the headwaters of Fiery Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2010	L	9.39

Fiery Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.39

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E01R-06-BAC **Jordan River**

Cause Location: Begins at the start of Class III water at rivermile 10.9 and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-JOR000.50 at Route 637 (2020 Assessment): E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) . DEQ station 3-JOR007.56 at Route 522: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Fiery Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33913, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (1) watershed (Eq ID POL0516).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_JOR01A04 / Jordan River / Segment begins at the confluence of Hittles Mill Stream, at rivermile 7.05, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2012	L	7.05
VAN-E01R_JOR02A20 / Jordan River / Segment begins at the start of Class III water at rivermile 10.9 and continues downstream to the confluence with Hittles Mill Stream.	4A	Escherichia coli (E. coli)	2020	L	3.85

Jordan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.9

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E01R-07-BAC** **Buck Run**

Cause Location: Begins at the headwaters of Buck Run to the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (7 of 12 samples - 58.3%) at DEQ station 3-BUC001.54 at Route 735.

A new TMDL is not required for this impaired segment of Buck Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33913, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (1) watershed (Eq ID POL0516).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_BUC01A10 / Buck Run / Segment begins at the headwaters of Buck Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2016	L	9.76

Buck Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.76

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E01R-08-BAC **Rappahannock River**

Cause Location: Begins at the confluence with an unnamed tributary to the Rappahannock River, at rivermile 173.41, and continues downstream until the mouth of watershed E01R, at the confluence with Thumb Run.

Cause City/County: Fauquier County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The recreation use is assessed as impaired based on E. coli data from DEQ station 3-RPP170.36 at Route 645 (Tapps Ford Rd). The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of the Rappahannock River because the downstream Upper Rappahannock River bacteria TMDL (Fed ID 33951, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (2) watershed (Eq ID POL0508).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_RPP01A04 / Rappahannock River / Segment begins at the confluence with an unnamed tributary to the Rappahannock River, at rivermile 173.41, and continues downstream until the mouth of watershed E01R, at the confluence with Thumb Run.	4A	Escherichia coli (E. coli)	2020	L	4.09

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.09

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E01R-09-BAC** **Indian Run**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 1.87 and continues downstream to the confluence with Hittles Mill Stream.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-INA000.38 at Route 637 (Jericho Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Fiery Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33913, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (1) watershed (Eq ID POL0516).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E01R_INA01A20 / Indian Run / Segment begins at the confluence with an unnamed tributary at rivermile 1.87 and continues downstream to the confluence with Hittles Mill Stream.	4A	Escherichia coli (E. coli)	2020	L	1.88

Indian Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.88

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E02R-01-BAC** **Carter Run**

Cause Location: Begins at the confluence with Horner Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-CAE000.25 at Route 688 (Leeds Manor Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-CAE006.32 at Route 738 (Wilson Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Carter Run Watershed bacteria TMDL (Eq ID POL0155) was approved by the EPA on 03/10/2005 (Fed ID 24414). The SWCB approved the modified TMDL on 12/20/2005. The bacteria TMDL Implementation Plan for the Carter Run watershed (ID 99) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_CAE01A00 / Carter Run / Segment begins at the confluence with South Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	1998	L	3.62
VAN-E02R_CAE02A04 / Carter Run / Segment begins at the uppermost point of the PWS designation (five miles upstream from Waterloo) and continues downstream until the confluence with South Run.	4A	Escherichia coli (E. coli)	2006	L	1.38
VAN-E02R_CAE02B12 / Carter Run / Segment begins at the confluence with Horner Run and continues downstream until the beginning of the PWS designation (five miles upstream from Waterloo).	4A	Escherichia coli (E. coli)	2006	L	7.39

Carter Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.39

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E02R-01-BEN **Great Run**

Cause Location: Begins at the confluence with an unnamed tributary to Great Run (streamcode XAC) at rivermile 7.20 (approximately 0.6 rivermile downstream from Route 802) and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of three biological monitoring events in 2011 and 2012 at DEQ station 3-GRT001.70 at Route 687 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_GRT01A00 / Great Run / Segment begins at the confluence with an unnamed tributary to Great Run, approximately 1.0 rivermile upstream of Route 687, and continues downstream until the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.82
VAN-E02R_GRT02A04 / Great Run / Segment begins at the confluence of an unnamed tributary to Great Run, at approximately rivermile 5.5, and continues downstream until the confluence with an unnamed tributary to Great Run, approximately 1.0 rivermile upstream of Route 687.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.85
VAN-E02R_GRT03A02 / Great Run / Segment begins at the confluence with an unnamed tributary to Great Run at rivermile 7.20 (streamcode XAC) and continues downstream until the confluence with another unnamed tributary at approximately rivermile 5.5.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.54

Great Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.21

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E02R-02-BAC** **Great Run**

Cause Location: Begins at the headwaters of Great Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-GRT001.70 at Route 687 (Opal Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-GRT007.72 at Route 802 (Springs Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Great Run Watershed bacteria TMDL (Eq ID POL0156) was approved by the EPA on 03/10/2005 (Fed ID 23325). The SWCB approved the TMDL on 12/20/2005. The bacteria TMDL Implementation Plan for the Great Run watershed (ID 160) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_GRT01A00 / Great Run / Segment begins at the confluence with an unnamed tributary to Great Run, approximately 1.0 rivermile upstream of Route 687, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2004	L	2.82
VAN-E02R_GRT02A04 / Great Run / Segment begins at the confluence of an unnamed tributary to Great Run, at approximately rivermile 5.5, and continues downstream until the confluence with an unnamed tributary to Great Run, approximately 1.0 rivermile upstream of Route 687.	4A	Escherichia coli (E. coli)	2004	L	2.85
VAN-E02R_GRT03A02 / Great Run / Segment begins at the confluence with an unnamed tributary to Great Run at rivermile 7.20 (streamcode XAC) and continues downstream until the confluence with another unnamed tributary at approximately rivermile 5.5.	4A	Escherichia coli (E. coli)	2004	L	1.54
VAN-E02R_GRT04A04 / Great Run / Segment begins at the headwaters of Great Run and continues downstream until the confluence with an unnamed tributary to Great Run (streamcode XAC), at rivermile 7.20.	4A	Escherichia coli (E. coli)	2004	L	9.46

Great Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			16.67

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E02R-03-BAC **Rappahannock River**

Cause Location: Begins at the dam at Waterloo (at rivermile 163.4) and continues downstream until the confluence with the Hazel River at rivermile 147.52.

Cause City/County: Culpeper County; Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP150.32 at Route 651/621 (Freemans Ford Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples.

DEQ station 3-RPP157.95 at Route 802 (Springs Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples.

DEQ station 3-RPP163.41 at Route 613 (Waterloo Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

A new TMDL is not required for this impaired segment of the Rappahannock River because the downstream Upper Rappahannock River bacteria TMDL (Fed ID 33951, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (2) watershed (Eq ID POL0508).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_RPP01A02 / Rappahannock River / Segment begins at the confluence with Great Run, at rivermile 154.9, and continues downstream until the confluence with the Hazel River, at rivermile 147.52.	4A	Escherichia coli (E. coli)	2006	L	7.05
VAN-E02R_RPP02A04 / Rappahannock River / Segment begins at the confluence with a tributary to the Rappahannock River at rivermile 160.4 and continues downstream until the confluence with Great Run.	4A	Escherichia coli (E. coli)	2020	L	6.24
VAN-E02R_RPP03A04 / Rappahannock River / Segment begins below the dam at Waterloo (rivermile 163.4) and continues downstream until the confluence with a tributary to the Rappahannock River at rivermile 160.4.	4A	Escherichia coli (E. coli)	2016	L	2.99

Rappahannock River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		16.28

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E02R-04-BAC** **Barrows Run**

Cause Location: Begins at the headwaters of Barrows Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (3 of 4 samples - 75.0%) at DEQ station 3-BRW000.29 at Springs Drive.

A new TMDL is not required for this impaired segment of Barrows Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33951, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (2) watershed (Eq ID POL0508).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_BRW01A06 / Barrows Run / Segment begins at the headwaters of Barrows Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2006	L	4.53

Barrows Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.53

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E02R-05-BAC** **South Run**

Cause Location: Begins at the confluence with Tanner Branch and continues downstream until the confluence with Carter Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 10 samples - 20.0%) at DEQ station 3-SUT002.62 at Route 737.

A new TMDL is not required for this impaired segment of South Run because the downstream Carter Run bacteria TMDL (Fed ID 24414, 03/10/2005) included modeling, source identification, and reductions that covered the entire Carter Run watershed (Eq ID POL0508). A bacteria TMDL Implementation Plan for the Carter Run watershed (ID 99) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_SUT01A04 / South Run / Segment begins at the beginning of the PWS designation, at rivermile 1.47, and continues downstream until the confluence with Carter Run.	4A	Escherichia coli (E. coli)	2006	L	1.51
VAN-E02R_SUT01B12 / South Run / Segment begins at the confluence with Tanner Branch and continues downstream to the beginning of the PWS designation, at rivermile 1.47	4A	Escherichia coli (E. coli)	2006	L	2.59

South Run

Recreation	<table> <tr> <td style="text-align: center;">Estuary (Sq. Miles)</td> <td style="text-align: center;">Reservoir (Acres)</td> <td style="text-align: center;">River (Miles)</td> </tr> <tr> <td colspan="3" style="text-align: right;">Escherichia coli (E. coli) - Total Impaired Size by Water Type:</td> </tr> <tr> <td colspan="3" style="text-align: right;">4.1</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)	Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1		
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)								
Escherichia coli (E. coli) - Total Impaired Size by Water Type:										
4.1										

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E02R-07-BAC Glascock Run

Cause Location: Begins at the headwaters of Glascock Run, and continues downstream to the confluence with Bee Branch.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (7 of 11 samples -63.6%) at DEQ station 3-GLC002.03 at Citation Drive.

A new TMDL is not required for this impaired segment of Glascock Run because the downstream Upper Rappahannock River bacteria TMDL (Fed ID 33951, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (2) watershed (Eq ID POL0508).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_GLC02A12 / Glascock Run / Segment begins at the beginning of the PWS designation (five miles upstream from Waterloo) and continues downstream to the confluence with Bee Branch.	4A	Escherichia coli (E. coli)	2012	L	1.44
VAN-E02R_GLC02B12 / Glascock Run / Segment begins at the headwaters of Glascock Run, and continuous downstream to the beginning of the PWS designation (five miles upstream from Waterloo).	4A	Escherichia coli (E. coli)	2012	L	2.38

Glascock Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.82

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E02R-08-BAC **Horner Run**

Cause Location: Begins at the perennial headwaters of Horner Run and continues downstream to the confluence with Carter Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 3-HRN000.80 at Route 691.

A new TMDL is not required for this impaired segment of Horner Run because the downstream Carter Run Watershed bacteria TMDL (Fed ID 24414, 03/10/2005) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0155). The bacteria TMDL Implementation Plan for the Carter Run watershed (ID 99) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E02R_HRN01A20 / Horner Run / Segment begins at the perennial headwaters of Horner Run and continues downstream to the confluence with Carter Run.	4A	Escherichia coli (E. coli)	2020	L	2.36

Horner Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.36

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E03R-01-BAC** **Hughes River**

Cause Location: Begins at the confluence with Kilbys Creek and continues downstream until the confluence with the Hazel River.

Cause City/County: Culpeper County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-HUE000.20 at Route 644 (Reva Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Hughes River watershed (Eq ID POL0512) was approved by the EPA on 01/23/2008 (Fed ID 33916). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Hughes River Run watershed (ID 269) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E03R_HUE01A00 / Hughes River / Segment begins at the confluence with Kilbys Creek and continues downstream until the confluence with the Hazel River.	4A	Escherichia coli (E. coli)	2004	L	3.85

Hughes River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.85

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: E03R-01-BEN Popham Run

Cause Location: Begins at the confluence with Ragged Run and continues downstream until the confluence with the Hughes River.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of three biological monitoring events in 2015 and 2016 at DEQ station 3-POH000.48 at Route 603 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E03R_POH01A02 / Popham Run / Segment begins at the confluence with Ragged Run and continues downstream until the confluence with the Hughes River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.22

Popham Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.22

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E03R-01-TEMP** **Hughes River**

Cause Location: Begins at the upper crossing of Route 707 near the confluence of Rocky Run and continues downstream until the crossing of Route 231.

Cause City/County: Madison County; Rappahannock County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Excursions greater than the maximum temperature criterion for stockable trout waters (2 of 10 samples - 20%) at DEQ station 3-HUE007.31 at Route 707 (Sharp Rock Rd).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E03R_HUE02A02 / Hughes River / Segment begins at the upper crossing of Route 707 near the confluence of Rocky Run and continues downstream until the crossing of Route 231.	5A	Temperature	2008	L	3.21

Hughes River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			3.21

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E03R-02-BAC Popham Run

Cause Location: Begins at the confluence with Ragged Run and continues downstream until the confluence with the Hughes River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (12 of 12 samples - 100.0%) at DEQ station 3-POH000.48 at Route 603.

A new TMDL is not required for this impaired segment of Popham Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33916, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hughes River watershed (Eq ID POL0512). A bacteria TMDL Implementation Plan for the Hughes River watershed (ID 269) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E03R_POH01A02 / Popham Run / Segment begins at the confluence with Ragged Run and continues downstream until the confluence with the Hughes River.	4A	Escherichia coli (E. coli)	2012	L	2.22

Popham Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.22

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E04R-01-BAC **Hazel River**

Cause Location: Begins at the confluence of an unnamed tributary to Hazel River at rivermile 36.80, approximately 1.6 rivermiles upstream of Route 607, and continues downstream until the confluence with an unnamed tributary to the Hazel River, at rivermile 16.03.

Cause City/County: Culpeper County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-HAZ018.29 at Route 729: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-HAZ026.16 at Route 522 (2012 Assessment): E. coli bacteria criterion excursions (3 of 5 samples - 60.0%. DEQ station 3-HAZ032.54 at Route 644: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-HAZ034.96 at Route 607 (2020 Assessment): E. coli bacteria excursions (5 of 11 samples - 45.5%).

The Upper Rappahannock River Watershed bacteria TMDL for the Hazel River (1) watershed (Eq ID POL0514) was approved by the EPA on 01/23/2008 (Fed ID 33915). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Hazel River watershed (ID 157) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E04R_HAZ01B00 / Hazel River / Segment begins at the confluence with Blackwater Creek and continues downstream until the confluence with an unnamed tributary to the Hazel River, at rivermile 16.03.	4A	Escherichia coli (E. coli)	2002	L	5.78
VAN-E04R_HAZ01C06 / Hazel River / Segment begins at the confluence with the Hughes River and continues downstream until the confluence with Blackwater Creek.	4A	Escherichia coli (E. coli)	2006	L	10.13
VAN-E04R_HAZ02A02 / Hazel River / Segment begins at the Route 707 bridge and continues downstream until the confluence with the Hughes River.	4A	Escherichia coli (E. coli)	2022	L	0.83
VAN-E04R_HAZ02B06 / Hazel River / Segment begins at the confluence of an unnamed tributary to Hazel River at rivermile 36.80, approximately 1.6 rivermiles upstream of Route 607, and continues downstream until the Route 707 bridge. DGIF/DWR Class ii water.	4A	Escherichia coli (E. coli)	2016	L	3.64

Hazel River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.38

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E04R-01-TEMP Hazel River

Cause Location: Begins at the crossing with the Shenandoah National Park boundary and continues downstream until the Route 707 bridge. DGIF/DWR Class ii water.

Cause City/County: Rappahannock County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: 2020 Assessment: Excursions greater than the maximum temperature criterion for natural trout waters (3 of 11 samples - 27.3%) at DEQ station 3-HAZ034.96 at Route 607. 2018 Assessment: Excursions greater than the maximum temperature criterion for natural trout waters (3 of 12 samples - 25.0%) at DEQ station 3-HAZ039.26 at Route 618.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E04R_HAZ02B06 / Hazel River / Segment begins at the confluence of an unnamed tributary to Hazel River at rivermile 36.80, approximately 1.6 rivermiles upstream of Route 607, and continues downstream until the Route 707 bridge. DGIF/DWR Class ii water.	5A	Temperature	2016	L	3.64
VAN-E04R_HAZ03A02 / Hazel River / Segment begins at the crossing with the Shenandoah National Park boundary and continues downstream until the confluence to an unnamed tributary to the Hazel River, at rivermile 36.80. DGIF/DWR Class ii water.	5A	Temperature	2018	L	6.78

Hazel River

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				10.42

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E04R-02-BAC** **Blackwater Creek**

Cause Location: Headwaters of Blackwater Creek, downstream to the confluence with the Hazel River.

Cause City/County: Culpeper County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 3-BLC001.08 at Route 615.

A new TMDL is not required for this impaired segment of Blackwater Creek because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33915, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (1) watershed (Eq ID POL0514). A bacteria TMDL Implementation Plan for the Hazel River watershed (ID 157) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E04R_BLC01A10 / Blackwater Creek / Headwaters of Blackwater Creek to the confluence with the Hazel River	4A	Escherichia coli (E. coli)	2010	L	8.98

Blackwater Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.98

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E04R-03-BAC **Hazel River**

Cause Location: Begins at the confluence with an unnamed tributary to Hazel River at rivermile 16.03 and continues downstream to the confluence with Thornton River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 3-HAZ013.23 at Route 640.

A new TMDL is not required for this impaired segment of Hazel River because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Hazel River watershed (ID 157) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E04R_HAZ01A20 / Hazel River / Segment begins at the confluence with an unnamed tributary to Hazel River at rivermile 16.03 and continues downstream to the confluence with Thornton River.	4A	Escherichia coli (E. coli)	2020	L	2.97

Hazel River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.97

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E05R-01-BAC** **Rush River**

Cause Location: Begins at the confluence with unnamed tributary at approximately rivermile 7.12 and continues downstream until the confluence with Big Branch, approximately 0.98 rivermile upstream of Route 621.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RUS005.24 at Route 626 (Tiger Valley Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. DEQ station 3-RUS007.41 at Route 624 (Sunnyside Rd): The geomean was exceeded in at least one 90-day period.

The Upper Rappahannock River Watershed bacteria TMDL for the Rush River watershed (Eq ID POL0513) was approved by the EPA on 01/23/2008 (Fed ID 33914). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Rush River watershed (ID 270) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_RUS02A02 / Rush River / Segment begins at the confluence with unnamed tributary at approximately rivermile 7.12 and continues downstream until the confluence with Big Branch, approximately 0.98 rivermile upstream of Route 621.	4A	Escherichia coli (E. coli)	2002	L	2.78
VAN-E05R_RUS02B18 / Rush River / Segment begins at the confluence with Big Devils Stairs, at rivermile 10.2, and continues downstream until the confluence with an unnamed tributary at approximately rivermile 7.12.	4A	Escherichia coli (E. coli)	2002	L	3.09

Rush River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.87

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E05R-01-BEN Thornton River**

Cause Location: Begins at the Sperryville Main Street crossing and continues downstream until the confluence with the North Fork Thornton River.

Cause City/County: Rappahannock County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring event in 2016 at DEQ station 3-THO022.27 (above the confluence with NF Thornton River) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_THO03A02 / Thornton River / Segment begins at the Sperryville Main Street crossing and continues downstream until the confluence with the North Fork Thornton River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.87

Thornton River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.87

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E05R-02-BAC Thornton River**

Cause Location: Begins at rivermile 25.7 on the Thornton River, where the Class VI designation ends, and continues downstream until the Sperryville Main Street crossing. Begins again at the confluence with White Walnut Run, approximately 0.8 rivermile downstream of Route 621, and continues downstream to the confluence with the Rush River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-THO024.12 at Route 667 (Woodward Rd): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples DEQ station 3-THO014.37 at Route 626 (2020 Assessment): E. coli bacteria criterion excursions (5 of 32 samples - 15.6%).

A new TMDL is not required for this impairment of Thornton River because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_THO01A02 / Thornton River / Segment begins at the confluence with White Walnut Run, approximately 0.8 rivermile downstream of Route 621, and continues downstream to the confluence with the Rush River.	4A	Escherichia coli (E. coli)	2006	L	3.45
VAN-E05R_THO03B16 / Thornton River / Segment begins at rivermile 25.7 on the Thornton River, where the Class VI designation ends, and continues downstream until the Sperryville Main Street crossing.	4A	Escherichia coli (E. coli)	2022	L	3.12

Thornton River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.57

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E05R-02-BEN** **Rush River**

Cause Location: Begins at the confluence with unnamed tributary at approximately rivermile 7.12 and continues downstream until the confluence with Big Branch, approximately 0.98 rivermile upstream of Route 621.

Cause City/County: Rappahannock County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017 and 2019 at DEQ station 3-RUS006.49 at Route 628 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_RUS02A02 / Rush River / Segment begins at the confluence with unnamed tributary at approximately rivermile 7.12 and continues downstream until the confluence with Big Branch, approximately 0.98 rivermile upstream of Route 621.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	2.78

Rush River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.78

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E05R-03-BAC** **Big Branch**

Cause Location: Segment begins at the headwaters of Big Branch and continues downstream until the confluence with the Rush River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (6 of 11 samples - 54.5%) at DEQ station 3-BIG001.15 at Route 211.

A new TMDL is not required for this impaired segment of Big Branch because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_BIG01A08 / Big Branch / Segment begins at the headwaters of Big Branch and continues downstream until the confluence with the Rush River.	4A	Escherichia coli (E. coli)	2010	L	3.05

Big Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.05

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E05R-05-BAC Thornton River, North Fork**

Cause Location: Begins at the confluence with the Piney River and continues downstream until the confluence with the main stem of the Thornton River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-THR000.50 at Route 211 / 522 (Lee Hwy): The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E05R_THR01A02 / Thornton River, North Fork / Segment begins at the confluence with the Piney River and continues downstream until the confluence with the main stem of the Thornton River.	4A	Escherichia coli (E. coli)	2022	L	1.94

Thornton River, North Fork

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.94

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E06R-01-BAC Thornton River**

Cause Location: Begins at the confluence with Mill Run, at rivermile 8.65, and continues downstream until the confluence with an unnamed tributary to the Thornton River, at rivermile 3.25.

Cause City/County: Culpeper County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (11 of 32 samples - 34.4%) at DEQ station 3-THO006.50 at Route 729.

A new TMDL is not required for this impaired segment of the Thornton River because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E06R_THO02A02 / Thornton River / Segment begins at the confluence with Mill Run and continues downstream until the confluence with unnamed tributary to Thornton River 3-XHH.	4A	Escherichia coli (E. coli)	2006	L	5.52

Thornton River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.52

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E06R-02-BAC** **Battle Run**

Cause Location: Begins at the confluence with an unnamed tributary to Battle Run, at rivermile 2.27, and continues downstream until the confluence with the Thornton River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-BTL000.94 at Route 729 (Richmond Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Battle Run because the downstream Upper Rappahannock River Watershed TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E06R_BTL01A02 / Battle Run / Segment begins at the confluence with an unnamed tributary to Battle Run, at rivermile 2.27, and continues downstream until the confluence with the Thornton River.	4A	Escherichia coli (E. coli)	2008	L	2.24

Battle Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.24

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E06R-03-BAC** **Unnamed tributary to Thornton River**

Cause Location: Begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with the Thornton River.

Cause City/County: Culpeper County; Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 3-XHH000.24 at Route 626.

A new TMDL is not required for this impaired segment of the unnamed tributary to Thornton River because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E06R_XHH01A12 / Unnamed tributary to Thornton River / Segment begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with the Thornton River.	4A	Escherichia coli (E. coli)	2012	L	5.03

Unnamed tributary to Thornton River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.03

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E06R-04-BAC** Mill Run

Cause Location: Begins at the perennial headwaters at Route 618/658 and continues downstream to the confluence with Thornton River.

Cause City/County: Rappahannock County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MLR001.11 at Route 618: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Mill Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517). A bacteria TMDL Implementation Plan for the Thornton River watershed (ID 205) was approved by the EPA on 08/02/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E06R_MLR01A18 / Mill Run / Segment begins at the perennial headwaters at Route 618/658 and continues downstream to the confluence with Thornton River.	4A	Escherichia coli (E. coli)	2020	L	5.9

Mill Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.9

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E07R-01-BAC** **Muddy Run**

Cause Location: Begins at the headwaters of Muddy Run and continues downstream until the confluence with the Hazel River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MUU000.82 at Route 625: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MUU008.52 at Route 632 (2018 Assessment): E. coli bacteria criterion excursions (7 of 11 samples - 63.6%).

The Muddy Run bacteria TMDL (Eq IDs 1299 and POL0003) was approved by the EPA on 07/06/2004 (Fed ID 23326). The SWCB approved the TMDL on 12/02/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E07R_MUU01A00 / Muddy Run / Segment begins at the confluence with an unnamed tributary to Muddy Run, approximately 0.2 rivermile upstream of Route 229, and continues downstream until the confluence with the Hazel River.	4A	Escherichia coli (E. coli)	1996	L	6.09
VAN-E07R_MUU02A02 / Muddy Run / Segment begins at the headwaters of Muddy Run and continues downstream until the confluence with an unnamed tributary to Muddy Run, approximately 0.2 rivermile upstream of Route 229.	4A	Escherichia coli (E. coli)	2002	L	8.25

Muddy Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.34

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E07R-02-BAC** **Hazel River**

Cause Location: Begins at the confluence with Indian Run and continues downstream until the confluence with Muddy Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-HAZ005.98 at Route 625 (Ryland Chapel Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Hazel River (2) watershed (Eq ID POL0517) was approved by the EPA on 01/23/2008 (Fed ID 33917). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E07R_HAZ01A04 / Hazel River / Segment begins at the confluence with Indian Run and continues downstream until the confluence with Muddy Run.	4A	Escherichia coli (E. coli)	2006	L	3.36

Hazel River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.36

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E07R-03-BAC** **Indian Run**

Cause Location: Begins at the confluence with an unnamed tributary to Indian Run, upstream from Route 626, and continues downstream until the confluence with the Hazel River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-IND001.14 at Route 624 (Oak Shade Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Indian Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E07R_IND01A04 / Indian Run / Segment begins at the confluence with an unnamed tributary to Indian Run, upstream from Route 626, and continues downstream until the confluence with the Hazel River.	4A	Escherichia coli (E. coli)	2020	L	3.84

Indian Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.84

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E07R-04-BAC** **Waterford Run**

Cause Location: Begins at the headwaters of Waterford Run and continues downstream to the confluence with the Hazel River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-WAF000.82 at Upstream of private bridge off Route 611: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Indian Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33917, 01/23/2008) included modeling, source identification, and reductions that covered the entire Hazel River (2) watershed (Eq ID POL0517).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E07R_WAF01A10 / Waterford Run / Segment begins at the headwaters of Waterford Run and continues downstream to the confluence with the Hazel River.	4A	Escherichia coli (E. coli)	2020	L	6.23

Waterford Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.23

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-01-BAC Marsh Run**

Cause Location: Begins at the headwaters of Marsh Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MAH000.19 at Route 651 (2020 Assessment): E. coli bacteria criterion excursions (10 of 21 samples - 47.6%). DEQ station 3-MAH004.18 at Route 668 (2020 Assessment): E. coli bacteria criterion excursions (7 of 15 samples - 46.7%). DEQ station 3-MAH008.88 at Route 17: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Marsh Run watershed (Eq ID POL0515) was approved by the EPA on 01/23/2008 (Fed ID 34088). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Marsh Run watershed (ID 18) was approved by the EPA on 05/24/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_MAH01A00 / Marsh Run / Segment begins at the confluence with Harpers Run, at approximately rivermile 2.4, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	1996	L	2.32
VAN-E08R_MAH02A02 / Marsh Run / Segment begins at the confluence with Craig Run and continues downstream until the confluence with Harpers Run, at approximately rivermile 2.4.	4A	Escherichia coli (E. coli)	2012	L	6.01
VAN-E08R_MAH03A02 / Marsh Run / Segment begins at the headwaters of Marsh Run and continues downstream until the confluence with Craig Run.	4A	Escherichia coli (E. coli)	2008	L	3.87

Marsh Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.2

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-01-BEN** **Marsh Run**

Cause Location: Begins at the confluence with Craig Run and continues downstream until the confluence with Harpers Run, at approximately rivermile 2.4.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of two biological monitoring events in 2009 at DEQ station 3-MAH004.18 at Route 668 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_MAH02A02 / Marsh Run / Segment begins at the confluence with Craig Run and continues downstream until the confluence with Harpers Run, at approximately rivermile 2.4.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	6.01

Marsh Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.01

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: E08R-02-BAC Browns Run

Cause Location: Begins at the confluence with an unnamed tributary to Browns Run, near the Route 17 bridge, and continues downstream until the confluence with Marsh Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-BOS000.72 at Route 653 (Morganburg Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Browns Run watershed (Eq ID POL0510) was approved by the EPA on 01/23/2008 (Fed ID 33911). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Browns Run watershed (ID 17) was approved by the EPA on 05/24/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_BOS01A02 / Browns Run / Segment begins at the confluence with an unnamed tributary to Browns Run, near the Route 17 bridge, and continues downstream until the confluence with Marsh Run.	4A	Escherichia coli (E. coli)	2002	L	2.55

Browns Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.55

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-03-BAC** **Craig Run**

Cause Location: Begins at the headwaters of Craig Run and continues downstream until the confluence with Marsh Run.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-CRA000.46 at Luck Stone Rd: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Craig Run watershed (Eq ID POL0509) was approved by the EPA on 01/23/2008 (Fed ID 33912). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Craig Run watershed (ID 116) was approved by the EPA on 05/24/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_CRA01A02 / Craig Run / Segment begins at the headwaters of Craig Run and continues downstream until the confluence with Marsh Run.	4A	Escherichia coli (E. coli)	2004	L	3.72

Craig Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.72

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-04-BAC** **Rappahannock River**

Cause Location: Begins at the confluence with Ruffans Run and continues downstream until the confluence with Tinpot Run.

Cause City/County: Culpeper County; Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP147.49 at Route 29 (James Madison Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Upper Rappahannock River Watershed bacteria TMDL for the Rappahannock River (2) watershed (Eq ID POL0508) was approved by the EPA on 01/23/2008 (Fed ID 33951). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_RPP02A02 / Rappahannock River / Segment begins at the confluence with Ruffans Run and continues downstream until the confluence with Tinpot Run.	4A	Escherichia coli (E. coli)	2004	L	2.11

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.11

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-05-BAC** **Rappahannock River**

Cause Location: Begins at the confluence with an unnamed tributary to the Rappahannock River, at approximately rivermile 142.5, and continues downstream until the confluence with Marsh Run.

Cause City/County: Culpeper County; Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP142.36 at Route 620: The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

The Upper Rappahannock River Watershed bacteria TMDL for the Rappahannock River (3) watershed (Eq ID POL0511) was approved by the EPA on 01/23/2008 (Fed ID 33952). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_RPP01A02 / Rappahannock River / Segment begins at the confluence with an unnamed tributary to the Rappahannock River, at approximately rivermile 142.5, and continues downstream until the confluence with Marsh Run.	4A	Escherichia coli (E. coli)	2006	L	2.86

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.86

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E08R-06-BAC** **Tinpot Run**

Cause Location: Begins at the confluence with an unnamed tributary to Tinpot Run, at rivermile 1.27, and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 10 samples - 40.0%) at DEQ station 3-TIN000.36 at Route 651.

A new TMDL is not required for this impaired segment of Tinpot Run because the downstream Upper Rappahannock River Watershed bacteria TMDL (Fed ID 33952, 01/23/2008) included modeling, source identification, and reductions that covered the entire Rappahannock River (3) watershed (Eq ID POL0511).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E08R_TIN01A08 / Tinpot Run / Segment begins at the confluence with an unnamed tributary to Tinpot Run, at rivermile 1.27, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2008	L	1.29

Tinpot Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.29

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09L-01-BAC** **Mountain Run Reservoir**

Cause Location: Segment includes all of Mountain Run Reservoir.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: Sufficient excursions from the maximum criterion for E.coli were recorded in the pooled data for DEQ monitoring stations 3-MTN028.68 and 3-MTN029.08 (2 of 14 samples -14.3%).

A new TMDL is not required for this impairment because its is located with the watershed addressed by the Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001; Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09L_MTN02A02 / Mountain Run Reservoir / Segment includes all of Mountain Run Reservoir.	4A	Escherichia coli (E. coli)	2020	L	72.76

Mountain Run Reservoir

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		72.76	

Sources: Non-Point Source

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Rappahannock River Basin

Cause Group Code: **E09R-01-BAC** **Mountain Run**

Cause Location: Begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MTN000.59 at Route 620 (Edwards Shop Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MTN005.79 at Route 672 (Stones Mill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A bacteria TMDL for the Mountain Run watershed (Eq ID POL0116) was approved by the EPA on 04/27/2001 (Fed ID 24415). The SWCB approved the TMDL on 06/17/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN01A00 / Mountain Run / Segment begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	1996	L	7.59

Mountain Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.59

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09R-01-BEN** **Mountain Run**

Cause Location: Begins at the Route 15/29 bridge crossing and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four monitoring events in 2018 and 2019 at DEQ station 3-MTN000.59 at Route 620; four monitoring events in 2018 and 2019 at DEQ station 3-MTN005.79 at Route 672; four monitoring events in 2018 and 2019 at DEQ station 3-MTN014.88 at Route 663; and four monitoring events in 2018 and 2019 at DEQ station 3-MTN021.11 at Route 799 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN01A00 / Mountain Run / Segment begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	7.59
VAN-E09R_MTN02A04 / Mountain Run / Segment begins at the confluence with Jonas Run and continues downstream until the confluence with Flat Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	5.67
VAN-E09R_MTN03A00 / Mountain Run / Segment begins at the Route 15/29 bridge crossing and continues downstream until the confluence with Jonas Run.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.65
VAN-E09R_MTN04A04 / Mountain Run / Segment begins at the outlet from Lake Pelham and continues downstream until the Route 15/29 bridge crossing.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.63

Mountain Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			24.54

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-01-PCB** **Mountain Run**

Cause Location: Begins at the Route 15/29 bridge crossing near Culpeper City and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Culpeper County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A; Polychlorinated biphenyls (PCBs)/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected stretch of Mountain Run extends roughly 19 miles, from the Route 15/29 bridge crossing near Culpeper City downstream until the confluence with the Rappahannock River.

The following exceedances of the human health criterion of 640 picogram per liter (pg/l) for total PCBs in the water column were recorded: one exceedance at DEQ station 3-MTN000.59 at Route 620; two exceedances at DEQ station 3-MTN005.79 at Route 672; two exceedances at DEQ station 3-MTN010.98 at Route 669; and two exceedances at DEQ station 3-MTN014.88 at Route 663.

2020 Assessment: The following exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for PCBs in fish tissue were recorded: four exceedances in two species of fish (American eel and yellow bullhead catfish) collected in 2013 at DEQ station 3-MTN000.59; two exceedances in two species of fish (American eel and yellow bullhead catfish) collected in 2013 at DEQ station 3-MTN005.79; and four exceedances in three species of fish (American eel, yellow bullhead catfish, and sunfish) collected in 2013 at DEQ station 3-MTN014.33. NOTE: In 2020, the water quality criterion based fish tissue value (TV) was 20 parts per billion (ppb) and the exceedances at station 3-MTN000.59 were recorded in only American eel. In 2022, the TV was updated to 18 ppb; based on the new TV, an exceedance in 2013 was also recorded in yellow bullhead catfish at station 3-MTN000.59.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN01A00 / Mountain Run / Segment begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.	5A	PCBs in Fish Tissue	2006	H	7.59
VAN-E09R_MTN02A04 / Mountain Run / Segment begins at the confluence with Jonas Run and continues downstream until the confluence with Flat Run.	5A	PCBs in Fish Tissue	2006	H	5.67
VAN-E09R_MTN03A00 / Mountain Run / Segment begins at the Route 15/29 bridge crossing and continues downstream until the confluence with Jonas Run.	5A	PCBs in Fish Tissue	2006	H	6.65

Mountain Run

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.91

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN01A00 / Mountain Run / Segment begins at the confluence with Flat Run and continues downstream until the confluence with the Rappahannock River.	5A	Polychlorinated biphenyls (PCBs)	2020	H	7.59
VAN-E09R_MTN02A04 / Mountain Run / Segment begins at the confluence with Jonas Run and continues downstream until the confluence with Flat Run.	5A	Polychlorinated biphenyls (PCBs)	2020	H	5.67
VAN-E09R_MTN03A00 / Mountain Run / Segment begins at the Route 15/29 bridge crossing and continues downstream until the confluence with Jonas Run.	5A	Polychlorinated biphenyls (PCBs)	2018	H	6.65

Mountain Run

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.91

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-02-BAC** **Mountain Run**

Cause Location: Segment begins at the outlet from Lake Pelham and continues downstream until the confluence with Flat Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MTN014.88 at Route 663 (Stevensburg Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MTN021.11 at Route 799 (2020 Assessment): E. coli bacteria criterion excursions (2 of 10 samples - 20%). DEQ station 3-MTN022.01 at Old Brandy Road (2020 Assessment): E. coli bacteria criterion excursions (3 of 4 samples - 75.0%).

A new TMDL is not required for this impaired segment because the downstream Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN02A04 / Mountain Run / Segment begins at the confluence with Jonas Run and continues downstream until the confluence with Flat Run.	4A	Escherichia coli (E. coli)	2022	L	5.67
VAN-E09R_MTN03A00 / Mountain Run / Segment begins at the Route 15/29 bridge crossing and continues downstream until the confluence with Jonas Run.	4A	Escherichia coli (E. coli)	2010	L	6.65
VAN-E09R_MTN04A04 / Mountain Run / Segment begins at the outlet from Lake Pelham and continues downstream until the Route 15/29 bridge crossing.	4A	Escherichia coli (E. coli)	2016	L	4.63

Mountain Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.95

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09R-02-BEN** **Jonas Run**

Cause Location: Begins at the confluence with an unnamed tributary to Jonas Run (XDZ), at approximately rivermile 3.74, and continues downstream until the confluence with Mountain Run.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four monitoring events in 2019 and 2020 at DEQ station 3-JOA000.80 at Route 663 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_JOA01A06 / Jonas Run / Segment begins at the confluence with an unnamed tributary to Jonas Run (XDZ), at approximately rivermile 3.74, and continues downstream until the confluence with Mountain Run.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	3.78

Jonas Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.78

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: E09R-02-PCB Mountain Run

Cause Location: Begins at the outlet from Lake Pelham and continues downstream until the Route 15/29 bridge crossing.

Cause City/County: Culpeper County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A; Polychlorinated biphenyls (PCBs)/5A

Cause Description: 2020 Assessment: Exceedances of the water quality criterion based fish tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in three species of fish (white sucker, American eel, and yellow bullhead catfish) in four total samples collected in 2013 at DEQ station 3-MTN022.21.

2020 Assessment: Two exceedances of the human health criteria of 640 picogram per liter (pg/l) for total polychlorinated biphenyls (PCBs) in the water column were recorded in samples collected at DEQ station 3-MTN021.11 at Route 799.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN04A04 / Mountain Run / Segment begins at the outlet from Lake Pelham and continues downstream until the Route 15/29 bridge crossing.	5A	PCBs in Fish Tissue	2016	H	4.63

Mountain Run

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.63

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN04A04 / Mountain Run / Segment begins at the outlet from Lake Pelham and continues downstream until the Route 15/29 bridge crossing.	5A	Polychlorinated biphenyls (PCBs)	2018	H	4.63

Mountain Run

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.63

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-03-BAC** **Mountain Run**

Cause Location: Begins at the confluence with an unnamed tributary that flows from Caymore Lake and continues downstream until Lake Pelham.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 18 samples - 22.2%) at DEQ station 3-MTN027.08 at Route 641.

A new TMDL is not required for this impaired segment of Mountain Run because the downstream Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_MTN05A04 / Mountain Run / Segment begins at the confluence with an unnamed tributary that flows from Caymore Lake and continues downstream until Lake Pelham.	4A	Escherichia coli (E. coli)	2006	L	1.63

Mountain Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.63

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09R-03-BEN** **Unnamed tributary to Jonas Run**

Cause Location: Begins at the confluence with an unnamed tributary (downstream from Swan Dam) and continues downstream to the confluence with Jonas Run.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2018 at DEQ station 3-XMO000.41 (0.02 mile downstream from Route 685) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_XMO01A20 / Unnamed tributary to Jonas Run / Segment begins at the confluence with an unnamed tributary (downstream from Swan Dam) and continues downstream to the confluence with Jonas Run.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	0.54

Unnamed tributary to Jonas Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.54

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-03-PCB** **Unnamed tributaries to Mountain Run**

Cause Location: Unnamed tributaries 3-XBE and 3-XIH, from their perennial headwaters downstream to their confluences with Mountain Run.

Cause City/County: Culpeper County

Use(s): Fish Consumption

Causes(s)/VA Category: Polychlorinated biphenyls (PCBs)/5A

Cause Description: Two exceedances of the human health criterion of 640 picogram per liter (pg/l) for total polychlorinated biphenyls (PCBs) in the water column were recorded in water quality samples collected at DEQ station 3-XBE000.19 at Yancey Street.

Three exceedances of the human health criterion of 640 picogram per liter (pg/l) for total polychlorinated biphenyls (PCBs) in the water column were recorded in water quality samples collected at DEQ station 3-XIH000.06 at the end of Spring Street.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_XBE01A18 / Unnamed tributary to Mountain Run / Segment begins at the perennial headwaters and continues downstream to the confluence with Mountain Run.	5A	Polychlorinated biphenyls (PCBs)	2020	H	0.60
VAN-E09R_XIH01A18 / Unnamed tributary to Mountain Run / Segment begins at the perennial headwaters and continues downstream to the confluence with Mountain Run.	5A	Polychlorinated biphenyls (PCBs)	2020	H	1.12

Unnamed tributaries to Mountain Run

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.72

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-04-BAC** **Jonas Run**

Cause Location: Begins at the confluence with an unnamed tributary to Jonas Run (XDZ), at approximately rivermile 3.74, and continues downstream until the confluence with Mountain Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 7 samples - 42.9%) at DEQ station 3-JOA000.80 at Route 663 (Stevensburg Road).

A new TMDL is not required for this impaired segment of Jonas Run because the downstream Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_JOA01A06 / Jonas Run / Segment begins at the confluence with an unnamed tributary to Jonas Run (XDZ), at approximately rivermile 3.74, and continues downstream until the confluence with Mountain Run.	4A	Escherichia coli (E. coli)	2008	L	3.78

Jonas Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.78

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09R-04-BEN Flat Run**

Cause Location: Begins at the headwaters of Flat Run and continues downstream until the confluence with Mountain Run.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four monitoring events in 2019 and 2020 at station 3-FLA001.93 at Route 675 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_FLA01A08 / Flat Run / Segment begins at the headwaters of Flat Run and continues downstream until the confluence with Mountain Run.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	6.23

Flat Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			6.23

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E09R-05-BAC Flat Run**

Cause Location: Begins at the headwaters of Flat Run and continues downstream until the confluence with Mountain Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 7 samples - 42.9%) at DEQ station 3-FLA001.93 at Route 675.

A new TMDL is not required for this impaired segment of Flat Run because the downstream Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_FLA01A08 / Flat Run / Segment begins at the headwaters of Flat Run and continues downstream until the confluence with Mountain Run.	4A	Escherichia coli (E. coli)	2014	L	6.23

Flat Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.23

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E09R-06-BAC** **Unnamed tributary to Jonas Run**

Cause Location: Begins at the confluence with an unnamed tributary (downstream from Swan Dam) and continues downstream to the confluence with Jonas Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-XMO000.44 at Route 685: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of an unnamed tributary to Jonas Run because the downstream Mountain Run bacteria TMDL (Fed ID 24415, 04/27/2001) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0116).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E09R_XMO01A20 / Unnamed tributary to Jonas Run / Segment begins at the confluence with an unnamed tributary (downstream from Swan Dam) and continues downstream to the confluence with Jonas Run.	4A	Escherichia coli (E. coli)	2020	L	0.54

Unnamed tributary to Jonas Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.54

Sources: Grazing in Riparian or Shoreline Zones; Impervious Surface/Parking Lot Runoff; Livestock (Grazing or Feeding Operations); Manure Runoff; Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E10R-01-BAC Deep Run

Cause Location: Begins at the headwaters of Deep Run and continues downstream until the confluence with Pine Branch. Begins again at the confluence with Green Branch (at rivermile 4.75) and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fauquier County; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-DPR001.70 at Route 17: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-DPR008.98 at Route 634 (2018 Assessment): E. coli bacteria criterion excursions (2 of 11 samples - 18.2%).

The Deep Run bacteria TMDL (Eq ID POL0115) was approved by the EPA on 05/26/2004 (Fed ID 24417). The SWCB approved the TMDL on 08/31/2004. A bacteria TMDL Implementation Plan for the Deep Run watershed (ID 58) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E10R_DPR01A00 / Deep Run / Segment begins at the confluence with Green Branch, at rivermile 4.75, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	1996	L	4.93
VAN-E10R_DPR03A02 / Deep Run / Segment begins at the headwaters of Deep Run and continues downstream until the confluence with Pine Branch.	4A	Escherichia coli (E. coli)	2014	L	3.75

Deep Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.68

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E10R-01-BEN Sumerduck Run

Cause Location: Begins at the confluence with an unnamed tributary to Sumerduck Run, approximately 0.55 rivermile upstream of Route 632, and continues downstream until the confluence with another unnamed tributary, at Route 631.

Cause City/County: Fauquier County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2013 and 2014 at DEQ station 3-SMR004.81 at Route 632 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community (2020 Assessment).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E10R_SMR02A06 / Sumerduck Run / Segment begins at the confluence with an unnamed tributary to Sumerduck Run, approximately 0.55 rivermile upstream of Route 632, and continues downstream until the confluence with another unnamed tributary, at Route 631.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.86

Sumerduck Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.86

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E10R-03-BAC** **Alcotti Run**

Cause Location: Begins at the headwaters of Alcotti Run and continues downstream until the confluence with Deep Run.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 3-ALC002.74 at Route 614.

A new TMDL is not required for this impaired segment of Alcotti Run because the downstream Deep Run bacteria TMDL (Fed ID 24417, 05/26/2004) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0115). A bacteria TMDL Implementation Plan for the Deep Run watershed (ID 58) was approved by the EPA on 05/22/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E10R_ALC01A00 / Alcotti Run / Segment begins at the headwaters of Alcotti Run and continues downstream until the confluence with Deep Run.	4A	Escherichia coli (E. coli)	2012	L	5.17

Alcotti Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.17

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E10R-04-BAC Sumerduck Run

Cause Location: Begins at the confluence with an unnamed tributary to Sumerduck Run, approximately 0.55 rivermile upstream of Route 632, and continues downstream until the confluence with another unnamed tributary, at Route 631.

Cause City/County: Fauquier County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 3-SMR004.81 at Route 632 (Union Church Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E10R_SMR02A06 / Sumerduck Run / Segment begins at the confluence with an unnamed tributary to Sumerduck Run, approximately 0.55 rivermile upstream of Route 632, and continues downstream until the confluence with another unnamed tributary, at Route 631.	5A	Escherichia coli (E. coli)	2016	L	1.86

Sumerduck Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.86

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E11R-01-BAC** **Garth Run**

Cause Location: Begins at the headwaters of Garth Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-GAR000.95 at Route 718 (Wallace Gap Ln): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-GAR005.59 at Route 615 (Bluff Mountain Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Garth Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Garth Run watershed (ID 78) was approved by the EPA on 12/31/2015

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E11R_GAR01A02 / Garth Run / Segment begins at the Route 665 crossing, at approximately rivermile 1.9, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2014	L	1.61
VAN-E11R_GAR02A06 / Garth Run / Segment begins at the headwaters of Garth Run and continues downstream until the Route 665 crossing, at approximately rivermile 1.9. DGIF/DWR Class iii water.	4A	Escherichia coli (E. coli)	2018	L	5.82

Garth Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.43

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E11R-01-BEN** **Conway River**

Cause Location: Segment begins at the confluence with an unnamed tributary to the Conway River, approximately 0.6 rivermile upstream from Route 230, and continues downstream until the confluence with the Rapidan River.

Cause City/County: Greene County; Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: A total of three biological monitoring events in 2007 and 2008 at DEQ station 3-CON002.26 at Route 230 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E11R_CON01A04 / Conway River / Segment begins at the beginning of the PWS designation, and continues downstream until the confluence with the Rapidan River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.33
VAN-E11R_CON01B12 / Conway River / Segment begins at the confluence with an unnamed tributary to the Conway River, approximately 0.6 rivermile upstream from Route 230, and continues downstream until the start of the PWS designated area.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.67

Conway River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E11R-01-TEMP** **Garth Run**

Cause Location: Begins at the headwaters of Garth Run and continues downstream until the Route 665 crossing, at approximately rivermile 1.9.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Excursions greater than the maximum temperature criterion for natural trout waters (4 of 20 samples - 20.0%) at DEQ station 3-GAR005.59 at Route 615.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E11R_GAR02A06 / Garth Run / Segment begins at the headwaters of Garth Run and continues downstream until the Route 665 crossing, at approximately rivermile 1.9. DGIF/DWR Class iii water.	5A	Temperature	2018	L	5.82

Garth Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			5.82

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E12R-01-BAC** **Rapidan River**

Cause Location: Begins at the confluence with the Conway River and continues downstream until the confluence with Rippin Run.

Cause City/County: Greene County; Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RAP066.54 at Route 29 (Seminole Trail): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Rapidan River because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E12R_RAP01A00 / Rapidan River / Segment begins at the end of the public water supply designation area, approximately 0.43 rivermiles upstream from the Route 29 crossing, and continues downstream until the confluence with Rippin Run.	4A	Escherichia coli (E. coli)	2006	L	2.34
VAN-E12R_RAP01B06 / Rapidan River / Segment begins at the confluence with the Conway River and continues downstream until the end of the public water supply designation area, approximately 0.43 rivermiles upstream from the Route 29 crossing.	4A	Escherichia coli (E. coli)	2006	L	4.93

Rapidan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.27

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E12R-01-BEN** **Rippin Run**

Cause Location: Begins at the confluence with White Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Greene County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of two biological monitoring events in 2010 at DEQ station 3-RIP000.22 at Route 609 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E12R_RIP01A04 / Rippin Run / Segment begins at the confluence with White Run and continues downstream until the confluence with the Rapidan River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	0.6

Rippin Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.6

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E12R-02-BAC** **Rippin Run**

Cause Location: Begins at the confluence with White Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Greene County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RIP000.22 at Route 609 (Fredericksburg Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Rippin Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Rippin Run watershed (ID 72) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E12R_RIP01A04 / Rippin Run / Segment begins at the confluence with White Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2012	L	0.6

Rippin Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.6

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E12R-03-BAC** **South River**

Cause Location: Begins at the confluence with Henshaw Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Greene County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25%) at DEQ station 3-SOT001.00 at Route 619.

A new TMDL is not required for this impaired segment of South River because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Rapidan River #2 watershed (ID 73) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E12R_SOT01A04 / South River / Segment begins at the confluence with Henshaw Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2020	L	1.67

South River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.67

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E13R-01-BAC** **Blue Run**

Cause Location: Begins at the headwaters of Blue Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Albemarle County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-BLU000.80 at Route 641 (Liberty Mills Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-BLU002.60 at Route 20 (Constitution Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples. 2020 Assessment: E. coli bacteria criterion excursions (7 of 11 samples - 63.6%) at DEQ station 3-BLU008.33 at Route 33.

The Rapidan River Basin bacteria TMDL for the Blue Run watershed (Eq ID POL0494) was approved by the EPA on 12/05/2007 (Fed ID 33865). The SWCB approved the TMDL on 07/31/2008. The Upper Rapidan River bacteria TMDL Implementation Plan for the Blue Run watershed (ID 77) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_BLU01A00 / Blue Run / Segment begins at the beginning of the PWS designation and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2002	L	0.15
VAN-E13R_BLU01B12 / Blue Run / Segment begins at the confluence with Barbour Run, approximately 0.13 rivermile upstream of the Southern Rail Road bridge, and continues downstream until the start of the PWS designation.	4A	Escherichia coli (E. coli)	2002	L	4.20
VAN-E13R_BLU02A04 / Blue Run / Segment begins at the headwaters of Blue Run and continues downstream until the confluence with Barbour Run.	4A	Escherichia coli (E. coli)	2006	L	8.38

Blue Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.73

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E13R-01-BEN** **Beautiful Run**

Cause Location: Begins at an unnamed tributary at rivermile 3.44, and continues downstream to another unnamed tributary, upstream of Route 620.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: A total of two biological monitoring events in 2011 at DEQ station 3-BFL002.90 at Route 616 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_BFL02A12 / Beautiful Run / Segment begins at an unnamed tributary at rivermile 3.44, and continues downstream to another unnamed tributary, upstream of Route 620.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.51

Beautiful Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.51

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E13R-02-BAC** **Rapidan River**

Cause Location: Begins at the confluence with Poplar Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RAP045.08 at Route 15 (James Madison Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rapidan River Basin bacteria TMDL for the Upper Rapidan River watershed (Eq ID POL0496) was approved by the EPA on 12/05/2007 (Fed ID 33867). The SWCB approved the TMDL on 07/31/2008. The Upper Rapidan River bacteria TMDL Implementation Plan for the Rapidan River #1 watershed (ID 70) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_RAP01A00 / Rapidan River / Segment begins at the confluence with Poplar Run and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2002	L	7.64

Rapidan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.64

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E13R-03-BAC** **Unnamed tributary to Beautiful Run**

Cause Location: Begins at the perennial headwaters and continues downstream to the confluence with Beautiful Run.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: Excursions from the maximum E. coli bacteria criterion (3 of 5 samples - 60.0%) at DEQ station 3-XMM001.33 at Route 231.

A new TMDL is not required for this impaired segment of an unnamed tributary to Beautiful Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Beautiful Run watershed (ID 69) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_XMM01A20 / Unnamed tributary to Beautiful Run / Segment begins at the perennial headwaters and continues downstream to the confluence with Beautiful Run.	4A	Escherichia coli (E. coli)	2020	L	2.02

Unnamed tributary to Beautiful Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.02

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E13R-04-BAC** **Unnamed tributary to the Rapidan River**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream until the confluence with the Rapidan River.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ station 3-XEZ000.12 at Route 634.

The Rapidan River Basin bacteria TMDL for this Unnamed Tributary to the Rapidan River watershed (Eq ID POL0497) was approved by the EPA on 12/05/2007 (Fed ID 33866). The SWCB approved the TMDL on 07/31/2008. The Upper Rapidan River bacteria TMDL Implementation Plan for the Rapidan River #1 watershed (ID 76) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_XEZ01A04 / Unnamed tributary to Rapidan River / Segment begins at the headwaters of the unnamed tributary and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2004	L	2.68

Unnamed tributary to the Rapidan River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.68

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E13R-05-BAC** **Beautiful Run**

Cause Location: Begins at the headwaters and continues downstream until the confluence with the Rapidan River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 3-BFL006.28 at Route 621 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 3-BFL002.90 at Route 616 2020 Assessment: E. coli bacteria criterion excursions (8 of 11 samples - 72.7%) at DEQ station 3-BFL000.90 at Route 620.

A new TMDL is not required for this impaired segment of Beautiful Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Beautiful Run watershed (ID 69) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_BFL01A04 / Beautiful Run / Segment begins at the confluence of an unnamed tributary, upstream from Route 620, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2006	L	1.18
VAN-E13R_BFL02A12 / Beautiful Run / Segment begins at an unnamed tributary at rivermile 3.44, and continues downstream to another unnamed tributary, upstream of Route 620.	4A	Escherichia coli (E. coli)	2012	L	2.51
VAN-E13R_BFL03A16 / Beautiful Run / Segment begins at the headwaters of Beautiful Run and continues downstream to an unnamed tributary at rivermile 3.44.	4A	Escherichia coli (E. coli)	2016	L	8.46

Beautiful Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			12.15

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E13R-06-BAC** **Rapidan River**

Cause Location: Begins at the confluence with Marsh Run and continues downstream until the confluence with Blue Run.

Cause City/County: Madison County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (7 of 12 samples - 58.3%) at DEQ station 3-RAP055.84 at Route 231.

A new TMDL is not required for this impaired segment of Rapidan River because the downstream Rapidan River Basin TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Rapidan River #2 watershed (ID 73) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_RAP02A06 / Rapidan River / Segment begins at the beginning of the PWS designation. and continues downstream until the confluence with Blue Run.	4A	Escherichia coli (E. coli)	2006	L	0.15
VAN-E13R_RAP02B12 / Rapidan River / Segment begins at the confluence with Marsh Run and continues downstream until the start of the PWS designation.	4A	Escherichia coli (E. coli)	2006	L	4.19

Rapidan River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.34

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E13R-07-BAC** **Unnamed tributary to Rapidan River**

Cause Location: Begins at the headwaters of the unnamed tributary and continues downstream until the confluence with the Rapidan River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (8 of 12 samples - 66.7%) at DEQ station 3-XBO000.26 at Route 621.

A new TMDL is not required for this impaired segment of the unnamed tributary to the Rapidan River because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the UT to Rapidan River #2 watershed (ID 75) was approved by the EPA on 12/31/2015

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_XBO01A04 / Unnamed tributary to Rapidan River / Segment begins at the headwaters of the unnamed tributary and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2006	L	3.12

Unnamed tributary to Rapidan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.12

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E13R-08-BAC** Marsh Run

Cause Location: Begins at the headwaters of Marsh Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Greene County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MAS000.62 at Route 609: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rapidan River Basin bacteria TMDL for the Marsh Run watershed (Eq ID POL0495) was approved by the EPA on 12/05/2007 (Fed ID 33864). The SWCB approved the TMDL on 07/31/2008. The Upper Rapidan River bacteria TMDL Implementation Plan for the Marsh Run watershed (ID 74) was approved by the EPA on 12/31/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_MAS01A04 / Marsh Run / Segment begins at the headwaters of Marsh Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2014	L	5.65

Marsh Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.65

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E13R-09-BAC** **Poplar Run**

Cause Location: Begins at the headwaters of Poplar Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-POL000.10 at Route 633 (Amicus Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Poplar Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33867, 12/05/2007) included modeling, source identification, and reductions that covered the entire Upper Rapidan River watershed (Eq ID POL0496). The Upper Rapidan River bacteria TMDL Implementation Plan for the Poplar Run watershed (ID 71) was approved by the EPA on 12/31/2015

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E13R_POL01A04 / Poplar Run / Segment begins at the headwaters of Poplar Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2014	L	4.15

Poplar Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.15

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E14R-01-BEN** **White Oak Run**

Cause Location: Begins approximately 0.4 rivermile upstream from the Route 657 crossing, and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of one biological monitoring event in 2015 at DEQ station 3-WHO001.48 at Route 231 and a total of two biological monitoring events in 2016 at DEQ station 3-WHO001.51 (just upstream from Route 231) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_WHO01A06 / White Oak Run / Segment begins approximately 0.4 rivermile upstream from the Route 657 crossing, and continues downstream until the confluence with the Robinson River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.19

White Oak Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.19

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E14R-01-TEMP** **Robinson River**

Cause Location: Begins at the confluence with the Rose River, just downstream of Route 670, and continues downstream until the crossing of Route 231, rivermile 21.58.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: 2018 Assessment: Exceedances of the maximum temperature criterion for stockable trout waters (4 of 10 samples - 40.0%) at DEQ station 3-ROB024.06 at Route 649.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_ROB01C00 / Robinson River / Segment begins at the confluence with the Rose River, just downstream of Route 670, and continues downstream until the old crossing of Route 231, rivermile 21.58.	5A	Temperature	2004	L	3.01

Robinson River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			3.01

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E14R-02-BAC** **Finks Run**

Cause Location: Begins at the headwaters of Finks Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 11 samples - 27.3%) at DEQ station 3-FIK001.08 at Route 650.

A new TMDL is not required for this impaired segment of Finks Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 40412, 12/12/2005) included modeling, source identification, and reductions that covered the entire Upper Robinson River watershed (Eq ID POL0245). The Little Dark Run and Robinson River bacteria TMDL Implementation Plan for the Upper Robinson River watershed (ID 14) was approved by the EPA on 05/31/2011

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_FIK01A06 / Finks Run / Segment begins at the headwaters of Finks Run and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2006	L	3.17

Finks Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.17

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E14R-02-TEMP** **Rose River**

Cause Location: Begins at rivermile 2.6, approximately 0.36 rivermile downstream from the confluence with Strother Run, and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Excursions greater than the maximum temperature criterion for stockable trout waters (2 of 12 samples - 16.7%) at DEQ station 3-ROE000.75 at a private road.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_ROE01A02 / Rose River / Segment starts at rivermile 2.6, approximately 0.36 rivermile downstream from the confluence with Strother Run, and continues downstream until the confluence with the Robinson River.	5A	Temperature	2006	L	2.58

Rose River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			2.58

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E14R-03-BAC** **White Oak Run**

Cause Location: Begins approximately 0.4 rivermile upstream from the Route 657 crossing, and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-WHO001.48 at Route 231 (Blue Ridge Turnpike): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of White Oak Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_WHO01A06 / White Oak Run / Segment begins approximately 0.4 rivermile upstream from the Route 657 crossing, and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2006	L	3.19

White Oak Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.19

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E14R-04-BAC** **Leathers Run**

Cause Location: Begins at the confluence with an unnamed tributary to Leathers Run, approximately 0.65 rivermile downstream from the Route 641 crossing, and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-LEA000.17 at Route 609 (W Hoover Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Leathers Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E14R_LEA01A06 / Leathers Run / Segment begins at the confluence with an unnamed tributary to Leathers Run, approximately 0.65 rivermile downstream from the Route 641 crossing, and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2006	L	2.18

Leathers Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.18

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-01-BAC** Little Dark Run

Cause Location: Begins at the headwaters of Little Dark Run and continues downstream until the confluence with Dark Run.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-LDR000.70 at Route 680 (Gate Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Robinson River and Little Dark Run bacteria TMDL for the Little Dark Run watershed (Eq ID POL0244) was approved by the EPA on 12/12/2005 (Fed ID 24418). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Little Dark Run watershed (ID 15) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_LDR01A00 / Little Dark Run / Segment begins at the confluence with an unnamed tributary to Little Dark Run, at rivermile 2.17, and continues downstream until the confluence with Dark Run.	4A	Escherichia coli (E. coli)	1998	L	2.11
VAN-E15R_LDR02A02 / Little Dark Run / Segment begins at the headwaters of Little Dark Run and continues downstream until the confluence with an unnamed tributary to Little Dark Run, at rivermile 2.17.	4A	Escherichia coli (E. coli)	2008	L	2.43

Little Dark Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.54

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-02-BAC** **Robinson River**

Cause Location: Begins at the confluence with Deep Run and continues downstream to the confluence with Beaverdam Run. Begins again at the confluence with Crooked Run, and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County; Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-ROB001.90 at Route 614 (Locust Dale Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-ROB009.93 at Route 632 (Beahm Town Rd.): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Robinson River and Little Dark Run bacteria TMDL for the Lower Robinson River watershed (Eq ID POL0243) was approved by the EPA on 12/12/2005 (Fed ID 24419). The SWCB approved the TMDL on 07/31/2008. A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the U.S. EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_ROB01A00 / Robinson River / Segment begins at the confluence with Crooked Run, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2004	L	5.32
VAN-E15R_ROB02B18 / Robinson River / Segment begins at the confluence with Deep Run and continues downstream to the confluence with Beaverdam Run.	4A	Escherichia coli (E. coli)	2022	L	8.83

Robinson River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.15

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-02-BEN** **Deep Run**

Cause Location: Begins at the confluence with Muddy Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 3-DRN001.81 at Route 638 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_DRN01A04 / Deep Run / Segment begins at the confluence with Muddy Run and continues downstream until the confluence with the Robinson River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.48

Deep Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.48

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E15R-03-BAC** **Deep Run**

Cause Location: Begins at the confluence with Muddy Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-DRN001.81 at Route 638 (Hebron Church Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Deep Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_DRN01A04 / Deep Run / Segment begins at the confluence with Muddy Run and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2008	L	2.48

Deep Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.48

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-03-BEN** **Great Run**

Cause Location: Begins at the headwaters of Great Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2016 at DEQ station 3-GRA002.01 at Route 15 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_GRA01A04 / Great Run / Segment begins at the headwaters of Great Run and continues downstream until the confluence with the Robinson River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	9.31

Great Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.31

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E15R-04-BAC** **Crooked Run**

Cause Location: Begins at the confluence with Little Crooked Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Culpeper County; Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (5 of 12 samples - 41.7%) at DEQ station 3-COO005.66 at Route 618.

A new TMDL is not required for this impaired segment of Crooked Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_COO01A04 / Crooked Run / Segment begins at the confluence with Little Crooked Run and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2008	L	7.89

Crooked Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.89

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-04-BEN** **Little Dark Run**

Cause Location: Begins at the headwaters of Little Dark Run and continues downstream until the confluence with Dark Run.

Cause City/County: Madison County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of three biological monitoring events in 2017 and 2019 at DEQ station 3-LDR000.70 at Route 680 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_LDR01A00 / Little Dark Run / Segment begins at the confluence with an unnamed tributary to Little Dark Run, at rivermile 2.17, and continues downstream until the confluence with Dark Run.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.11
VAN-E15R_LDR02A02 / Little Dark Run / Segment begins at the headwaters of Little Dark Run and continues downstream until the confluence with an unnamed tributary to Little Dark Run, at rivermile 2.17.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.43

Little Dark Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.54

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E15R-05-BAC** **Great Run**

Cause Location: Begins at the headwaters of Great Run and continues downstream until the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-GRA002.01 at Route 15 (James Madison Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Great Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_GRA01A04 / Great Run / Segment begins at the headwaters of Great Run and continues downstream until the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2008	L	9.31

Great Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.31

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E15R-06-BAC** **Dark Run**

Cause Location: Begins at the headwaters of Dark Run and continues to the confluence with the Robinson River.

Cause City/County: Madison County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-DAK001.18 at Route 634 (Oak Park Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Dark Run because the downstream Robinson River and Little Dark Run bacteria TMDL (Fed ID 24419, 12/12/2005) included modeling, source identification, and reductions that covered the entire Lower Robinson River watershed (Eq ID POL0243). A bacteria TMDL Implementation Plan for the Lower Robinson River watershed (ID 119) was approved by the EPA on 05/31/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E15R_DAK01A10 / Dark Run / Segment begins at the headwaters of Dark Run and continues to the confluence with the Robinson River.	4A	Escherichia coli (E. coli)	2010	L	8.59

Dark Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.59

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E16R-01-BAC** Cedar Run

Cause Location: Begins at the confluence with Cabin Branch and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-CED000.59 at Route 522 (Zachary Taylor Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-CED003.52 at Route 652 (Mitchell Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rapidan River Basin bacteria TMDL for the Cedar Run watershed (Eq ID POL0493) was approved by the EPA on 12/05/2007 (Fed ID 33868). The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E16R_CED01A00 / Cedar Run / Segment begins at the confluence with Cabin Branch and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2018	L	2.26
VAN-E16R_CED02A04 / Cedar Run / Segment begins at the confluence with Buck Run and continues downstream until the confluence with Cabin Branch.	4A	Escherichia coli (E. coli)	2006	L	3.54

Cedar Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.8

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E16R-01-BEN** Cedar Run

Cause Location: Begins at the confluence with Cabin Branch and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of one biological monitoring event in 2016 at DEQ station 3-CED000.59 at Route 522 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E16R_CED01A00 / Cedar Run / Segment begins at the confluence with Cabin Branch and continues downstream until the confluence with the Rapidan River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.26

Cedar Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.26

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E16R-02-BAC** **Rapidan River**

Cause Location: Begins at the confluence with an unnamed tributary to the Rapidan River, at rivermile 34.5, approximately 0.6 rivermile downstream from Route 689, and continues downstream until the confluence with Cedar Run.

Cause City/County: Culpeper County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ/USGS station 3-RAP030.21 at Route 522 (Zachary Taylor Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of the Rapidan River because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E16R_RAP01A04 / Rapidan River / Segment begins at the confluence with an unnamed tributary to the Rapidan River, at rivermile 34.5, approximately 0.6 rivermile downstream from Route 689, and continues downstream until the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2006	L	4.66

Rapidan River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.66

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E16R-03-BAC** **Rapidan River**

Cause Location: Begins at the confluence with the Robinson River and continues downstream until the confluence with an unnamed tributary to the Rapidan River, at rivermile 36.6.

Cause City/County: Culpeper County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 3-RAP037.90 at Route 615.

A new TMDL is not required for this impaired segment of the Rapidan River because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E16R_RAP03A08 / Rapidan River / Segment begins at the confluence with the Robinson River and continues downstream until the confluence with an unnamed tributary to the Rapidan River, at rivermile 36.6.	4A	Escherichia coli (E. coli)	2008	L	3.4

Rapidan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.4

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E16R-04-BAC** **Cabin Branch**

Cause Location: Begins at the perennial headwaters of Cabin Branch and continues downstream to the confluence with Cedar Run.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-CAB000.22 at Route 655 (Summerville Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-CAB002.23 at Route 615 (Rapidan Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Cabin Branch because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33868, 12/05/2007) included modeling, source identification, and reductions that covered the entire Cedar Run watershed (Eq ID POL0493).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E16R_CAB01A22 / Cabin Branch / Segment begins at the perennial headwaters of Cabin Branch and continues downstream to the confluence with Cedar Run.	4A	Escherichia coli (E. coli)	2022	L	3.19

Cabin Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.19

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E17R-01-BAC** **Mine Run**

Cause Location: Begins at the confluence with Cormack Run, approximately 0.6 rivermile upstream of Route 20, and continues downstream until the confluence with the Rapidan River.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ station 3-MIR004.05 at Route 611.

The Mountain Run and Mine Run bacteria TMDL for the Mine Run watershed (Eq ID POL0242) was approved by the EPA on 11/15/2005 (Fed ID 24420). The SWCB approved the TMDL on 09/27/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_MIR01A00 / Mine Run / Segment begins at the confluence with Cormack Run, approximately 0.6 rivermile upstream of Route 20, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2002	L	10.5

Mine Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.5

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E17R-01-BEN** **Brook Run**

Cause Location: Begins at the confluence with an unnamed tributary to Brook Run, at Route 647, and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring event in 2018 at DEQ station 3-BRK002.64 at Route 647 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_BRK01A04 / Brook Run / Segment begins at the confluence with an unnamed tributary to Brook Run. at Route 647, and continues downstream until the confluence with the Rapidan River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.51

Brook Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.51

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E17R-02-BAC Mountain Run**

Cause Location: Begins at the headwaters of Mountain Run and continues downstream until the confluence with Mine Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MTR003.51 at Route 611 (Raccoon Ford Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MTR008.31 at Route 621 (Pine Stake Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MTR010.60 at Route 666 (Hawfield Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mountain Run and Mine Run bacteria TMDL for the Mountain Run watershed (Eq ID POL0241) was approved by the EPA on 11/15/2005 (Fed ID 24421). The SWCB approved the TMDL on 09/27/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_MTR01A00 / Mountain Run / Segment begins at the confluence with Mill Run, approximately 0.25 rivermile downstream of Route 617, and continues downstream until the confluence with Mine Run.	4A	Escherichia coli (E. coli)	2002	L	10.11
VAN-E17R_MTR02A02 / Mountain Run / Segment begins at the headwaters of Mountain Run and continues downstream until the confluence with Mill Run.	4A	Escherichia coli (E. coli)	2006	L	7.46

Mountain Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.57

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E17R-02-BEN Mountain Run

Cause Location: Begins at the confluence with Mill Run, approximately 0.25 rivermile downstream of Route 617, and continues downstream until the confluence with Mine Run.

Cause City/County: Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2016 and 2017 at DEQ station 3-MTR003.51 at Route 611 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_MTR01A00 / Mountain Run / Segment begins at the confluence with Mill Run, approximately 0.25 rivermile downstream of Route 617, and continues downstream until the confluence with Mine Run.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	10.11

Mountain Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.11

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E17R-03-BAC** **Black Walnut Run**

Cause Location: Begins at the Route 621 crossing and continues downstream until the confluence with Mine Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-BWR004.13 at Route 602 (Old Office Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Black Walnut Run because the downstream Mountain Run and Mine Run bacteria TMDL (Fed ID 24420, 11/15/2005) included modeling, source identification, and reductions that covered the entire Mine Run watershed (Eq ID POL0242).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_BWR01A06 / Black Walnut Run / Segment begins at the Route 621 crossing and continues downstream until the confluence with Mine Run.	4A	Escherichia coli (E. coli)	2006	L	6.48

Black Walnut Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.48

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E17R-04-BAC** **Sumerduck Run**

Cause Location: Begins at the confluence with Dry Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (7 of 10 samples - 70.0%) at DEQ station 3-SUM002.40 at Route 647 (Twin Mountain Road).

A new TMDL is not required for this impaired segment of Sumerduck Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_SUM01A04 / Sumerduck Run / Segment begins at the confluence with Dry Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2014	L	6.21

Sumerduck Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.21

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E17R-05-BAC** **Potato Run**

Cause Location: Begins at the headwaters of Potato Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 8 samples - 50.0%) at DEQ station 3-POT001.06 at Route 647 (Twin Mountain Road).

A new TMDL is not required for this impaired segment of Potato Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_POT01A14 / Potato Run / Segment begins at the headwaters of Potato Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2014	L	6.84

Potato Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.84

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E17R-06-BAC** **Brook Run**

Cause Location: Begins at the confluence with an unnamed tributary to Brook Run. at Route 647, and continues downstream until the confluence with the Rapidan River

Cause City/County: Culpeper County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-BRK002.64 at Route 647 (Batna Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Brook Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E17R_BRK01A04 / Brook Run / Segment begins at the confluence with an unnamed tributary to Brook Run. at Route 647, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2018	L	2.51

Brook Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.51

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E18R-01-BAC** **Rapidan River**

Cause Location: Begins at the confluence with Wilderness Run, rivermile 7.78, and continues downstream until the confluence with Middle Run.

Cause City/County: Culpeper County; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RAP006.53 at Route 610 (Eleys Ford Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rapidan River Basin bacteria TMDL (Fed ID 33869) for the Lower Rapidan River watershed (Eq ID POL0492) was approved by the EPA on 12/05/2007. The SWCB approved the TMDL on 07/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E18R_RAP03A02 / Rapidan River / Segment begins at the confluence with Wilderness Run, rivermile 7.78, and continues downstream until the confluence with Middle Run.	4A	Escherichia coli (E. coli)	2006	L	2.59

Rapidan River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.59

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E18R-01-HG** **Rapidan River**

Cause Location: Begins at the confluence with Flat Run and continues downstream to the confluence with the Rappahannock River.

Cause City/County: Culpeper County; Orange County; Spotsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded in three species of fish (American eel, rock bass, smallmouth bass) collected in 2006 and in one species of fish (largemouth bass) collected in 2018 at DEQ station 3-RAP006.53.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E18R_RAP01A02 / Rapidan River / Segment begins at the confluence with Hunting Run, at rivermile 1.35, and continues downstream until the confluence with the Rappahannock River.	5A	Mercury in Fish Tissue	2010	L	1.24
VAN-E18R_RAP02A02 / Rapidan River / Segment begins at the confluence with Middle Run, rivermile 5.10, and continues downstream until the confluence with Hunting Run.	5A	Mercury in Fish Tissue	2010	L	3.64
VAN-E18R_RAP03A02 / Rapidan River / Segment begins at the confluence with Wilderness Run, rivermile 7.78, and continues downstream until the confluence with Middle Run.	5A	Mercury in Fish Tissue	2010	L	2.59
VAN-E18R_RAP04A04 / Rapidan River / Segment begins at the confluence with Flat Run and continues downstream until the confluence with Wilderness Run.	5A	Mercury in Fish Tissue	2010	L	2.34

Rapidan River

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			9.81

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E18R-02-BAC** **Wilderness Run**

Cause Location: Begins at the confluence of North Wilderness Run and South Wilderness Run and continues downstream until the confluence with the Rapidan River.

Cause City/County: Orange County; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (7 of 11 samples - 63.6%) at DEQ station 3-WIL004.00 at Route 3.

A new TMDL is not required for this impaired segment of Wilderness Run because the downstream Rapidan River Basin bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E18R_WIL01A08 / Wilderness Run / Segment begins at the confluence of North Wilderness Run and South Wilderness Run and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli (E. coli)	2008	L	5.56

Wilderness Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.56

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E18R-03-BAC** **Rapidan River**

Cause Location: Begins at the boundary of the public water supply area, approximately 1.21 rivermiles upstream from the Route 3 crossing, and continues downstream until the confluence with Lick Branch.

Cause City/County: Culpeper County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (8 of 24 samples - 33.3%) at DEQ station 3-RAP014.45 at Route 3.

A new TMDL is not required for this impaired segment of the Rapidan River because the downstream Rapidan River bacteria TMDL (Fed ID 33869, 12/05/2007) included modeling, source identification, and reductions that covered the entire Lower Rapidan River watershed (Eq ID POL0492).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E18R_RAP05A08 / Rapidan River / Segment begins at the boundary of the public water supply area, approximately 1.17 rivermiles upstream from the Route 3 crossing, and continues downstream to the confluence with Lick Branch.	4A	Escherichia coli (E. coli)	2008	L	3.41

Rapidan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.41

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E19L-01-HG Motts Run Reservoir

Cause Location: Includes the entirety of Motts Run Reservoir.

Cause City/County: Spotsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health mercury (Hg) fish consumption advisory. The advisory, dated 8/31/07, limits consumption of largemouth bass to no more than two meals per month. The affected area includes the entirety of Motts Run Reservoir.

There were also five total exceedances of the water quality criterion-based tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue from two species of fish (largemouth bass and bluegill sunfish) sampled in 2017 at DEQ station 3-MOT000.39 and previous exceedances in six total samples of one species of fish (largemouth bass) sampled in 2006 at DEQ station 3-MOT000.39.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E19L_MOT01A02 / Motts Run Reservoir / Segment includes the lower half of Motts Run Reservoir; beginning at rivermile 0.8 and continuing downstream until the lake's discharge.	5A	Mercury in Fish Tissue	2008	L	62.89
VAN-E19L_MOT02A02 / Motts Run Reservoir / Segment includes the upper half of Motts Run Reservoir; beginning at the upper end of the reservoir and continuing downstream until rivermile 0.8.	5A	Mercury in Fish Tissue	2008	L	74.29

Motts Run Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	137.18	

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E19R-01-BAC** **Horsepen Run**

Cause Location: Begins at headwaters of Horsepen Run and continues downstream to the confluence with the Rappahannock River.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 3-HOR000.50 at Route 655 (Holly Corner Road).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E19R_HOR01A04 / Horsepen Run / Segment begins at headwaters of Horsepen Run and continues downstream to the confluence with the Rappahannock River.	5A	Escherichia coli (E. coli)	2014	L	5.71

Horsepen Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.71

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E19R-02-BAC** **Mine Run**

Cause Location: Begins at the headwaters of Mine Run and continues downstream to the upper end of the Motts Run Reservoir.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (6 of 12 samples - 50.0%) at DEQ station 3-MIN002.14 at Route 620 (Spotswood Furnace Road).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E19R_MIN02A14 / Mine Run / Segment begins at the headwaters of Mine Run and continues downstream to the upper end of the Motts Run Reservoir.	5A	Escherichia coli (E. coli)	2014	L	4.01

Mine Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.01

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: E20E-01-BAC Rappahannock River

Cause Location: Begins at the fall line at Route 1 and continues downstream until the confluence with Massaponax Creek.

Cause City/County: Caroline County; Fredericksburg; King George County; Spotsylvania County; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP080.19 at 100 yards downstream from 301 bridge at Port Royal: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-RPP091.55 near Hop Yard Bar: There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-RPP098.81 (near Hayfield Bar): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-RPP106.01 (upstream from the Fredericksburg Country Club): There were two or more STV exceedances in at least one 90-day period with <10 samples.

DEQ station 3-RPP110.57 at Route 1: The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples; additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

The Tidal Rappahannock River Watershed bacteria TMDL (Eq ID POL0569) was approved by the EPA on 05/05/2008 (Fed ID 34369). The SWCB approved the TMDL on 04/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20E_RPP01A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the outlet of waterbody VAN-E20E. This segment represents the upper reach of VAN-E21E_RPP05A02. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2006	L	0.188
VAN-E20E_RPP02A02 / Rappahannock River / Segment begins at the confluence with Deep Run and continues downstream until the confluence with Massaponax Creek. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2002	L	0.231
VAN-E20E_RPP03A02 / Rappahannock River / Segment begins at the fall line at Route 1 and continues downstream until the confluence with Deep Run. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2002	L	0.195
VAN-E21E_RPP03A02 / Rappahannock River / Segment begins at the confluence with Mount Creek and continues downstream until the confluence with Mill Creek. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2006	L	1.366
VAN-E21E_RPP04A02 / Rappahannock River / Segment begins at the confluence with Ware Creek and continues downstream until the confluence with Mount Creek. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2006	L	1.206
VAN-E21E_RPP05A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the confluence with Ware Creek. The upper reach of this segment (approx. 0.3 sq mi) extends into waterbody VAN-E20E. Portion of CBP segment RPPTF.	4A	Escherichia coli (E. coli)	2006	L	0.579

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Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	3.765		

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E20E-03-PCB Rappahannock River

Cause Location: Extends from the I-95 bridge above Fredericksburg downstream to the mouth of the river near Stingray Point, including its tributaries Hazel Run up to the I-95 bridge crossing and Claiborne Run up to the Route 1 bridge crossing.

Cause City/County: Caroline County; Essex County; Fredericksburg; King George County; Lancaster County; Middlesex County; Richmond County; Spotsylvania County; Stafford County; Westmoreland County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel, blue catfish, carp, channel catfish, croaker, gizzard shad, and anadromous (coastal) striped bass consumption to no more than two meals per month.

The following exceedances of the water quality criterion based tissue value (TV) of 18 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded: two exceedances in two samples of American eel collected during the same sample event in 2016 at DEQ station 3-HAL000.57 on Hazel Run; two exceedances in two samples of American eel collected during the same sample event in 2016 at DEQ station 3-HAL000.57 on Claiborne Run; three exceedances in three species (blue catfish, carp, and gizzard shad) collected in 2016 and two exceedances in two species (blue catfish and gizzard shad) collected in 2018 at DEQ station 3-RPP080.19 on Rappahannock River; four exceedances in three species (blue catfish, largemouth bass, and gizzard shad) collected in 2018 at DEQ station 3-RPP091.55 on Rappahannock River; and four exceedances in three species (blue catfish, carp, and gizzard shad) collected in 2016 and three exceedances in three species (blue catfish, carp, and gizzard shad) collected in 2018 at DEQ station 3-RPP107.33 on Rappahannock River.

In addition, during 2018 sampling, there were exceedances in three species at 3-RPP070.00 and two species at 3-RPP042.12.

There was a previous exceedance at 3-RPP056.20; however, re-sampling in 2018 was acceptable. In addition, 2018 sampling at 3-RPP029.40 and 3-RPP008.42, as well as 2020 sampling at 3-RPP001.36 were all acceptable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E19R_RPP01A18 / Rappahannock River / Segment begins at the I-95 bridge and continues downstream to the E19/E20 watershed boundary (at the downstream reach of the PWS designation).	5A	PCBs in Fish Tissue	2004	L	0.660
VAN-E20E_RPP01A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the outlet of waterbody VAN-E20E. This segment represents the upper reach of VAN-E21E_RPP05A02. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	0.188
VAN-E20E_RPP02A02 / Rappahannock River / Segment begins at the confluence with Deep Run and continues downstream until the confluence with Massaponax Creek. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	0.231
VAN-E20E_RPP03A02 / Rappahannock River / Segment begins at the fall line at Route 1 and continues downstream until the confluence with Deep Run. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	0.195

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_CLB01A00 / Claiborne Run / Segment begins at the Route 1 crossing of Claiborne Run and continues downstream until the confluence with the Rappahannock River.	5A	PCBs in Fish Tissue	2006	L	4.520
VAN-E20R_HAL01A00 / Hazel Run / Segment begins at the Route 95 crossing and continues downstream until the confluence with the Rappahannock River.	5A	PCBs in Fish Tissue	2006	L	4.730
VAN-E20R_RPP01A10 / Rappahannock River / Segment begins at the E19/E20 watershed boundary, and extends downstream to the end of the free flowing waters of the Rappahannock River, at the Route 1/Cambridge Street/Falmouth Bridge.	5A	PCBs in Fish Tissue	2004	L	2.660
VAN-E21E_RPP01A02 / Rappahannock River / Segment begins at the confluence with Mill Creek, at rivermile 78.94, and continues downstream until immediately upstream of Devils Elbow, at rivermile 70.52. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2006	L	4.547
VAN-E21E_RPP03A02 / Rappahannock River / Segment begins at the confluence with Mount Creek and continues downstream until the confluence with Mill Creek. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	1.366
VAN-E21E_RPP04A02 / Rappahannock River / Segment begins at the confluence with Ware Creek and continues downstream until the confluence with Mount Creek. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	1.206
VAN-E21E_RPP05A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the confluence with Ware Creek. The upper reach of this segment (approx. 0.3 sq mi) extends into waterbody VAN-E20E. Portion of CBP segment RPPTF.	5A	PCBs in Fish Tissue	2004	L	0.579
VAP-E22E_RPP01A02 / Rappahannock River / The Rappahannock River from Devils Elbow at Toby Point and Green Bay (river mile 70.52) downstream to the tidal freshwater/oligohaline boundary at river mile 57.85. RPPTF	5A	PCBs in Fish Tissue	2006	L	5.133
VAP-E22E_RPP02A02 / Rappahannock River / The Rappahannock River from the tidal freshwater/oligohaline boundary downstream to river mile 56.21. RPPOH	5A	PCBs in Fish Tissue	2006	L	1.344
VAP-E22E_RPP02B16 / Rappahannock River / The Rappahannock River from rivermile 56.21 downstream to river mile 51.04. RPPOH	5A	PCBs in Fish Tissue	2006	L	2.003

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP03A02 / Rappahannock River / The Rappahannock River from river mile 51.04 to river mile 49.04. RPPOH	5A	PCBs in Fish Tissue	2006	L	2.012
VAP-E22E_RPP04A02 / Rappahannock River / The Rappahannock River from river mile 49.04 downstream to the oligohaline/mesohaline boundary at approximately river mile 48.51. RPPOH	5A	PCBs in Fish Tissue	2006	L	0.942
VAP-E22E_RPP05A02 / Rappahannock River / The oligohaline/mesohaline boundary at river mile 48.51 to the downstream boundary of VDH shellfish condemnation area 025A-068B, 4/15/2020 RPPMH	5A	PCBs in Fish Tissue	2006	L	6.958
VAP-E23E_RPP02A98 / Rappahannock River / Mainstem Rappahannock as described in VDH shellfish condemnation 025A-068A, 4/15/2020 excluding administratively condemned portion. Expanded in the 2022 cycle. RPPMH	5A	PCBs in Fish Tissue	2006	L	8.123
VAP-E23E_RPP02B10 / Rappahannock River / Portion of mainstem Rappahannock River that is administratively condemned within condemnation 025A-068A, 4/15/2020. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.158
VAP-E23E_RPP02C12 / Rappahannock River / Portion of VDH shellfish condemnation 025A-068A, 11/14/2005 not included in 025A-068A, 4/15/2020. Size reduced in the 2022 cycle. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.388
VAP-E24E_RPP01B14 / Garrett's Marina / As delineated in VDH shellfish condemnation 026-181A, 4/15/2020. RPPMH	5A	PCBs in Fish Tissue	2008	L	0.003
VAP-E24E_RPP01B98 / Rappahannock River: Garrett's Marina / As delineated in VDH shellfish condemnation 026-181M1, 4/15/2020. RPPMH	5A	PCBs in Fish Tissue	2008	L	0.025
VAP-E24E_RPP01C06 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 3/16/2007 (non-admin) that is currently open Shrank in the 2022 cycle. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.528
VAP-E24E_RPP01D10 / Rappahannock River / The portion of the Rappahannock River within the administratively closed area of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	5A	PCBs in Fish Tissue	2006	L	0.137

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_RPP01E18 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 4/15/2020 (non-admin) Expanded in the 2022 cycle. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.177
VAP-E24E_RPP03A00 / Rappahannock River / The Rappahannock River from the limit of VDH shellfish condemnation 068A, 11/14/2005 downstream to end of MSN (Sharps/0.7 mi DS of Mark Haven Beach) unless otherwise segmented RPPMH	5A	PCBs in Fish Tissue	2006	L	10.919
VAP-E25E_RPP01C10 / Rappahannock River: Mark Haven Beach Basin / The portion of VDH shellfish condemnation 026-181B, 1/20/2006 not administratively closed. RPPMH	5A	PCBs in Fish Tissue	2008	L	0.010
VAP-E25E_RPP01C98 / Mark Haven Beach Basin / As delineated in VDH shellfish condemnation 026-181A, 4/3/2012. RPPMH	5A	PCBs in Fish Tissue	2008	L	0.004
VAP-E25E_RPP02A02 / Rappahannock River / The mainstem of the Rappahannock River from the end of MSN (Sharps/0.7 mi DS of Mark Haven Beach to the mouth, excluding area in SFC 051A. Merged in the 2022 cycle. RPPMH	5A	PCBs in Fish Tissue	2006	L	81.272
VAP-E25E_RPP03A06 / Rappahannock River / Described in VDH Shellfish Condemnation 024-070B, 1/7/2019. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.008
VAP-E25E_RPP03B16 / Rappahannock River / As described in VDH shellfish condemnation 026-181M2, 4/15/2020 RPPMH	5A	PCBs in Fish Tissue	2006	L	0.003
VAP-E26E_RPP02A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051A, 10/3/2005. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.127
VAP-E26E_RPP03A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051D, 10/3/2005. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.031
VAP-E26E_RPP04A00 / Rappahannock River / Described in VDH Shellfish Condemnation 030-051B, 9/1/2015. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.131
VAP-E26E_RPP05A00 / Rappahannock River / Delineated in VDH-DSS condemnation 030-051C, 9/1/2015. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.049

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_RPP07A02 / Rappahannock River / As delineated in VDH-DSS SFC 018-053A, 7/23/2018 RPPMH	5A	PCBs in Fish Tissue	2002	L	0.139
VAP-E26E_RPP08A22 / Rappahannock River / Portion of VDH-DSS Condemnation 032-109A, 9/15/2019 that is within the mainstem Rappahannock River. RPPMH	5A	PCBs in Fish Tissue	2006	L	0.012

Rappahannock River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	128.947		12.57

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E20R-01-BAC** **Claiborne Run**

Cause Location: Begins at the Route 1 crossing of Claiborne Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 3-CLB000.50 at Naomi Road.

A new TMDL is not required for this impaired segment of Claiborne Run because the downstream bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire tidal freshwater Rappahannock River watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_CLB01A00 / Claiborne Run / Segment begins at the Route 1 crossing of Claiborne Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2004	L	4.52

Claiborne Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.52

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E20R-01-BEN Falls Run

Cause Location: Begins at the headwaters of Falls Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of two biological monitoring events in 2009 at DEQ station 3-FAL000.13 at Washington Street resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_FAL01A04 / Falls Run / Segment begins at the headwaters of Falls Run and continues downstream until the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	7.36

Falls Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.36

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E20R-02-BAC** **Hazel Run**

Cause Location: Begins at the Route 95 crossing and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fredericksburg; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 3-HAL001.44 at Route 1 Business (Lafayette Boulevard).

A new TMDL is not required for this impaired segment of Hazel Run because the downstream Tidal freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_HAL01A00 / Hazel Run / Segment begins at the Route 95 crossing and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2004	L	4.73

Hazel Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.73

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-02-BEN Hazel Run**

Cause Location: Begins at the Route 95 crossing and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Fredericksburg; Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of two biological monitoring events in 2009 at DEQ station 3-HAL002.72 (upstream of Route 1) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_HAL01A00 / Hazel Run / Segment begins at the Route 95 crossing and continues downstream until the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.73

Hazel Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.73

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E20R-03-BAC** **Massaponax Creek**

Cause Location: Segment begins at the confluence with an unnamed tributary to Massaponax Creek, approximately 0.25 rivermile upstream from the Route 639 bridge, and continues downstream until the confluence with another unnamed tributary, approximately 0.25 rivermile upstream of Ruffins Pond.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-MAP002.61 at Route 609 (Jim Morris Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MAP007.97 at Route 1 (Jefferson Davis Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-MAP009.42 at Route 639 (Leavells Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Massaponax Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_MAP02A02 / Massaponax Creek / Segment begins at the confluence with an unnamed tributary to Massaponax Creek, at rivermile 2.68, and continues downstream until the confluence with another unnamed tributary, approximately 0.25 rivermile upstream of Ruffins Pond.	4A	Escherichia coli (E. coli)	2006	L	1.21
VAN-E20R_MAP02B12 / Massaponax Creek / Segment begins at the confluence with an unnamed tributary to Massaponax Creek, just upstream of Route 1, and continues downstream until the confluence with another unnamed tributary, at rivermile 2.68.	4A	Escherichia coli (E. coli)	2004	L	5.19
VAN-E20R_MAP03A02 / Massaponax Creek / Segment begins at the confluence with an unnamed tributary to Massaponax Creek, approximately 0.25 rivermile upstream from the Route 639 bridge, and continues downstream until the confluence with another unnamed tributary, just upstream from Route 1.	4A	Escherichia coli (E. coli)	2010	L	1.67

Massaponax Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.07

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-03-BEN** **Little Falls Run**

Cause Location: Begins at the headwaters of Little Falls Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2020 Assessment: A total of two biological monitoring events in 2013 at DEQ station 3-LIA003.14 (0.02 miles downstream from Route 606) resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_LIA01A04 / Little Falls Run / Segment begins at the headwaters of Little Falls Run and continues downstream until the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.93

Little Falls Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.93

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E20R-04-BAC** Massaponax Creek

Cause Location: Begins at the confluence with an unnamed tributary, approximately 1.1 rivermiles downstream from Route 673, and continues downstream until the confluence with another unnamed tributary, approximately 0.25 rivermile upstream from Route 639.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (7 of 7 samples - 100.0%) at DEQ station 3-MAP010.37 at Route 208 (Courthouse Road).

A new TMDL is not required for this impaired segment of Massaponax Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_MAP04A02 / Massaponax Creek / Segment begins at the confluence with an unnamed tributary, approximately 1.1 rivermiles downstream from Route 673, and continues downstream until the confluence with another unnamed tributary, approximately 0.25 rivermile upstream from Route 639.	4A	Escherichia coli (E. coli)	2008	L	2.17

Massaponax Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.17

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-04-PH** **Deep Run**

Cause Location: Begins at the headwaters of Deep Run, and continues downstream to the confluence with an unnamed tributary at rivermile 2.19, downstream of Route 638.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (5 of 28 samples - 17.9%) at station 3DEP-06-NPS at Lee Drive.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_DEP03A12 / Deep Run / Segment begins at the headwaters of Deep Run and continues downstream to the confluence with an unnamed tributary at Route 638.	5C	pH	2012	L	1.56

Deep Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.56

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E20R-05-BAC** **Unnamed Tributary to Hazel Run**

Cause Location: Segment begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with Hazel Run.

Cause City/County: Fredericksburg; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at citizen monitoring station 3XHN-7-ALL.

A new TMDL is not required for this impaired segment of Hazel Run because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_XHN01A10 / Unnamed Tributary to Hazel Run / Segment begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with Hazel Run.	4A	Escherichia coli (E. coli)	2014	L	1.54

Unnamed Tributary to Hazel Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.54

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-05-PH** **Unnamed tributary to Massaponax Creek**

Cause Location: Begins where XEN joins XFE and continues downstream until the confluence with Massaponax Creek at rivermile 8.06

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2020 Assessment: Excursions less than the lower limit of the pH criterion range (2 of 11 samples - 18.2%) at DEQ station 3-XFE001.05 at Spotsylvania County Parkway.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_XFE01A02 / Unnamed tributary to Massaponax Creek / Segment begins where XEN joins XFE and continues downstream until the confluence with Massaponax Creek at rivermile 8.06	5C	pH	2016	L	1.27

Unnamed tributary to Massaponax Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 1.27

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E20R-06-BAC** **Unnamed tributary to Hazel Run**

Cause Location: Segment begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with Hazel Run.

Cause City/County: Fredericksburg

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at citizen monitoring station 3XIA-9-ALL.

A new TMDL is not required for this impaired segment of Hazel Run because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_XIA01A12 / Unnamed tributary to Hazel Run / Segment begins at the headwaters of the unnamed tributary, and continues downstream to the confluence with Hazel Run.	4A	Escherichia coli (E. coli)	2014	L	2.23

Unnamed tributary to Hazel Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.23

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-07-BAC** **Little Falls Run**

Cause Location: Begins at the headwaters of Little Falls Run and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 3-LIA002.27 at Route 682 (Colebrooke Road).

A new TMDL is not required for this impaired segment of Little Falls Run because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_LIA01A04 / Little Falls Run / Segment begins at the headwaters of Little Falls Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2016	L	4.93

Little Falls Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.93

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: E20R-08-BAC **Deep Run**

Cause Location: Begins at the confluence with an unnamed tributary at Route 638 and continues downstream to the confluence with another unnamed tributary downstream of Route 756 at rivermile 0.74.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-DEP000.92 at Route 17 (Business): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 3-DEP001.59 at Latimers Knoll Ct.: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Deep Run because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_DEP02A18 / Deep Run / Segment begins at the confluence with an unnamed tributary at Route 638 and continues downstream to the confluence with another unnamed tributary downstream of Route 756 at rivermile 0.74.	4A	Escherichia coli (E. coli)	2018	L	1.67

Deep Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.67

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E20R-09-BAC** **Rappahannock River**

Cause Location: Begins at the E19/E20 watershed boundary, and extends downstream to the end of the free flowing waters of the Rappahannock River, at the Route 1 Alternate Bridge.

Cause City/County: Fredericksburg; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-RPP110.57 at Route 1: The STV exceedance rate was greater than 10% in at least one 90-day period with 10+ samples and the geomean was exceeded in at least one 90-day period with 10+ samples. Additionally, there were two or more STV exceedances in at least one 90-day period with <10 samples

A new TMDL is not required for this impaired segment of Rappahannock River because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20R_RPP01A10 / Rappahannock River / Segment begins at the E19/E20 watershed boundary, and extends downstream to the end of the free flowing waters of the Rappahannock River, at the Route 1/Cambridge Street/Falmouth Bridge.	4A	Escherichia coli (E. coli)	2018	L	2.66

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.66

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-01-BAC** **Muddy Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Muddy Creek, approximately 0.7 rivermile downstream from Route 218, and continues downstream until the confluence with the Rappahannock River.

Cause City/County: King George County; Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 3-MUY001.43 at Route 3.

A new TMDL is not required for this impaired segment of Muddy Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_MUY01A00 / Muddy Creek / Segment begins at the confluence with White Oak Run and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2008	L	1.37
VAN-E21R_MUY01B20 / Muddy Creek / Segment begins at the confluence with an unnamed tributary to Muddy Creek, approximately 0.7 rivermile downstream from Route 218, and continues downstream until the confluence with White Oak Run.	4A	Escherichia coli (E. coli)	2008	L	2.21

Muddy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.58

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-01-PH** **Portobago Creek**

Cause Location: Begins at the confluence of two intermittent tributaries around rivermile 6.66 and extends downstream to the end of the free-flowing waters.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (2 of 12 samples - 16.7%) at DEQ station 3-PBC003.09 at Route 17.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_PBC01A10 / Portobago Creek / Segment begins at the confluence of two intermittent tributaries around rivermile 6.66 and extends downstream to the end of the free-flowing waters.	5C	pH	2020	L	7

Portobago Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			7

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E21R-02-BAC** Ware Creek

Cause Location: Segment begins at the confluence with an unnamed tributary to Ware Creek, just downstream from Burma Road, and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-WAE000.72 at Route 17 (Tidewater Trail): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Ware Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WAE01A08 / Ware Creek / Segment begins at the confluence with an unnamed tributary to Ware Creek, just downstream from Burma Road, and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2010	L	4.5

Ware Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.5

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-02-BEN** **Ware Creek**

Cause Location: Begins at the headwaters of Ware Creek and continues downstream until the confluence with an unnamed tributary to Ware Creek, just downstream from Burma Road.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2008 Assessment: One biological monitoring event in 2002 at DEQ station 3-WAE005.95 (at Fort A.P. Hill) resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WAE02A04 / Ware Creek / Segment begins at the headwaters of Ware Creek and continues downstream until the confluence with an unnamed tributary to Ware Creek, just downstream from Burma Road.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.07

Ware Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.07

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-02-PH** **Ware Creek**

Cause Location: Begins at the headwaters of Ware Creek and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2008 Assessment: Excursions less than the lower limit of the pH criterion range (2 of 2 samples - 100%) at DEQ station 3-WAE005.95 at Fort A.P. Hill.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WAE02A04 / Ware Creek / Segment begins at the headwaters of Ware Creek and continues downstream until the confluence with an unnamed tributary to Ware Creek, just downstream from Burma Road.	5C	pH	2004	L	3.07

Ware Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.07

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-03-BAC** **Gingoteague Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Gingoteague Creek, at rivermile 2.99, and continues downstream until tidal waters, near the confluence with the Rappahannock River.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 3-GIN002.64 at Route 625 (Salem Church Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_GIN01A08 / Gingoteague Creek / Segment begins at the confluence with an unnamed tributary to Gingoteague Creek, at rivermile 2.99, and continues downstream until tidal waters, near the confluence with the Rappahannock River.	5A	Escherichia coli (E. coli)	2008	L	1.49

Gingoteague Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.49

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-03-BEN** **Gingoteague Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Gingoteague Creek, at rivermile 2.99, and continues downstream until tidal waters, near the confluence with the Rappahannock River.

Cause City/County: King George County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Two biological monitoring events in 2010 at DEQ station 3-GIN002.64 at Route 625 resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_GIN01A08 / Gingoteague Creek / Segment begins at the confluence with an unnamed tributary to Gingoteague Creek, at rivermile 2.99, and continues downstream until tidal waters, near the confluence with the Rappahannock River.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.49

Gingoteague Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.49

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-04-BAC** Goldenvale Creek

Cause Location: Begins at the confluence with Doctor Branch and continues downstream until tidal waters, near the confluence with the Rappahannock River.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-GLL001.98 at Route 17 (Tidewater Trail): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Rappahannock River because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_GLL01A08 / Goldenvale Creek / Segment begins at the confluence with Doctor Branch and continues downstream until tidal waters, near the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2020	L	5.31

Goldenvale Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.31

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-04-BEN** Mill Creek

Cause Location: Begins at the confluence with an unnamed tributary, at rivermile 9.5, and continues downstream until the confluence with Peumansend Creek, at rivermile 6.06.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2010 Assessment: Two biological monitoring events in 2004 at DEQ station 3-MIC008.55 (on Fort A.P. Hill property) resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_MIC02A06 / Mill Creek / Segment begins at the confluence with an unnamed tributary, at rivermile 9.5, and continues downstream until the confluence with Peumansend Creek, at rivermile 6.06.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.59

Mill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.59

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-05-BAC** **Mount Creek**

Cause Location: Begins at the confluence with West Branch and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2012 Assessment: E. coli bacteria criterion excursions (3 of 18 samples - 16.7%) at DEQ station 3-MTC001.94 at Route 17.

A new TMDL is not required for this impaired segment of Mount Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_MTC01A08 / Mount Creek / Segment begins at the confluence with West Branch and continues downstream until the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2008	L	4.46

Mount Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.46

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-05-BEN** **White Oak Run**

Cause Location: Begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: A total of two biological monitoring events in 2007 at DEQ station 3-WHT003.73 at Route 601 (upstream crossing) resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WHT01A06 / White Oak Run / Segment begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	6.52

White Oak Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.52

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-05-PH** Mount Creek

Cause Location: Begins at the confluence with West Branch and continues downstream until the confluence with the Rappahannock River.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2014 Assessment: Excursions less than the lower limit of the pH criterion range (9 of 11 samples - 81.8%) at DEQ station 3-MTC001.94 at Route 17.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_MTC01A08 / Mount Creek / Segment begins at the confluence with West Branch and continues downstream until the confluence with the Rappahannock River.	5C	pH	2008	L	4.46

Mount Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.46

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E21R-06-BAC** **Lambs Creek**

Cause Location: Begins at the confluence with Popcastle Creek and continues downstream until tidal waters, near the confluence with the Rappahannock River.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-LAM000.57 at Route 3 (Kings Hwy): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Lambs Creek because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_LAM01A08 / Lambs Creek / Segment begins at the confluence with Popcastle Creek and continues downstream until tidal waters, near the confluence with the Rappahannock River.	4A	Escherichia coli (E. coli)	2008	L	0.54

Lambs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.54

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-07-BAC** Mill Creek

Cause Location: Begins at the confluence with Peumansend Creek, at rivermile 6.06, and continues downstream until the tidal waters of Mill Creek.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 3-MIC0001.66 at Route 17.

The Rappahannock River and Tributaries bacteria TMDL for the Mill Creek watershed (Eq ID 2539) was approved by the EPA on 07/10/2019 (Fed ID 11483). The SWCB approved the TMDL on 06/27/2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_MIC01A08 / Mill Creek / Segment begins at the confluence with Peumansend Creek, at rivermile 6.06, and continues downstream until the tidal waters of Mill Creek.	4A	Escherichia coli (E. coli)	2008	L	4.59

Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.59

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-10-BAC** **Jetts Creek**

Cause Location: Segment begins at the confluence of Boom Swamp with Jetts Creek, and continues downstream to the end of the free flowing waters.

Cause City/County: King George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-JET003.49 at Route 625 (Salem Church Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rappahannock River and Tributaries bacteria TMDL for the Jetts Creek watershed (Eq ID 2561) was approved by the EPA on 07/10/2019 (Fed ID 11483). The SWCB approved the TMDL on 06/27/2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_JET01A10 / Jetts Creek / Segment begins at the confluence of Boom Swamp with Jetts Creek, and continues downstream to the end of the free flowing waters.	4A	Escherichia coli (E. coli)	2010	L	1.85

Jetts Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.85

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-10-PH** **White Oak Run**

Cause Location: Begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.

Cause City/County: Stafford County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2018 Assessment: Excursions less than the lower limit of the pH criterion range (2 of 12 samples - 16.7%) at DEQ station 3-WHT000.35 at Route 601 (downstream crossing).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WHT01A06 / White Oak Run / Segment begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.	5C	pH	2014	L	6.52

White Oak Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			6.52

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E21R-11-BAC** **Portobago Creek**

Cause Location: Segment begins at the confluence of two intermittent tributaries around rivermile 6.66 and extends downstream to the end of the free-flowing waters.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 3-PBC003.09 at Route 17 (Tidewater Trail): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Rappahannock River and Tributaries bacteria TMDL for the Portobago Creek watershed (Eq ID 2563) was approved by the EPA on 07/10/2019 (Fed ID 11483). The SWCB approved the TMDL on 06/27/2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_PBC01A10 / Portobago Creek / Segment begins at the confluence of two intermittent tributaries around rivermile 6.66 and extends downstream to the end of the free-flowing waters.	4A	Escherichia coli (E. coli)	2010	L	7

Portobago Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E21R-12-BAC** **White Oak Run**

Cause Location: Begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.

Cause City/County: Stafford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 3-WHT000.35 at Route 601 (downstream crossing).

A new TMDL is not required for this impaired segment of White Oak Run because the downstream Tidal Freshwater Rappahannock River bacteria TMDL (Fed ID 34369, 05/05/2008) included modeling, source identification, and reductions that covered the entire watershed (Eq ID POL0569).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21R_WHT01A06 / White Oak Run / Segment begins just downstream from the Route 604 crossing and continues downstream until the confluence with Muddy Creek.	4A	Escherichia coli (E. coli)	2014	L	6.52

White Oak Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.52

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Rappahannock River Basin

Cause Group Code: **E22E-01-EBEN** **Rappahannock River**

Cause Location: The oligohaline mainstem of the Rappahannock River

Cause City/County: Essex County; Richmond County; Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2010 cycle, the oligohaline portion of the mainstem Rappahannock indicated benthic impairment based on the Chesapeake Bay Benthic Index of Biological Integrity.

There was insufficient information to assess the B-IBI in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP02A02 / Rappahannock River / The Rappahannock River from the tidal freshwater/oligohaline boundary downstream to river mile 56.21. RPPOH	5A	Estuarine Bioassessments	2010	L	1.344
VAP-E22E_RPP02B16 / Rappahannock River / The Rappahannock River from rivermile 56.21 downstream to river mile 51.04. RPPOH	5A	Estuarine Bioassessments	2010	L	2.003
VAP-E22E_RPP03A02 / Rappahannock River / The Rappahannock River from river mile 51.04 to river mile 49.04. RPPOH	5A	Estuarine Bioassessments	2010	L	2.012
VAP-E22E_RPP04A02 / Rappahannock River / The Rappahannock River from river mile 49.04 downstream to the oligohaline/mesohaline boundary at approximately river mile 48.51. RPPOH	5A	Estuarine Bioassessments	2010	L	0.942

Rappahannock River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	6.302		

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E22E-02-EBEN** **Rappahannock River**

Cause Location: The mesohaline mainstem of the Rappahannock River

Cause City/County: Essex County; Lancaster County; Middlesex County; Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: In 2004, the mesohaline portion of the mainstem Rappahannock indicated benthic impairment based on the Chesapeake Bay Benthic Index of Biological Integrity. The impairment was attributed to low oxygen and the benthic impairment was treated as a confirmation of the impairment. The mainstem remained impaired in the 2006 cycle; however, due to guidance changes the segment was 303(d) listed for estuarine bioassessments.

The segment remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP05A02 / Rappahannock River / The oligohaline/mesohaline boundary at river mile 48.51 to the downstream boundary of VDH shellfish condemnation area 025A-068B, 4/15/2020 RPPMH	5A	Estuarine Bioassessments	2006	L	6.958
VAP-E23E_RPP02A98 / Rappahannock River / Mainstem Rappahannock as described in VDH shellfish condemnation 025A-068A, 4/15/2020 excluding administratively condemned portion. Expanded in the 2022 cycle. RPPMH	5A	Estuarine Bioassessments	2006	L	8.123
VAP-E23E_RPP02B10 / Rappahannock River / Portion of mainstem Rappahannock River that is administratively condemned within condemnation 025A-068A, 4/15/2020. RPPMH	5A	Estuarine Bioassessments	2006	L	0.158
VAP-E23E_RPP02C12 / Rappahannock River / Portion of VDH shellfish condemnation 025A-068A, 11/14/2005 not included in 025A-068A, 4/15/2020. Size reduced in the 2022 cycle. RPPMH	5A	Estuarine Bioassessments	2006	L	0.388
VAP-E24E_RPP01B14 / Garrett's Marina / As delineated in VDH shellfish condemnation 026-181A, 4/15/2020. RPPMH	5A	Estuarine Bioassessments	2008	L	0.003
VAP-E24E_RPP01B98 / Rappahannock River: Garrett's Marina / As delineated in VDH shellfish condemnation 026-181M1, 4/15/2020. RPPMH	5A	Estuarine Bioassessments	2008	L	0.025
VAP-E24E_RPP01C06 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 3/16/2007 (non-admin) that is currently open Shrank in the 2022 cycle. RPPMH	5A	Estuarine Bioassessments	2006	L	0.528

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_RPP01D10 / Rappahannock River / The portion of the Rappahannock River within the administratively closed area of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	5A	Estuarine Bioassessments	2006	L	0.137
VAP-E24E_RPP01E18 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 4/15/2020 (non-admin) Expanded in the 2022 cycle. RPPMH	5A	Estuarine Bioassessments	2006	L	0.177
VAP-E24E_RPP03A00 / Rappahannock River / The Rappahannock River from the limit of VDH shellfish condemnation 068A, 11/14/2005 downstream to end of MSN (Sharps/0.7 mi DS of Mark Haven Beach) unless otherwise segmented RPPMH	5A	Estuarine Bioassessments	2006	L	10.919
VAP-E25E_RPP01C10 / Rappahannock River: Mark Haven Beach Basin / The portion of VDH shellfish condemnation 026-181B, 1/20/2006 not administratively closed. RPPMH	5A	Estuarine Bioassessments	2008	L	0.010
VAP-E25E_RPP01C98 / Mark Haven Beach Basin / As delineated in VDH shellfish condemnation 026-181A, 4/3/2012. RPPMH	5A	Estuarine Bioassessments	2008	L	0.004
VAP-E25E_RPP02A02 / Rappahannock River / The mainstem of the Rappahannock River from the end of MSN (Sharps/0.7 mi DS of Mark Haven Beach to the mouth, excluding area in SFC 051A. Merged in the 2022 cycle. RPPMH	5A	Estuarine Bioassessments	2006	L	81.272
VAP-E25E_RPP03A06 / Rappahannock River / Described in VDH Shellfish Condemnation 024-070B, 1/7/2019. RPPMH	5A	Estuarine Bioassessments	2006	L	0.008
VAP-E25E_RPP03B16 / Rappahannock River / As described in VDH shellfish condemnation 026-181M2, 4/15/2020 RPPMH	5A	Estuarine Bioassessments	2006	L	0.003
VAP-E26E_CRR02A08 / Corrotoman River / The portion of the Corrotoman River that is within CB segment RPPMH.	5A	Estuarine Bioassessments	2006	L	1.039
VAP-E26E_RPP02A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051A, 10/3/2005. RPPMH	5A	Estuarine Bioassessments	2006	L	0.127
VAP-E26E_RPP03A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051D, 10/3/2005. RPPMH	5A	Estuarine Bioassessments	2006	L	0.031

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_RPP04A00 / Rappahannock River / Described in VDH Shellfish Condemnation 030-051B, 9/1/2015. RPPMH	5A	Estuarine Bioassessments	2006	L	0.131
VAP-E26E_RPP05A00 / Rappahannock River / Delineated in VDH-DSS condemnation 030-051C, 9/1/2015. RPPMH	5A	Estuarine Bioassessments	2006	L	0.049
VAP-E26E_RPP07A02 / Rappahannock River / As delineated in VDH-DSS SFC 018-053A, 7/23/2018 RPPMH	5A	Estuarine Bioassessments	2006	L	0.139
VAP-E26E_RPP08A22 / Rappahannock River / Portion of VDH-DSS Condemnation 032-109A, 9/15/2019 that is within the mainstem Rappahannock River. RPPMH	5A	Estuarine Bioassessments	2006	L	0.012

Rappahannock River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	110.238		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E22E-03-BAC** **Peedee Creek**

Cause Location: Tidal Peedee Creek

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, tidal Peedee Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 6/13 at 3-PEE003.97.

Tidal Peedee Creek was addressed in the Rappahannock River and Tributaries Bacterial TMDL, which was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. The impairment is Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_PEE01A14 / Peedee Creek / Tidal portion of Peedee Creek. RPPOH	4A	Enterococcus	2014	L	0.15

Peedee Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.15		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-04-BAC** **Occupacia Creek**

Cause Location: Tidal Occupacia Creek

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, tidal Occupacia Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 9/11 at 3-OCC005.62.

It is nested in the bacterial TMDL for Occupacia and Farmers Hall Creeks, which was developed and was approved by the EPA on 7/30/2007; therefore, the segment is considered Category 4A. The TMDL addresses the nontidal watersheds feeding into the tidal portion and the upstream bacterial reductions should improve water quality downstream.

During the 2020 cycle, monitoring at 3-OCC001.85 had an exceedance rate of 3/9.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess 3-OCC001.85. However, the creek remains impaired due to four geometric mean exceedances at 3-OCC005.62.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_OCC01A08 / Occupacia Creek / The tidal portion of Occupacia Creek RPPOH	4A	Enterococcus	2014	L	0.668

Occupacia Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.668		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-05-BAC** **Rappahannock River**

Cause Location: The Rappahannock River from the tidal freshwater/oligohaline boundary downstream to river mile 56.21.

Cause City/County: Essex County; Richmond County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, the Rappahannock River from the tidal freshwater oligohaline boundary downstream to rivermile 51.04 was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 3-RPP056.20.

The impairment was nested within the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010 and was considered Category 4A.

However, during the 2016 cycle, the upper portion of the impairment, which was not located within the actual TMDL study area boundary, was split off and considered Category 5A.

The impairment was subsequently addressed in the Rappahannock River and Tributaries Bacterial TMDL, which was approved by the SWCB on 6/27/2019 and by the EPA on 7/20/2019, and is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP02A02 / Rappahannock River / The Rappahannock River from the tidal freshwater/oligohaline boundary downstream to river mile 56.21. RPPOH	4A	Enterococcus	2014	L	1.344

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.344		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-06-BAC** **Rappahannock River**

Cause Location: The oligohaline/mesohaline boundary at river mile 48.51 downstream to the limit of VDH shellfish condemnation area 025A-068B, 415/2020.

Cause City/County: Essex County; Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, the segment was impaired of the Recreation Use due to an enterococci exceedance rate of 4/12 at 3-RPP046.26.

It is located within the study area for the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010. The enterococci impairment is considered nested within the TMDL; therefore, the segment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria at 3-RPP046.26; therefore, the impairment is carried over. In addition, monitoring at 3-RPP044.06 was impaired due to four geometric mean exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP05A02 / Rappahannock River / The oligohaline/mesohaline boundary at river mile 48.51 to the downstream boundary of VDH shellfish condemnation area 025A-068B, 4/15/2020 RPPMH	4A	Enterococcus	2014	L	6.958

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	6.958		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-07-BAC** **Rappahannock River**

Cause Location: The Rappahannock River from rivermile 56.21 downstream to river mile 51.04.

Cause City/County: Essex County; Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, the Rappahannock River from the tidal freshwater oligohaline boundary downstream to rivermile 51.04 was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 3-RPP056.20.

The impairment was nested within the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010 and was considered Category 4A.

However, during the 2016 cycle, the upper portion of the impairment, which was not located within the actual TMDL study area boundary, was split off and was considered Category 5A (the TMDL was later completed in 2019). This nested segment remains Category 4A.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP02B16 / Rappahannock River / The Rappahannock River from rivermile 56.21 downstream to river mile 51.04. RPPOH	4A	Enterococcus	2014	L	2.003

Rappahannock River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	2.003		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-08-CHLR** **Rappahannock River**

Cause Location: The lower tidal freshwater Rappahannock River downstream of Devils Elbow.

Cause City/County: Essex County; King George County; Westmoreland County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Chloride/5C

Cause Description: During the 2004 cycle, the lower tidal freshwater area downstream of Devils Elbow at Toby Point and Green Bay (rivermile 70.52) and the transitional area of the Rappahannock River were assessed as not supporting the Aquatic Life and Wildlife Uses based on chloride exceedances at multiple stations, including 3-RPP064.40.

During the 2010 cycle, the Water Quality Standards were revised during Triennial Review. The freshwater-transitional zone boundary was moved upstream to rivermile 57.85. In addition, the chloride standard was removed in transitional waters. The standard still applies in freshwater areas and station 3-RPP064.40 remains in the freshwater area; therefore, this impairment has been shortened to extend from Devils Elbow at Toby Point and Green Bay to the transitional zone boundary. The Rappahannock River below the new transitional boundary was delisted.

No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP01A02 / Rappahannock River / The Rappahannock River from Devils Elbow at Toby Point and Green Bay (river mile 70.52) downstream to the tidal freshwater/oligohaline boundary at river mile 57.85. RPPTF	5C	Chloride	2004	L	5.133

Rappahannock River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chloride - Total Impaired Size by Water Type:	5.133		

Rappahannock River

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chloride - Total Impaired Size by Water Type:	5.133		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E22E-09-BAC** **Waterview Creek**

Cause Location: The tidal portion of Waterview Creek.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2018 cycle, tidal Waterview Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 10/12 at 3-WAR001.81.

It is located within the study area for the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/31/2010. The enterococci impairment is considered nested within the TMDL; therefore, the segment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_WAR01A18 / Waterview Creek / Tidal portion of Waterview Creek RPPMH	4A	Enterococcus	2018	L	0.038

Waterview Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.038		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-10-BAC** **Bridge Creek**

Cause Location: The tidal portion of Bridge Creek to its mouth at Occupacia Creek.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2020 cycle, tidal Bridge Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 4/9 at 3-BDG000.10.

The creek is located within the study area for the Upper Rappahannock River Watershed Bacterial TMDL (growing areas 25 and 26.) The TMDL was approved by the SWCB on 8/10/2010 and by the EPA on 12/13/2010. The impairment will be addressed during implementation and is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_BDG01A20 / Bridge Creek / Tidal Bridge Creek to its mouth at Occupacia Creek RPOH	4A	Enterococcus	2020	L	0.123

Bridge Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.123		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22E-11-PH** **Occupacia Creek**

Cause Location: Tidal Occupacia Creek

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2022 cycle, tidal Occupacia Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 8/20 at 3-OCC005.62, which is located off of Route 661. The nontidal Occupacia Creek watershed is designated as Class VII waters; therefore, it is suspected that the low pH is a natural condition.

Downstream monitoring at 3-OCC001.85 is acceptable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_OCC01A08 / Occupacia Creek / The tidal portion of Occupacia Creek RPPOH	5C	pH	2022	L	0.668

Occupacia Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.668		

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22E-12-PH** **Waterview Creek**

Cause Location: Tidal Waterview Creek

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2022 cycle, tidal Waterview Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 3/25 at 3-WAR001.81, which is located at Waterview Road. Natural conditions are suspected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_WAR01A18 / Waterview Creek / Tidal portion of Waterview Creek RPPMH	5C	pH	2022	L	0.038

Waterview Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.038		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E22R-01-BAC** **Occupacia Creek**

Cause Location: Occupacia Creek from the Hunters Millpond Dam to the extent of tidal influence.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Occupacia Creek was initially assessed as impaired of the Recreation Use during the 2002 cycle based on fecal coliform violations at the Route 17 bridge (3-OCC010.47). In 2006 the segment was also impaired for E. coli. During the 2008 cycle, the impairment converted to E. coli with a violation rate of 3/21.

The bacterial TMDL for Occupacia and Farmers Hall Creeks was developed and was approved by the EPA on 7/30/2007; therefore, the segment is considered Category 4A.

Occupacia Creek remained impaired in the 2014 cycle due to an E.coli exceedance rate of 3/12.

The exceedance rate was also 3/12 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_OCC01A98 / Occupacia Creek / Occupacia Creek from Hunters Millpond downstream to the tidal limit.	4A	Escherichia coli (E. coli)	2006	L	2.34

Occupacia Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.34

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22R-02-BAC** **Farmers Hall Creek**

Cause Location: Farmers Hall Creek from its headwaters to its tidal limit

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2004 cycle, Farmers Hall Creek was assessed as not supporting of the Recreation Use support goal based on a fecal coliform violation rate of 3/13 at the Route 631 bridge (3-FAR002.88). The TMDL was due in 2016.

The bacterial TMDL for Occupacia and Farmers Hall Creeks was approved by the EPA on 7/30/2007; therefore the segment is considered Category 4A.

The WQS has changed from fecal coliform to E. coli. No monitoring had been conducted since 2006, so the fecal coliform impairment had been carried over through the 2020 cycle.

E. coli sampling was conducted in the 2022 cycle under a revised E. coli criteria. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples. The impairment is being converted to E. coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_FAR01A04 / Farmers Hall Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2022	L	4.01

Farmers Hall Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.01

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22R-04-BAC** **Elmwood Creek and Tributary XHY**

Cause Location: The nontidal portion of Elmwood Creek and its tributary XHY in its entirety.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Elmwood Creek and its tributary were assessed as not supporting of the Recreation Use in the 2014 cycle based on multiple E. coli exceedances.

The exceedance rates were as follows in the 2016 cycle: 5/23 at 3-ELM002.23 5/13 at 3-ELM002.92 1/13 (FS) at 3-ELM004.27 4/13 at 3-XHY000.06 1/12 (FS) at 3-XHY002.50

During the 2020 cycle, the exceedance rates were 5/24 at 3-ELM002.23, 1/12 (FS) at 3-ELM002.92, and 2/13 at 3-XHY000.06.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Rappahannock River and Tributaries Bacteria TMDL was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. The impairment was addressed in the TMDL and will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_ELM01A06 / Elmwood Creek and tributary XHY / Headwaters to tidal limit, including tributary XHY.	4A	Escherichia coli (E. coli)	2014	L	9.07

Elmwood Creek and Tributary XHY

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.07

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22R-04-PH** **Elmwood Creek and Tributary XHY**

Cause Location: The nontidal portion of Elmwood Creek and its tributary XHY in its entirety.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Elmwood Creek was assessed as not supporting of the Aquatic Life Use in the 2006 cycle based on a pH exceedance rate of 4/10 at 3-ELM002.23, which is located at the Route 17 bridge.

Additional data was collected during the 2014 and 2016 cycles. The impairment was expanded to incorporate tributary XHY. The exceedance rates were as follows: 5/24 at 3-ELM002.23 5/26 at 3-ELM002.92 4/26 at 3-ELM004.27 6/26 at 3-XHY000.06 2/25 (FS) at 3-XHY002.50

During the 2020 cycle, the exceedance rates were 2/24 (FS) at 3-ELM002.23, 2/12 at 3-ELM002.92, and 3/13 at 3-XHY000.06.

Additional monitoring was conducted at 3-ELM002.92 (4/22) during the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_ELM01A06 / Elmwood Creek and tributary XHY / Headwaters to tidal limit, including tributary XHY.	5C	pH	2006	L	9.07

Elmwood Creek and Tributary XHY

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			9.07

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-05-BAC** **Baylors Creek**

Cause Location: Baylors Creek from its headwaters to the extent of backwater of Baylors Pond.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Baylors Creek was assessed as impaired of the Recreation Use due to an E.coli exceedance rate of 2/16 at the Route 17 bridge (3-BAY002.62).

Additional data was collected in the 2014 cycle. The impairment was confirmed with the following exceedance rates: 3/12 at 3-BAY002.62 3/11 at 3-BAY004.39 1/12 (FS) at 3-BAY006.66

During the 2020 cycle, the E.coli exceedance rates were 7/13 at 3-BAY002.62 and 3/13 at 3-BAY006.66.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected at 3-BAY002.62, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples. No new data was collected at 3-BAY004.39 and there is insufficient information to assess the criteria at 3-BAY006.66; therefore, the impairment is carried over at those stations, as well.

The Rappahannock River and Tributaries Bacteria TMDL was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. Baylors Creek was addressed and will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_BAY01A08 / Baylors Creek / Headwaters to extent of backwater at Baylors Pond.	4A	Escherichia coli (E. coli)	2008	L	5.89

Baylors Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.89

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22R-05-PH** **Baylors Creek**

Cause Location: Baylors Creek from its headwaters to the extent of backwater of Baylors Pond.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2008 cycle, Baylors Creek was assessed as impaired of the Aquatic Life Use due to a pH exceedance rate of 6/16 at the Route 17 bridge (3-BAY002.62).

Additional monitoring was conducted during the 2014 cycle. The impairment was confirmed with the following exceedance rates: 2/13 at 3-BAY002.62 2/12 at 3-BAY004.39 11/13 at 3-BAY006.66

In the 2022 cycle, the pH exceedance rates were 2/13 at 3-BAY002.62 and 16/25 at 3-BAY006.66.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_BAY01A08 / Baylors Creek / Headwaters to extent of backwater at Baylors Pond.	5C	pH	2008	L	5.89

Baylors Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.89

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-06-BAC** Peedee Creek

Cause Location: The mainstem of Peedee Creek from its headwaters to the extent of tide.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Peedee Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 10/49 at the Route 640 bridge (3-PEE004.46).

Due to a previous impairment, Peedee Creek was addressed in the Rappahannock River and Tributaries Bacterial TMDL, which was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. The impairment is Category 4A.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two geometric mean exceedances at 3-PEE004.96 and two or more STV exceedances in the same 90-day period with <10 samples at 3-PEE004.46.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_PEE01A08 / Peedee Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2020	L	3.3

Peedee Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.3

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E22R-06-DO** **Peedee Creek**

Cause Location: The mainstem of Peedee Creek from its headwaters to the extent of tide.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Peedee Creek was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at the Route 640 bridge (3-PEE004.46).

Additional monitoring was conducted along the creek in the 2014 and 2018 cycles. 7/12 at 3-PEE004.11 24/48 at 3-PEE004.46 7/12 at 3-PEE004.96 0/12 (FS) at 3-PEE006.57

In the 2022 cycle, the exceedance rate was 16/36 at 3-PEE004.46 and 18/31 at 3-PEE004.96.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_PEE01A08 / Peedee Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2010	L	3.3

Peedee Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.3

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-06-PH** **Peedee Creek**

Cause Location: The mainstem of Peedee Creek from its headwaters to the extent of tide.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2008 cycle, Peedee Creek was assessed as not supporting of the Aquatic Life Use due to pH exceedances at the Route 640 bridge (3-PEE004.46).

Additional monitoring was conducted along the creek in the 2014 and 2018 cycles. 1/12 (FS) at 3-PEE004.11 2/48 (FS) at 3-PEE004.46 3/12 at 3-PEE004.96 3/12 at 3-PEE006.57

Station 3-PEE004.46 remained fully supporting during the 2020 cycle (3/49), however the segment remained impaired due to the previous upstream exceedances. Continued monitoring was recommended.

In the 2022 cycle, the station remained fully supporting (1/36); however, 3-PEE004.96 was also re-sampled and was impaired (10/31).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_PEE01A08 / Peedee Creek / Headwaters to tidal limit	5C	pH	2008	L	3.3

Peedee Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.3

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-07-DO** XGI - Occupacia Creek, UT

Cause Location: The unnamed tributary XGI in its entirety.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: During the 2008 cycle, tributary XGI was mistakenly included within the nontidal Occupacia Creek segment. The segment failed for dissolved oxygen with an exceedance rate of 7/22 at station 3-XGI000.44.

However, this stream actually enters below the fall line on Occupacia Creek and therefore was not reclassified as Class VII waters. The TMDL is due in 2020. As the station was addressed in the Occupacia Natural Conditions Assessment (4/4/2005), it is considered Category 4C.

Additional monitoring in the 2016 cycle confirmed the impairment (2/5 for dissolved oxygen).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_XGI01A10 / XGI - Occupacia Creek, UT / Headwaters to mouth at tidal Occupacia Creek	4C	Dissolved Oxygen	NA	NA	1.96

XGI - Occupacia Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-07-PH** XGI - Occupacia Creek, UT

Cause Location: The unnamed tributary XGI in its entirety.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: During the 2008 cycle, tributary XGI was mistakenly included within the nontidal Occupacia Creek segment. The segment failed for pH with an exceedance rate of 22/22 at station 3-XGI000.44.

However, this stream actually enters below the fall line on Occupacia Creek and therefore was not reclassified as Class VII waters. The TMDL is due in 2020. As the station was addressed in the Occupacia Natural Conditions Assessment (4/4/2005), it is considered Category 4C.

Additional monitoring in the 2016 cycle confirmed the impairment (3/5 for pH).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_XGI01A10 / XGI - Occupacia Creek, UT / Headwaters to mouth at tidal Occupacia Creek	4C	pH	NA	NA	1.96

XGI - Occupacia Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-08-BAC** **Stillwater Creek**

Cause Location: Stillwater Creek from its headwaters at Cockerel Creek downstream to its tidal limit

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Stillwater Creek was assessed as not supporting of the Recreation Use in the 2014 cycle based on an E. coli exceedance rate of 3/12 at 3-STL003.35 (Route 17 South). Monitoring at 3-STL001.54, which is located at the Route 674 bridge, was acceptable (0/12).

During the 2020 cycle, the exceedance rates were 4/13 at 3-STL003.35 and 0/13 (S) at 3-STL001.54.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples at 3-STL003.35. There is insufficient data to assess 3-STL001.54.

The Rappahannock River and Tributaries Bacteria TMDL was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. The Stillwater Creek impairment was addressed and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_STL01A14 / Stillwater Creek / Headwaters at Cockerel Creek to tidal limit	4A	Escherichia coli (E. coli)	2014	L	3.53

Stillwater Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.53

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **E22R-08-DO** **Stillwater Creek**

Cause Location: Stillwater Creek from its headwaters at Cockerel Creek downstream to its tidal limit

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Stillwater Creek was assessed as not supporting of the Aquatic Life Use in the 2014 cycle based on a dissolved oxygen exceedance rate of 4/13 at 3-STL003.35 (Route 17 South). Monitoring at 3-STL001.54, which is located at the Route 674 bridge, was acceptable (1/13).

During the 2022 cycle, the exceedance rates were 6/25 at 3-STL003.35 and 2/25 (S) at 3-STL001.54.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_STL01A14 / Stillwater Creek / Headwaters at Cockerel Creek to tidal limit	5C	Dissolved Oxygen	2014	L	3.53

Stillwater Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.53

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: E22R-08-PH Stillwater Creek

Cause Location: Stillwater Creek from its headwaters at Cockerel Creek downstream to its tidal limit

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Stillwater Creek was assessed as not supporting of the Aquatic Life Use in the 2014 cycle based on pH exceedance rates of 12/13 at 3-STL003.35 (Route 17 South) and 4/13 at 3-STL001.54 (Route 674).

During the 2022 cycle, the exceedance rates were 21/25 at 3-STL003.35 and 3/25 at 3-STL001.54.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_STL01A14 / Stillwater Creek / Headwaters at Cockerel Creek to tidal limit	5C	pH	2014	L	3.53

Stillwater Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.53

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-10-PH** Mill Swamp

Cause Location: Nontidal Mill Swamp below Horners Pond

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, Mill Swamp was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 3-MSW000.85, which is located at Route 625 below Horners Pond.

The exceedance rate was 4/24 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_MSW01A14 / Mill Swamp / Horners Pond dam to tidal limit	5C	pH	2014	L	0.73

Mill Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.73

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Cause Group Code: **E22R-11-BAC** **Smoots Mill Run, UT**

Cause Location: From its headwaters to its mouth at Smoots Mill Run.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, the tributary was impaired of the Recreation Use due to an E. coli exceedance rate of 5/11 at 3-SMO001.58, which is located at Route 697.

The Rappahannock River and Tributaries Bacteria TMDL was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. The creek is located within the study area and will be addressed during implementation; therefore, the impairment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_SMO01A14 / Smoots Mill Run, UT / Headwaters to mouth at Smoots Mill Run	4A	Escherichia coli (E. coli)	2020	L	1.67

Smoots Mill Run, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.67

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **E22R-11-PH** **Smoots Mill Run, UT**

Cause Location: From its headwaters to its mouth at Smoots Mill Run.

Cause City/County: Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, the tributary was impaired of the Aquatic Life Use due to a pH exceedance rate of 7/12 at 3-SMO001.58, which is located at Route 697.

The exceedance rate was 17/24 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_SMO01A14 / Smoots Mill Run, UT / Headwaters to mouth at Smoots Mill Run	5C	pH	2014	L	1.67

Smoots Mill Run, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.67

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E22R-12-BAC** **Troy Creek**

Cause Location: The nontidal portion of Troy Creek.

Cause City/County: Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Troy Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 3-TRY002.08, which is located at Route 637.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Rappahannock River and Tributaries Bacteria TMDL was approved by the SWCB on 6/27/2019 and by the EPA on 7/10/2019. Troy Creek is located within the study area and will be addressed during implementation; therefore, the impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22R_TRY01A06 / Troy Creek / The nontidal portion of Troy Creek	4A	Escherichia coli (E. coli)	2020	L	4.29

Troy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.29

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23E-01-SF** **Upper Rappahannock River, Little Carter Creek, Jugs Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 025-068A, 4/15/2020

Cause City/County: Essex County; Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 025-068A, 4/15/2020

The Upper Rappahannock River Watershed Shellfish TMDL was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010; therefore, the impaired area is considered Category 4A. The condemnation has since shortened; the area currently open for harvest is considered Cat. 2C.

Note: a previous Little Carter Creek/Jugs Creek VDH-DSS Shellfish Condemnation (068B, 3/6/2002) remains closed but is now incorporated into this shellfish condemnation.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_LIE01A98 / Little Carter Creek, Jugs Creek / Tidal limit to mouth at the Rappahannock River. RPPMH	4A	Fecal Coliform	1998	L	0.419
VAP-E23E_PIS02A00 / Piscataway Creek / The estuarine portion of Piscataway Creek. RPPMH	4A	Fecal Coliform	1998	L	0.589
VAP-E23E_RPP02A98 / Rappahannock River / Mainstem Rappahannock as described in VDH shellfish condemnation 025A-068A, 4/15/2020 excluding administratively condemned portion. Expanded in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	8.123
VAP-E23E_ZZZ02A06 / Unsegmented estuaries in E23 / Unsegmented portion within SFC 025A-068A, 4/15/2020. Merged in the 2022 cycle. RPPMH	4A	Fecal Coliform	2006	L	0.049

Upper Rappahannock River, Little Carter Creek, Jugs Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	9.18		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23E-02-BAC** **Cat Point Creek**

Cause Location: The tidal portion of Cat Point Creek.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Tidal Cat Point Creek was impaired of the Recreation Use in the 2010 cycle due to enterococci violations at 3-CAT006.58, which is located below Rt. 624.

During the 2014 cycle, enterococci exceedance rates were 9/23 at 3-CAT006.58, as well as 3/12 at 3-CAT000.46.

Additional monitoring occurred at 3-CAT006.58 in the 2020 cycle; the exceedance rate was 5/8.

Cat Point Creek is located within the study area for the downstream Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010; therefore, it is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples at 3-CAT006.58.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_CAT01A02 / Cat Point Creek / The tidal portion of Cat Point Creek. RPPMH	4A	Enterococcus	2010	L	1.28

Cat Point Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.28		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **E23E-03-BAC** **Hoskins Creek**

Cause Location: The tidal portion of Hoskins Creek from the Tappahannock STP to its mouth at the Rappahannock River.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Tidal Hoskins Creek was initially included on the 1994 303(d) list based on excessive fecal coliform standard exceedances recorded at the Rt. 360 bridge (3-HOK000.74). The upstream limit was extended to the Town of Tappahannock STP in the 1998 cycle in recognition that the STP may be a contributing source. During the 2006 cycle, the segment remained impaired and enterococci was added as an impairing cause. TMDL monitoring was initiated in the 2008 cycle; the impairment was confirmed, extended upstream to the tidal limit, and switched to enterococci based on exceedances at multiple stations.

The entire segment remained impaired in the 2010 cycle due to the following enterococci exceedance rates: 5/13 at 3-CRC000.15 10/13 at 3-HOK000.15 24/36 at 3-HOK000.74 7/13 at 3-HOK002.74 7/13 at 3-HOK003.61

The bacterial TMDL, which was approved by the EPA on 3/27/2008 and by the SWCB on 4/28/2009 only addressed the area from the Tappahannock STP to its mouth. The extension was split off and is addressed in fact sheet E23E-03-BAC2; it is considered to be nested. Both areas are Category 4A.

During the 2020 cycle, the exceedance rates were 7/9 at 3-HOK002.74 and 4/8 at 3-HOK003.61 (in E23E-03-BAC2).

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data at 3-HOK003.61 and 3-HOK002.74 confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_HOK01A98 / Hoskins Creek / Hoskins Creek from the Tappahannock STP downstream to the mouth at the Rappahannock River. RPPMH	4A	Enterococcus	2006	L	0.084

Hoskins Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.084		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23E-03-BAC2** **Hoskins Creek, Church Swamp**

Cause Location: The tidal portion of Hoskins Creek and Church Swamp downstream to the Tappahannock STP.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Tidal Hoskins Creek was initially included on the 1994 303(d) list based on excessive fecal coliform standard exceedances recorded at the Rt. 360 bridge (3-HOK000.74). The upstream limit was extended to the Town of Tappahannock STP in the 1998 cycle in recognition that the STP may be a contributing source. During the 2006 cycle, the segment remained impaired and enterococci was added as an impairing cause. TMDL monitoring was initiated in the 2008 cycle; the impairment was confirmed, extended upstream to the tidal limit, and switched to enterococci based on exceedances at multiple stations.

The entire segment remained impaired in the 2010 cycle due to the following enterococci exceedance rates: 5/13 at 3-CRC000.15 10/13 at 3-HOK000.15 24/36 at 3-HOK000.74 7/13 at 3-HOK002.74 7/13 at 3-HOK003.61

The bacterial TMDL, which was approved by the EPA on 3/27/2008 and by the SWCB on 4/28/2009 only addressed the area from the Tappahannock STP to its mouth. The extension was split off. It is considered to be nested. Both areas are Category 4A.

During the 2020 cycle, the exceedance rates were 4/8 at 3-HOK003.61 and 7/9 at 3-HOK002.74 (in E23E-03-BAC).

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data at 3-HOK003.61 and 3-HOK002.74 confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_CRC01A08 / Church Swamp / Tidal limit to mouth at Hoskins Creek RPPMH	4A	Enterococcus	2008	L	0.002
VAP-E23E_HOK02A08 / Hoskins Creek / Hoskins Creek from its tidal limit to the confluence with Church Swamp. RPPMH	4A	Enterococcus	2008	L	0.052
VAP-E23E_HOK02A10 / Hoskins Creek / Hoskins Creek from the confluence with Church Swamp downstream to the Tappahannock STP. RPPMH	4A	Enterococcus	2006	L	0.016

Hoskins Creek, Church Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.069		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E23E-03-PH Hoskins Creek

Cause Location: Hoskins Creek from its tidal limit to the confluence with Church Swamp.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: During the 2006 cycle, pH was added as an impairment because of exceedances at 3-HOK003.61, which is located at the Route 659 bridge. The violation rate was 13/36 in the 2010 cycle.

The upstream segment extent was corrected in the 2008 cycle due to acceptable pH values at three downstream stations.

A Natural Conditions Assessment was completed for Hoskins Creek during the 2012 cycle. The report recommends that tidal Hoskins Creek from its tidal limit downstream to the confluence with Church Swamp be reclassified as Class VII swampwaters. The stream is considered Category 4C.

In the 2020 cycle, pH remains impaired (2/11 at 3-HOK003.61).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_HOK02A08 / Hoskins Creek / Hoskins Creek from its tidal limit to the confluence with Church Swamp. RPPMH	4C	pH	NA	NA	0.052

Hoskins Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.052		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E23E-05-BAC** Little Carter Creek and Jugs Creek

Cause Location: Tidal Little Carter Creek and Jugs Creek downstream it their mouths at the Rappahannock River.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Little Carter Creek and Jugs Creek were impaired of the Recreation Use due to an enterococci exceedance rate of 5/11 at 3-LIE003.62.

The area is within the study area for the Upper Rappahannock Watershed Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010. Implementation of the TMDL is expected to lower bacterial levels; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_LIE01A98 / Little Carter Creek, Jugs Creek / Tidal limit to mouth at the Rappahannock River. RPPMH	4A	Enterococcus	2012	L	0.419

Little Carter Creek and Jugs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.419		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23E-06-BAC** Piscataway Creek

Cause Location: Tidal Piscataway Creek

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2016 cycle, the tidal Piscataway Creek was assessed not supporting of the Recreation Use based on an enterococci exceedance rate of 2/10 at the Route 17 bridge (3-PIS004.79).

Additional monitoring was conducted at 3-PIS004.67 during the 2020 cycle (7/18).

The area is within the study area for the Upper Rappahannock Watershed Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010. Implementation of the TMDL is expected to lower bacterial levels; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data was collected at 3-PIS004.79 so the impairment was carried over. In addition, the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples at 3-PIS004.67.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_PIS02A00 / Piscataway Creek / The estuarine portion of Piscataway Creek. RPPMH	4A	Enterococcus	2016	L	0.589

Piscataway Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.589		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23E-07-BAC** Mount Landing Creek

Cause Location: Tidal Mount Landing Creek

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2020 cycle, tidal Mount Landing Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 4/9 at 3-MTL000.12.

The area is within the study area for the Upper Rappahannock Watershed Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010. Implementation of the TMDL is expected to lower bacterial levels; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_MTL01A10 / Mount Landing Creek / Tidal limit to mouth at the Rappahannock River. RPPMH	4A	Enterococcus	2020	L	0.172

Mount Landing Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.172		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23L-01-HG** **Chandlers Millpond**

Cause Location: Chandlers Millpond in its entirety

Cause City/County: Westmoreland County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: On 8/31/2007, the Virginia Department of Health issued a fish consumption advisory for Chandlers Millpond based upon DEQ fish tissue monitoring at station 3-CMR001.00 in 2006. The advisory recommends consuming no more than two meals/month of largemouth bass due to the presence of mercury.

The DEQ monitoring showed mercury exceedances in both largemouth bass and black crappie.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23L_CMRO1A08 / Chandlers Millpond / Chandlers Millpond in its entirety	5A	Mercury in Fish Tissue	2008	L	47.99

Chandlers Millpond

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		47.99	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E23R-03-PH** Mill Creek and Mussell Swamp

Cause Location: Piscataway Creek from Sturgeon Swamp to tidal limit, Mill Creek and Mussell Swamp.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: Piscataway Creek from Sturgeon Swamp downstream to the tidal limit was initially assessed not supporting of the Aquatic Life use support goal in 1998 based on pH standard exceedances recorded at monitoring station 3-PIS009.24, located at the Route 691 bridge. The TMDL was due in 2010.

During the 2004 cycle, UT XFL was also considered impaired for pH (2004 fact sheet VAP-E23R-08). The TMDL was due by 2014.

During the 2006 cycle, additional watershed monitoring was performed and all of Piscataway Creek was impaired for pH, as well as XFL, XFM, XFN, Mussell Swamp, Sturgeon Swamp, and Mill Creek; therefore, the segment was expanded with TMDL due dates of 2018. The “Natural Conditions Assessment for low pH, Piscataway Creek, Essex, Virginia” was completed; it recommends that Piscataway Creek and its tributaries from its headwaters to its mouth at the Rappahannock River be reclassified as Class VII swampwaters. However, only the Piscataway Creek watershed upstream of Sturgeon Swamp was reclassified as Class VII swampwaters; the reclassified portion was delisted for pH based upon acceptable exceedance rates at the following stations:

3-PIS014.13 3-STU000.92 3-XFL001.04 3-XFM000.82 3-XFN000.01

The portion of nontidal Piscataway Creek below Sturgeon Swamp was determined to meet Class III limits and was removed from the Class VII reclassification. Although no additional data was collected during the 2010 cycle, the segment was delisted based upon the acceptable 2008 exceedance rate.

The remainder includes Mill Creek and Mussell Swamp. Until the remainder of the watershed is reclassified, they are considered Cat. 4C for pH.

In addition, the original lower portion of Piscataway Creek (Sturgeon Swamp to tidal limit) was relisted during the 2014 cycle. During the 2020 cycle, the pH exceedance rates were 1/36 at 3-PIS009.24 and 0/4 at 3-PIS008.15; therefore, Piscataway Creek was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_MLC01A04 / Mill Creek / Headwaters to tidal limit	4C	pH	NA	NA	5.27
VAP-E23R_MUS01A04 / Mussell Swamp / Headwaters to tidal limit.	4C	pH	NA	NA	5.13

Mill Creek and Mussell Swamp

Aquatic Life

pH - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.4

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E23R-04-BAC** **Hoskins Creek**

Cause Location: Headwaters to tidal limit

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Hoskins Creek was assessed as impaired of the Recreation Use during the 2014 cycle due to E. coli exceedances at 3-HOK011.45.

The exceedance rate is 9/36 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

The impairment is nested within the tidal Hoskins Creek TMDL, which was approved by the EPA on 3/27/2008 and by the SWCB on 4/28/2009; therefore, it is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_HOK01A04 / Hoskins Creek / Headwaters to the tidal limit	4A	Escherichia coli (E. coli)	2014	L	13.17

Hoskins Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.17

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23R-06-BAC** **Cat Point Creek and Tributaries**

Cause Location: Nontidal Cat Point Creek and all tributaries draining to that segment.

Cause City/County: Richmond County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Cat Point Creek from Ruin Branch (river mile 14.1) downstream to the tidal limit near Canal Swamp (river mile 10.54) was assessed as not supporting of the Recreation Use due to E. coli violations at 3-CAT011.62, which is located at the Route 637 bridge.

During the 2012 cycle, Nanny Sanford Swamp above Chandlers Millpond was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/12 at 3-NSS000.77, which is located at the Route 622 bridge. It was addressed in 2012 fact sheet E23R-01-BAC.

Additional monitoring was conducted during the 2014 cycle. The E. coli exceedances were widespread (see below); therefore, the impairments were combined and expanded to include all tributaries to nontidal Cat Point Creek.

6/30 at 3-CAT011.62 (2018 cycle) 3/12 at 3-NSS000.77 2/12 at 3-BLA002.31 4/12 at 3-CAT015.44 4/12 at 3-BRL000.15 3/12 at 3-CMR000.50 2/12 at 3-PAN003.00 5/12 at 3-RUN000.13 3/12 at 2-SYN000.42 2/12 at 3-TBS001.08 3/12 at 3-TBS003.39

In the 2020 cycle, the E. coli exceedance rate was 8/30 at 3-CAT011.62 and 4/9 at 3-TBS003.39.

The watershed is located within the study area for the downstream Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010; therefore, it is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. Station 3-TBS003.39 remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples. The remaining stations were either not sampled or there was insufficient data to assess the new criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_BLA01A06 / Black Swamp / Black Swamp from its headwaters downstream to Chandlers Millpond	4A	Escherichia coli (E. coli)	2014	L	4.19
VAP-E23R_CAT01A98 / Cat Point Creek / Cat Point Creek from Ruin Branch downstream to tidal limit near Canal Swamp (river mile 10.54)	4A	Escherichia coli (E. coli)	2010	L	5.34
VAP-E23R_CAT02A02 / Cat Point Creek / Cat Point Creek from The Big Swamp to Ruin Branch.	4A	Escherichia coli (E. coli)	2014	L	1.20
VAP-E23R_CAT03A04 / Cat Point Creek tributaries / Cat Point Creek tributaries above the tidal limit, excluding Black Swamp, The Big Swamp, Ruin Branch, and Nanny Sanford Swamp above Chandlers Millpond	4A	Escherichia coli (E. coli)	2014	L	94.76
VAP-E23R_NSS01A12 / Nanny Sanford Swamp / Mainstem above Chandlers Millpond	4A	Escherichia coli (E. coli)	2012	L	3.58
VAP-E23R_RUN01A14 / Ruin Branch / Headwaters to mouth at Cat Point Creek	4A	Escherichia coli (E. coli)	2014	L	2.54
VAP-E23R_TBS01A06 / The Big Swamp / Headwaters to mouth at Cat Point Creek	4A	Escherichia coli (E. coli)	2014	L	6.75

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Cat Point Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			118.36

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23R-07-BEN** **Ruin Branch**

Cause Location: Ruin Branch in its entirety

Cause City/County: Richmond County; Westmoreland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle, Ruin Branch was assessed as not supporting the Aquatic Life Use due to impairment of the benthic community at 3-RUN000.13.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_RUN01A14 / Ruin Branch / Headwaters to mouth at Cat Point Creek	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.54

Ruin Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.54

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E23R-08-BAC** **Muddy Run**

Cause Location: Nontidal Muddy Run

Cause City/County: Richmond County; Westmoreland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Muddy Run was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/12 at 3-MUR001.19, which is located at the Route 690 bridge.

The impairment is nested within the downstream Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010; therefore, it is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_MUR01A04 / Muddy Run / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2014	L	4.66

Muddy Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.66

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23R-12-DO** **Mussell Swamp**

Cause Location: Headwaters to mouth at Piscataway Creek

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2006 cycle, Mussell Swamp was assessed as impaired of the Aquatic Life Use based on dissolved oxygen exceedances at 3-MUS001.23, located at the Route 615 bridge.

Natural conditions are suspected; therefore, the segment is assessed as Cat. 5C until the natural conditions assessment can be performed.

During the 2008 cycle, the exceedance rate was 3/26. No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_MUS01A04 / Mussell Swamp / Headwaters to tidal limit.	5C	Dissolved Oxygen	2006	L	5.13

Mussell Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.13

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E23R-16-BEN** **Church Swamp**

Cause Location: Church Swamp from its headwaters to its tidal limit at Hoskins Creek

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, Church Swamp was assessed as not supporting the Aquatic Life Use due to impairment of the benthic community at freshwater probabilistic monitoring station 3-CRC001.38.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_CRC01A06 / Church Swamp / Headwaters to tidal limit	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.24

Church Swamp

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.24

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E23R-19-BAC** Clarks Run

Cause Location: Nontidal Clarks Run

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Clarks Run was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/12 at 3-CLK000.27, which is located at the Route 621 bridge.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The impairment is considered nested within the downstream Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010; therefore, it is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_CLK01A14 / Clarks Run / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2014	L	3.83

Clarks Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.83

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23R-20-DO** **Scates Millstream**

Cause Location: Nontidal Scates Millstream

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Scates Millstream was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/12 at station 3-SMS000.77, which is located at Route 635.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_SMS01A14 / Scates Millstream / Headwaters to tidal limit	5C	Dissolved Oxygen	2014	L	2.89

Scates Millstream

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.89

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E23R-20-PH** **Scates Millstream**

Cause Location: Nontidal Scates Millstream

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2014 cycle, Scates Millstream was impaired of the Aquatic Life Use due to a pH exceedance rate of 6/12 at station 3-SMS000.77, which is located at Route 635.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_SMS01A14 / Scates Millstream / Headwaters to tidal limit	5C	pH	2014	L	2.89

Scates Millstream

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 2.89

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E23R-22-BAC** **Mount Landing Creek**

Cause Location: Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit at approximately river mile 4.44.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit was impaired of the Recreation Use due to an E. coli exceedance rate of 5/23 at 3-MTL004.82, which is located at the Route 716 bridge.

The stream is located within the study area for the Upper Rappahannock River Watershed (growing areas 25 and 26) Bacterial TMDL, which was approved by the EPA on 8/10/2010 and by the SWCB on 12/13/2010. The impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_MTL01A98 / Mount Landing Creek / Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit at approximately river mile 4.44.	4A	Escherichia coli (E. coli)	2020	L	1.16

Mount Landing Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.16

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E23R-22-PCB** **Mount Landing Creek**

Cause Location: Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit at approximately river mile 4.44.

Cause City/County: Essex County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2020 cycle, Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit was impaired of the Fish Consumption Use due to PCBs over the fish tissue level in gizzard shad and blue catfish at 3-MTL004.82, which is located at the Route 716 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23R_MTL01A98 / Mount Landing Creek / Mount Landing Creek from the first tributary upstream of the Route 716 bridge downstream to the tidal limit at approximately river mile 4.44.	5A	PCBs in Fish Tissue	2020	L	1.16

Mount Landing Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			1.16

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: E24E-01-SF Richardson Creek / Rappahannock River

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 025-071A, 4/15/2020

Cause City/County: Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 025-071A, 4/15/2020

Previous shellfish condemnations have included Totuskey and Richardson Creeks (separately or combined). The streams have been impaired since the 1998 cycle. However, in 2006 the segments were recombined and extended into the Rappahannock mainstem. The condemnation was further extended in the 2008 cycle.

During the 2010 cycle, the condemnation was shortened and it was determined that the entire portion of the condemnation located within Totuskey Creek and portions of the Rappahannock River and Richardson Creek were considered administrative (VDH-DSS SFC 025-071A, 4/2/2008.) Those areas were partially delisted. The upstream portion of Richardson Creek remained listed.

The Totuskey and Richardson Creeks Bacterial TMDL was approved by the EPA on 2/19/2010. The TMDL was based on the maximum extent of the condemnation, which occurred in condemnation 025-071A, 3/16/2007.

The condemnation was shortened and split in the 2012 cycle and the Rappahannock River and the mouth of Richardson Creek were re-opened for harvest; those portions were partially delisted. The closed portion is considered Category 4A. Open areas are Category 2C.

The condemnations expanded and merged again in the 2018 cycle.

The condemnation expanded further in the 2022 cycle and incorporated the previously open portion of Richardson Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_RIC01A04 / Richardson Creek / Richardson Creek within SFC 025-071A, 4/15/2020 (non-administrative.) Merged in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.321
VAP-E24E_RPP01E18 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 4/15/2020 (non-admin) Expanded in the 2022 cycle. RPPMH	4A	Fecal Coliform	2018	L	0.177

Richardson Creek / Rappahannock River

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary	Reservoir	River
		(Sq. Miles)	(Acres)	(Miles)
		0.498		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E24E-02-BAC** **Totuskey Creek**

Cause Location: The tidal portions of Totuskey Creek.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Totuskey Creek was previously assessed as not supporting of the Recreation Use because of fecal coliform exceedances at the Route 3 bridge (3-TOT005.11). During the 2006 cycle, the segment remained impaired for fecal coliform and enterococci was added as an impairment. During the 2008 cycle, the impairment converted solely to enterococci. The bacteria TMDL was due in 2014.

The bacterial TMDL was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. Totuskey Creek is considered a Category 4A water.

Additional monitoring has been conducted. During the 2016 cycle, the enterococci exceedance rates were as follows: 17/37 at 3-TOT005.11 (2020 cycle) 6/12 at 3-TOT006.34 6/12 at 3-LIK000.15 2/11 at 2-MAY000.12

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples at 3-TOT005.11. There is insufficient information to assess the criteria at 3-TOT006.34. The remaining stations were not re-sampled.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_LIK01A12 / Little Totuskey Creek / Tidal limit to mouth at Totuskey Creek RPPMH	4A	Enterococcus	2006	L	0.055
VAP-E24E_TOT01A00 / Totuskey Creek / The segment boundary is delineated in VDH condemnation 025-071B, 4/15/2020 excluding Little Totuskey Creek. RPPMH	4A	Enterococcus	2006	L	0.302
VAP-E24E_TOT02A00 / Totuskey Creek / Portion of VDH shellfish condemnation 025-071A, 4/15/2020 within Totuskey Creek. RPPMH	4A	Enterococcus	2006	L	0.647
VAP-E24E_TOT02B10 / Totuskey Creek / Downstream of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	4A	Enterococcus	2006	L	0.064

Totuskey Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.068		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E24E-02-EBTOX** Totuskey Creek

Cause Location: The tidal portions of Totuskey Creek.

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2006 cycle, estuarine probabilistic monitoring was conducted through the Coastal 2000 program at 3-TOT007.84 and 3-TOT004.92. The data was assessed by DEQ-CO through the Weight of Evidence approach. The alteration at station 3-TOT007.84 was assessed as Category 5A.

Note: The impairment cause was changed from toxics to estuarine bioassessments in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_LIK01A12 / Little Totuskey Creek / Tidal limit to mouth at Totuskey Creek RPPMH	5A	Estuarine Bioassessments	2006	L	0.055
VAP-E24E_TOT01A00 / Totuskey Creek / The segment boundary is delineated in VDH condemnation 025-071B, 4/15/2020 excluding Little Totuskey Creek. RPPMH	5A	Estuarine Bioassessments	2006	L	0.302
VAP-E24E_TOT02A00 / Totuskey Creek / Portion of VDH shellfish condemnation 025-071A, 4/15/2020 within Totuskey Creek. RPPMH	5A	Estuarine Bioassessments	2006	L	0.647
VAP-E24E_TOT02B10 / Totuskey Creek / Downstream of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	5A	Estuarine Bioassessments	2006	L	0.064

Totuskey Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	1.068		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E24E-06-SF** **Garrett's Marina**

Cause Location: Described in VDH-DSS Condemnation 026-181A, 4/15/2020

Cause City/County: Essex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 026-181A, 4/15/2020

Garrett's Marina was impaired of the Shellfish Consumption Use in the 1998 cycle (E24E-03-SF). During the 2008 cycle, the condemnation expanded and incorporated previous condemnation M271, which had been seasonally condemned (observed effects).

Garrett's Marina was included in the Upper Rappahannock Watershed Shellfish TMDL, which was approved by the EPA on 8/10/2010; therefore, this portion was considered Category 4A.

VDH shellfish condemnation 026-181A, 3/25/2015 was rescinded in the 2020 cycle and the area became seasonally condemned and was delisted (Category 2B/2C).

This portion was relisted in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_RPP01B14 / Garrett's Marina / As delineated in VDH shellfish condemnation 026-181A, 4/15/2020. RPPMH	4A	Fecal Coliform	2022	L	0.003

Garrett's Marina

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.003		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E24R-01-BAC** **Bookers Mill Stream**

Cause Location: Bookers Mill Stream from its headwaters to its mouth at the confluence with Totuskey Creek.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Bookers Mill Stream was assessed not supporting of the Recreation Use support goal in 2002 based on fecal coliform exceedances recorded at the Route 612 bridge (3-BMS002.00). Monitoring was discontinued in 2001; therefore, the previous assessment was carried over.

Additional monitoring was conducted during the 2012 cycle; the E. coli exceedance rates were as follows: 3/12 at 3-BMS000.37 2/12 at 3-BMS002.00 5/12 at 3-BMS004.42

New bacteria criteria were implemented in the 2022 cycle. There has been no additional monitoring at 3-BMS000.37 and 3-BMS004.42 and there is insufficient information to assess the criteria at 3-BMS002.00; therefore, the impairment is carried over.

The bacterial TMDL for the tidal Recreation Use and Shellfish Use impairments on Totuskey Creek was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. The impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BMS01A98 / Bookers Mill Stream / Bookers Mill Stream in its entirety.	4A	Escherichia coli (E. coli)	2012	L	6.54

Bookers Mill Stream

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.54

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: E24R-01-DO Bookers Mill Stream

Cause Location: Bookers Mill Stream from its headwaters to its mouth at the confluence with Totuskey Creek.

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, Bookers Mill Stream was impaired of the Aquatic Life Use due to the following dissolved oxygen exceedance rates:

2/12 at 3-BMS000.37

0/14 at 3-BMS002.00 (FS) 3/12 at 3-BMS004.42

Station 3-BMS002.00 remains fully supporting in the 2022 cycle (0/7). However, the impairment will be carried over because the other stations were not re-sampled.

Natural conditions are suspected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BMS01A98 / Bookers Mill Stream / Bookers Mill Stream in its entirety.	5C	Dissolved Oxygen	2012	L	6.54

Bookers Mill Stream

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			6.54

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: E24R-02-BAC Totuskey Creek

Cause Location: The free flowing portion of Totuskey Creek.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, the nontidal portion of Totuskey Creek was assessed as not supporting the Recreation Use due to E. coli exceedances at 3-TOT009.95, which is located at the Route 619 bridge.

During the 2012 cycle, the exceedance rates were as follows: 5/25 at 3-TOT009.95 3/12 at 3-TOT012.53 4/12 at 3-TOT014.49

The exceedance rate was 3/11 at 3-TOT009.95 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected at 3-TOT012.53 and 3-TOT014.49 and there is insufficient information to assess the criteria at 3-TOT009.95; therefore, the impairment is carried over.

The bacterial TMDL for the tidal Recreation Use and Shellfish Use impairments was completed during the 2010 cycle. It was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. The nontidal Recreation Use impairment is considered to be nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_TOT01A06 / Totuskey Creek / The nontidal portion of Totuskey Creek	4A	Escherichia coli (E. coli)	2006	L	8.05

Totuskey Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 8.05

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E24R-03-BAC** **Muddy Gut**

Cause Location: Headwaters to mouth at Rappahannock River.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Muddy Gut was assessed as impaired of the Recreation Use based on an E. coli violation rate of 5/10 at the Route 607 bridge (3-MUG000.96).

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Muddy Gut is located within the study area for the Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 2/10/2010 and by the SWCB on 9/30/2010. Muddy Gut is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_MUG01A08 / Muddy Gut / Headwaters to mouth at the Rappahannock River.	4A	Escherichia coli (E. coli)	2008	L	2.64

Muddy Gut

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.64

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E24R-03-PH** **Muddy Gut**

Cause Location: Headwaters to mouth at Rappahannock River.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2008 cycle, Muddy Gut was assessed as impaired of the Aquatic Life Use based on a pH exceedance rate of 4/10 at the Route 607 bridge (3-MUG000.96).

The station was re-sampled in the 2022 cycle and remains impaired (4/10).

Natural conditions are suspected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_MUG01A08 / Muddy Gut / Headwaters to mouth at the Rappahannock River.	5C	pH	2008	L	2.64

Muddy Gut

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.64

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E24R-04-BAC** Little Totuskey Creek

Cause Location: Headwaters to the tidal limit

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Little Totuskey Creek was assessed as not supporting the Recreation Use due to an E. coli exceedance rate of 2/12 at LIK002.21, which is located at the Route 360 bridge.

New bacteria criteria were implemented in the 2022 cycle. That station has not been re-sampled. Additional monitoring was conducted at 3-LIK002.12. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

The bacterial TMDL for the tidal Totuskey Creek Recreation Use and Shellfish Use impairments was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. The Recreation Use impairment is considered to be nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_LIK01A08 / Little Totuskey Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2012	L	1.91

Little Totuskey Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.91

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E24R-05-PH Branham Mill Swamp

Cause Location: Branham Mill Swamp from its headwaters to its mouth at Marshy Swamp

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Branham Mill Swamp was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at 3-BRA000.85.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BRA01A08 / Branham Mill Swamp / Headwaters to mouth at Marshy Swamp	5C	pH	2012	L	3.66

Branham Mill Swamp

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 3.66

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E24R-06-BAC** **Richardson Creek and Tributaries**

Cause Location: Headwaters to the tidal limit

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the streams were assessed as impaired of the Recreation Use due to E. coli exceedances.

4/23 at 2-RIC003.85 4/12 at 3-RIC005.00 5/12 at 3-RIC006.43 3/12 at 3-RNF002.04 1/12 at 3-XHJ000.04 (FS)

The exceedance rate was 3/11 in the 2020 cycle at 3-RIC003.85.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The bacterial TMDL for the tidal Totuskey and Richardson Creeks Recreation Use and Shellfish Use impairments was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. The Recreation Use impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_RIC01A12 / Richardson Creek and Tributaries / The nontidal streams in the Richardson Creek watershed.	4A	Escherichia coli (E. coli)	2012	L	17.22

Richardson Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.22

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E24R-06-DO Richardson Creek and Tributaries

Cause Location: Headwaters to the tidal limit

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, Richardson Creek and its tributaries were impaired of the Aquatic Life Use due to dissolved oxygen exceedances.

During the 2016 cycle, the exceedance rates were as follows: 11/24 at 3-RIC003.85 0/12 (FS) at 3-RIC005.00 4/12 at 3-RIC006.43 1/12 (FS) at 3-RNF002.04 7/12 at 3-XHJ000.04

Additional monitoring was conducted at 3-RIC003.85 during the 2022 cycle; the station remained impaired (5/11).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_RIC01A12 / Richardson Creek and Tributaries / The nontidal streams in the Richardson Creek watershed.	5C	Dissolved Oxygen	2012	L	17.22

Richardson Creek and Tributaries

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		17.22

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E24R-06-PH** **Richardson Creek and Tributaries**

Cause Location: Headwaters to the tidal limit

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Richardson Creek and its tributaries were impaired of the Aquatic Life Use due to pH exceedances.

The pH exceedance rates were as follows in the 2016 cycle: 16/24 at 3-RIC003.85 3/12 at 3-RIC005.00 11/12 at 3-RIC006.43 2/12 at 3-RNF002.04 7/12 at 3-XHJ000.04

Additional monitoring was conducted at 3-RIC003.85 during the 2022 cycle; the station remained impaired (2/11).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_RIC01A12 / Richardson Creek and Tributaries / The nontidal streams in the Richardson Creek watershed.	5C	pH	2012	L	17.22

Richardson Creek and Tributaries

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		17.22

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: E24R-07-BAC Totuskey Creek Tributaries

Cause Location: The tributaries of Totuskey Creek above the confluence with Little Totuskey Creek, excluding Bookers Mill Swamp

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributaries were impaired of the Recreation Use due to widespread E. coli exceedances.

3/11 at 3-MIL000.15 4/12 at 3-DRK001.35 4/12 at 3-XHK000.65 4/11 at 3-XHL000.96 6/11 at 3-XHM000.27

The bacterial TMDL for the tidal Totuskey and Richardson Creeks Recreation Use and Shellfish Use impairments was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010. The Recreation Use impairment is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_TOT02B12 / Totuskey Creek Tributaries / The nontidal tributaries of Totuskey Creek above the confluence with Little Totuskey, unless otherwise segmented.	4A	Escherichia coli (E. coli)	2012	L	73.27
VAP-E24R_XHL01A12 / XHL - Bookers Mill Stream, UT / Headwaters to mouth at Bookers Mill Stream	4A	Escherichia coli (E. coli)	2012	L	2.01

Totuskey Creek Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			75.28

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E24R-08-PH** XHL - Bookers Mill Stream, UT

Cause Location: Headwaters to mouth at Bookers Mill Stream

Cause City/County: Richmond County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, tributary XHL was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/11 at 3-XHL000.96, which is located at the Route 603 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_XHL01A12 / XHL - Bookers Mill Stream, UT / Headwaters to mouth at Bookers Mill Stream	5C	pH	2012	L	2.01

XHL - Bookers Mill Stream, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.01

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E24R-10-BAC** Bellview Creek

Cause Location: Bellview Creek from its headwaters to its mouth at the Rappahannock River.

Cause City/County: Essex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Bellview Creek was impaired of the Recreation Use due to an E.coli exceedance rate of 4/10 at 3-BLV002.94, which is located at Route 611.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The stream is located within the study area for the Upper Rappahannock Shellfish TMDL, which was approved by the EPA on 8/10/2010 and by the EPA on 12/13/2010. The impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BLV01A20 / Bellview Creek / Headwaters to mouth at the Rappahannock River	4A	Escherichia coli (E. coli)	2020	L	3.31

Bellview Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.31

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E24R-10-DO** **Bellview Creek**

Cause Location: Bellview Creek from its headwaters to its mouth at the Rappahannock River.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2020 cycle, Bellview Creek was impaired of the Aquatic Life Use to a dissolved oxygen exceedance rate of 2/10 at 3-BLV002.94, which is located at Route 611.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BLV01A20 / Bellview Creek / Headwaters to mouth at the Rappahannock River	5C	Dissolved Oxygen	2020	L	3.31

Bellview Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 3.31

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E24R-10-PH** Bellview Creek

Cause Location: Bellview Creek from its headwaters to its mouth at the Rappahannock River.

Cause City/County: Essex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2020 cycle, Bellview Creek was impaired of the Aquatic Life Use to a pH exceedance rate of 10/10 at 3-BLV002.94, which is located at Route 611.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24R_BLV01A20 / Bellview Creek / Headwaters to mouth at the Rappahannock River	5C	pH	2020	L	3.31

Bellview Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 3.31

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E25E-01-BAC** **Lagrange Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 127, 6/11/1996

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Lagrange Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 3-LGG001.92, which is located at the end of Route 656.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Lagrange Creek Shellfish Bacterial TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. Implementation of that TMDL is expected to bring the stream into compliance with the Recreation WQS; therefore, the impairment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_LGG01A98 / Lagrange Creek / As described in VDH SFC 028-127A, 1/12/2018. RPPMH	4A	Enterococcus	2012	L	0.47
VAP-E25E_LGG01B18 / Lagrange Creek / Portion of VDH Shellfish Condemnation 127, 6/11/1996 open on 028-127, 1/23/2018. RPPMH	4A	Enterococcus	2012	L	0.12

Lagrange Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.59		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-01-SF** **Lagrange Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 028-127A, 1/23/2018

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 028-127A,1/23/2018

A portion of Lagrange Creek was assessed in 1998 as not supporting the Shellfish Consumption Use based on VDH-DSS Condemnation 127, 6/11/1996. The TMDL for this portion was approved by the EPA on 11/15/2005 and by the SWCB on 11/15/2005. The segment is classified as Cat. 4A.

The condemnation has expanded and contracted several times and is currently smaller than the 1998 impairment. The condemned area is Category 4A. The now-open area which was addressed in the TMDL was partially delisted (Category 2C.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_LGG01A98 / Lagrange Creek / As described in VDH SFC 028-127A, 1/12/2018. RPPMH	4A	Fecal Coliform	1998	L	0.47

Lagrange Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.47		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-02-BAC** **Robinson Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 177, 5/28/1997

Cause City/County: Middlesex County

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: In 2002, the segment was assessed as not supporting the Recreation Use due to fecal coliform exceedances at the end of Route 680 (3-ROS001.35). The violation rate in the 2004 cycle was 4/20.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The area was addressed in the “Rappahannock River: Lagrange and Robinson Creeks TMDL Report for Shellfish Condemnation Areas Listed due to Bacteria Contamination” which was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. Because the bacteria standard for the Shellfish Use is more stringent than the standard for the Recreation Use, the impairment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_ROS01A00 / Robinson Creek / Described in VDH shellfish condemnation 028-177A and -D, 3/15/2020 Expanded and modified in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.143
VAP-E25E_ROS01B20 / Robinson Creek / Described in VDH shellfish condemnation 028-177M2, 3/15/2020 Size reduced in the 2022 cycle. RPPMH	4A	Fecal Coliform	2002	L	0.021
VAP-E25E_ROS01C20 / Robinson Creek / Portion of VDH shellfish condemnation 177, 5/28/1997 open in 028-177, 3/15/2020 Expanded in the 2022 cycle. RPPMH	4A	Fecal Coliform	2002	L	0.042

Robinson Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.206		

Robinson Creek

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.206		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-02-SF** **Robinson Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 177, 5/28/1997

Cause City/County: Middlesex County

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 028-177A and -D, 3/15/2020

The upstream portion of Robinson Creek was assessed in 1998 as not supporting the Shellfish Consumption Use based on VDH-DSS Condemnation 177, 5/28/1997. The TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The impairment is classified as Category 4A.

In the 2020 cycle, the condemnation shrank and split. The open and seasonally condemned areas were partially delisted (Category 2C and 2C/2B, respectively.)

The condemnations adjusted in the 2022 cycle but remain smaller than the TMDL extent.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_ROS01A00 / Robinson Creek / Described in VDH shellfish condemnation 028-177A and -D, 3/15/2020 Expanded and modified in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.143

Robinson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.143		

Robinson Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.143		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-05-BAC** **Farnham Creek**

Cause Location: Farnham Creek from its tidal limit to its mouth at the Rappahannock River.

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: In 2002, Farnham Creek was assessed as not supporting of the Recreation Use due to fecal coliform exceedances at 3-FAM002.62, which is located at the Route 608 bridge.

The bacteria TMDL for shellfish condemnations in Farnham Creek was completed was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2008. The Recreation Use impairment is considered to be nested.

The impairment converted to enterococci in the 2010 cycle.

During the 2016 cycle, the exceedance rate was 8/12.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_FAM01A98 / Farnham Creek / Portion of VDH shellfish condemnation 070, 10/22/1996 not administratively condemned in 024-070A, 1/7/2019. RPPMH	4A	Enterococcus	2010	L	0.357
VAP-E25E_FAM01B22 / Farnham Creek / Portion of VDH shellfish condemnation 070, 10/22/1996 administratively condemned in 024-070A, 1/7/2019. RPPMH	4A	Enterococcus	2010	L	0.074

Farnham Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.431		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-05-SF** **Farnham Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 024-070A, 1/7/2019.

Cause City/County: Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 024-070A, 1/7/2019

Farnham Creek has been assessed as not supporting the Shellfish Use since 1998. The TMDL was due in 2010.

The bacteria TMDL for shellfish condemnations in Farnham Creek was approved by the EPA on 8/2/2006. The TMDL was based on the extent of the 1998 condemnation, which extended to the mouth of Farnham Creek (070, 10/22/1996).

During the 2010 cycle, the condemnation size was reduced; the lower portion now open for harvest was partially delisted (Category 2C). The condemned area is considered a Category 4A water for the Shellfish Consumption Use.

The condemnation expanded in the 2020 cycle and matches the extent of the completed TMDL.

However, in the 2022 cycle, a portion of the condemnation converted to administratively condemned and will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_FAM01A98 / Farnham Creek / Portion of VDH shellfish condemnation 070, 10/22/1996 not administratively condemned in 024-070A, 1/7/2019. RPPMH	4A	Fecal Coliform	1998	L	0.357

Farnham Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.356		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-07-SF** **Parrotts Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 090, 4/27/1989

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 027-090A, 1/27/2015

The Shellfish TMDL report for “Rappahannock River: Mud and Parrotts Creeks” was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The TMDL addressed the 1998 portion of the current condemnation; therefore, the impairment is considered Cat. 4A. The downstream portion of the Parrotts Creek condemnation is addressed in fact sheet E25E-27-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_PRR01A02 / Parrotts Creek / The segment boundaries are delineated in VDH shellfish condemnation 090, 4/27/1989. RPPMH	4A	Fecal Coliform	1998	L	0.153

Parrotts Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.153		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-10-SF** Deep Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 121, 11/16/1994

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 023-121B, 11/15/2020

A 0.0491 sq. mi. portion of Deep Creek was assessed as impaired of the Shellfish Consumption Use on the 1998 303(d) list due to VDH condemnation 121, 11/16/1994.

The condemnation began expanding in the 2002 cycle. However, the shellfish TMDL, which was approved by the EPA on 8/2/2006, only addressed the 1998 impairment. The original area is considered a Category 4A water; the TMDL for the downstream portion is addressed in fact sheet E25E-10-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_DEE01A04 / Deep Creek / Described in VDH shellfish condemnation 121, 11/16/1994. RPPMH	4A	Fecal Coliform	1998	L	0.049

Deep Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.049		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E25E-10-SF2 Deep Creek

Cause Location: Portions of VDH Shellfish Condemnation 023-121B and 023-121C and -D, 11/15/2020 not included in the 11/16/1994 condemnation

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS condemnation 023-121B, 11/15/2020 not included in the 11/16/1994 condemnation VDH-DSS condemnations 023-121C and -D, 11/15/2020

A 0.0491 sq. mi. portion of Deep Creek was assessed as impaired of the Shellfish Consumption Use on the 1998 303(d) list due to VDH condemnation 121, 11/16/1994. The condemnation began expanding in the 2002 cycle; however, the TMDL was completed only for the original impairment (see fact sheet E25E-10-SF). The TMDL for this downstream portion was due in 2014.

The expanded portion is nested within the upstream Deep Creek Shellfish TMDL, which was approved by the EPA on 8/2/2006.

The condemnations shrank in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_DEE01B08 / Deep Creek / Portions of VDH-DSS condemnations 023-121B, -C, and -D, 11/15/2020 not included in the 11/16/1994 condemnation. Size decreased in the 2022 cycle. RPPMH	4A	Fecal Coliform	2002	L	0.05

Deep Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.05		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-11-SF** **Lancaster Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 023-120A, 8/14/1995

Cause City/County: Lancaster County; Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 020-120A, 11/15/2020

A portion of Lancaster Creek was assessed as impaired of the Shellfish Use in the 1998 cycle due to VDH Shellfish Condemnation 120A, 8/14/1995.

The TMDL Report for Shellfish Areas Listed due to Bacterial Contamination for Lancaster Creek was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007. Although the condemnation on Lancaster Creek has extended downstream since the 1998 cycle, only the original impairment was included in the TMDL. The expansion is addressed in fact sheet E25E-11-SF2. This segment is considered Category 4A for the Shellfish Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_LAN01A98 / Lancaster Creek / As delineated in VDH SFC 023-120A, 8/14/1995. RPPMH	4A	Fecal Coliform	1998	L	0.27

Lancaster Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.27		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-11-SF2** **Lancaster Creek**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 023-120A, 11/15/2020 not included in condemnation 023-120A, 8/14/1995

Cause City/County: Lancaster County; Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 020-120A, 11/15/2020

A portion of Lancaster Creek was assessed as impaired of the Shellfish Use in the 1998 cycle due to VDH Shellfish Condemnation 120A, 8/14/1995. Although the condemnation on Lancaster Creek has extended downstream since the 1998 cycle, only the original impairment was included when the TMDL was developed. Since the segment was first expanded downstream in the 2002 cycle, the TMDL for this downstream segment was due in 2014.

It is considered nested in the upstream “TMDL Report for Shellfish Areas Listed due to Bacterial Contamination for Lancaster Creek,” which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

The condemnation expanded slightly in the 2018 cycle (portion of VDH shellfish condemnation 020-120A, 12/19/2016).

The condemned area shrank in the 2020 cycle and the downstream portion became seasonally condemned and was partially delisted. It shrank further in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_LAN01B08 / Lancaster Creek / The portion of VDH Shellfish Condemnation 023-120A, 11/15/2020 not included in 120A, 8/14/1995. Size reduced in the 2022 cycle. RPPMH	4A	Fecal Coliform	2002	L	0.023

Lancaster Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.023		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-12-SF** **Morattico Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 023-120B, 11/15/2020

Cause City/County: Richmond County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 023-120B, 11/15/2020

The Morattico Creek shellfish impairment is nested in the neighboring “TMDL Report for Shellfish Areas Listed due to Bacterial Contamination for Lancaster Creek,” which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_MTT01A00 / Morattico Creek / Delineated in VDH SFC 023-120B, 11/15/2020. RPPMH	4A	Fecal Coliform	2002	L	0.138

Morattico Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.138		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-13-SF** **Mulberry Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 0123-121A, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 023-121A, 11/15/2020

A portion of Mulberry Creek was included on the 1998 303(d) list due to VDH Shellfish condemnation 120B, 8/14/1995. The TMDL for Shellfish Areas Listed due to Bacterial Contamination for Mulberry Creek was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

The TMDL only addressed the fecal coliform impairment within the 1998 portion of Mulberry Creek. The segment has shrunk and extended several times. The condemnation is smaller than the original impairment. The closed area remains Category 4A and the opened area was partially delisted (Category 2C/2B).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_MUB01A02 / Mulberry Creek / Described in VDH shellfish condemnation 023-121A, 11/15/2020. RPPMH	4A	Fecal Coliform	1998	L	0.094

Mulberry Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.094		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-15-BAC** **Greenvale Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 094, 11/7/1994

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Greenvale Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 4/5 at 3-GEE001.44, which is located at Route 624.

As the area is within the Greenvale Creek Shellfish TMDL which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007, the impairment is considered nested.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_GEE01A98 / Greenvale Creek / As delineated in VDH shellfish condemnation 094, 11/7/1994. RPPMH	4A	Enterococcus	2012	L	0.087

Greenvale Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.087		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-15-SF** **Greenvale Creek**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 094, 11/7/1994

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS condemnation 022-094A, 11/15/2020

A portion of Greenvale Creek was included on the 1998 303(d) list due to VDH condemnation 94, 11/7/1994.

The bacteria TMDL for the Shellfish Impairment on Greenvale Creek was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

The impairment has periodically expanded; however, the TMDL only addressed this 1998 portion, which is considered Category 4A.

The condemnation shrank in the 2020 cycle and became co-incident with the TMDL segment. It expanded again in the 2022 cycle (see E25E-32-SF)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_GEE01A98 / Greenvale Creek / As delineated in VDH shellfish condemnation 094, 11/7/1994. RPPMH	4A	Fecal Coliform	1998	L	0.087

Greenvale Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.087		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E25E-22-SF **Robinson Creek / Perkins Creek**

Cause Location: As described in VDH Shellfish Condemnation 028-177B and -C, 3/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 028-177B and -C, 3/15/2020

The upstream portion of Robinson Creek was assessed in 1998 as not supporting the Shellfish Consumption Use based on VDH-DSS Condemnation 177, 5/28/1997. The TMDL for that original portion was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

During the 2006 cycle, however, the condemnation extended downstream. The expansion is considered nested in the upstream Robinson Creek Shellfish TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_ROS02A04 / Robinson Creek, UT and Perkins Creek / Described in VDH Shellfish Condemnation 028-177B and -C, 3/15/2020. RPPMH	4A	Fecal Coliform	2006	L	0.039

Robinson Creek / Perkins Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.039		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E25E-27-SF Parrotts Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 027-090A, 1/27/2015 not included in 90, 4/27/1989

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 027-090A, 1/27/2015

A portion of Parrotts Creek was listed in the 1998 cycle due to VDH condemnation 027-090A, 8/18/2009. The Shellfish TMDL report for “Rappahannock River: Mud and Parrotts Creeks” was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

The condemnation subsequently expanded. The expanded area is considered nested in the upstream Parrotts Creek TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_PRR02A08 / Parrotts Creek / Portion of VDH-DSS Condemnation 027-090A, 1/27/2015 downstream of VDH Condemnation 090, 4/27/1989. RPPMH	4A	Fecal Coliform	2008	L	0.011

Parrotts Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.011		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-28-SF** **Paynes Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 022-094B, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 022-094B,11/15/2020

On older summaries Paynes Creek was shown to be non-productive. However, during the 2008 cycle, the area was determined to be condemned.

It is considered nested in the nearby Greenvale Creek Shellfish TMDL, which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_PAY01A02 / Paynes Creek / As delineated in VDH-DSS SFC 022-094B, 11/15/2020. RPPMH	4A	Fecal Coliform	2008	L	0.049

Paynes Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.049		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-30-BAC** **Town Bridge Swamp**

Cause Location: Town Bridge Swamp from its tidal limit to its mouth at tidal Urbanna Creek

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, sampling on Town Bridge Swamp at 3-TWN000.35 upstream of Urbanna Creek indicated that a portion of the creek is tidally influenced. Town Bridge Swamp is impaired of the Recreation Use due to an enterococci exceedance rate of 5/11.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The impairment is considered nested due to the downstream Urbanna Creek Shellfish TMDL, which was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_TWN01A12 / Town Bridge Swamp / Tidal limit to mouth at Urbanna Creek RPPMH	4A	Enterococcus	2012	L	0.002

Town Bridge Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.002		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25E-31-PCB** Urbanna Creek

Cause Location: Urbanna Creek from its tidal limit to its mouth at the Rappahannock River.

Cause City/County: Middlesex County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2020 cycle, tidal Urbanna Creek was impaired of the Fish Consumption Use due to exceedance of the fish tissue level in croaker and gizzard shad during monitoring in 2018 at station 2-URB000.00.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_URB01A00 / Urbanna Creek / As described in VDH-DSS SFC 029-042B, 2/14/2006. RPPMH	5A	PCBs in Fish Tissue	2020	L	0.215
VAP-E25E_URB02A00 / Urbanna Creek / As delineated in VDH shellfish condemnation 029-042A, 2/14/2006. RPPMH	5A	PCBs in Fish Tissue	2020	L	0.238

Urbanna Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.452		

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E25E-32-SF** **Greenvale Creek**

Cause Location: Portion of VDH-DSS condemnation 022-094A,11/15/2020 not included in 94, 11/7/1994

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS condemnation 022-094A,11/15/2020

A portion of Greenvale Creek was included on the 1998 303(d) list due to VDH condemnation 94, 11/7/1994.

The bacteria TMDL for the Shellfish Impairment on Greenvale Creek was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

The condemnation has expanded and contracted several times; however, the TMDL only addressed the 1998 portion. This expansion will be considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_GEE02A06 / Greenvale Creek / Portion of VDH-DSS condemnation 022-094A, 11/15/2020 not included in 94, 11/7/1994. RPPMH	4A	Fecal Coliform	2022	L	0.012

Greenvale Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.012		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25R-01-BAC** **Laton Swamp**

Cause Location: Laton Swamp from its headwaters to its mouth at Farnham Creek

Cause City/County: Richmond County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Laton Swamp was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 3-LAT002.34, which is located at Route 3.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The impairment is nested in the downstream Farnham Creek Shellfish TMDL, which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_LAT01A14 / Laton Swamp / Headwaters to mouth at Farnham Creek.	4A	Escherichia coli (E. coli)	2014	L	4.87

Laton Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.87

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E25R-02-DO** **Lagrange Creek**

Cause Location: Lagrange Creek from the headwaters to the extent of tide at approximately river mile 3.75.

Cause City/County: Middlesex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Lagrange Creek was assessed in 2010 as not supporting of the Aquatic Life Use support goal based on dissolved oxygen exceedances recorded at the Route 610 bridge (3-LGG004.54).

The exceedance rate was 7/24 during the 2012 cycle.

Natural conditions are suspected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_LGG01A98 / Lagrange Creek / Lagrange Creek from its headwaters to the limit of tidal influence.	5C	Dissolved Oxygen	2010	L	2.5

Lagrange Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.5

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Rappahannock River Basin

Cause Group Code: **E25R-03-BAC** **Nickleberry Swamp**

Cause Location: Nickleberry Swamp from its headwaters to its mouth at Hilliard Pond

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Nickleberry Swamp was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 3-NIC000.38, which is located at Route 17.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The stream is located within the Lagrange Creek watershed, which has a completed shellfish TMDL. The TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_NIC01A12 / Nickleberry Swamp / Headwaters to mouth at Hilliard Pond	4A	Escherichia coli (E. coli)	2012	L	1.86

Nickleberry Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.86

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25R-04-BAC** **South Branch Lagrange Creek**

Cause Location: The nontidal portion of South Branch Lagrange Creek.

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the nontidal portion of South Branch Lagrange Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 3-LSB002.17, which is located at Route 602.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The stream is located within the Lagrange Creek watershed, which has a completed shellfish TMDL. The TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_LSB01A12 / South Branch Lagrange Creek / Hilliard Pond dam downstream to tidal limit	4A	Escherichia coli (E. coli)	2012	L	0.4

South Branch Lagrange Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.4

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E25R-04-DO** **South Branch Lagrange Creek**

Cause Location: The nontidal portion of South Branch Lagrange Creek.

Cause City/County: Middlesex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: South Branch Lagrange Creek was impaired of the Aquatic Life Use during the 2012 cycle due to a dissolved oxygen exceedance rate of 2/12 at 3-LSB002.17.

The low dissolved oxygen (~2 mg/L) occurred during the summer months. Natural conditions are possible, however it is unknown if Hilliard Pond contributes to the impairment; therefore, it will be considered Category 5A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_LSB01A12 / South Branch Lagrange Creek / Hilliard Pond dam downstream to tidal limit	5A	Dissolved Oxygen	2012	L	0.4

South Branch Lagrange Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.4

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Rappahannock River Basin

Cause Group Code: **E25R-17-DO** **Masons Mill Swamp**

Cause Location: Masons Mill Swamp from its headwaters downstream to its tidal limit.

Cause City/County: Middlesex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During older cycles, Masons Mill Swamp was mistakenly assessed as a tidal water. The creek was assessed as not supporting of the Aquatic Life Use for dissolved oxygen since the 2006 cycle because it was thought to be a part of the mesohaline portion of the Rappahannock; the TMDL had a 2010 due date because of the Bay Overlist.

However, during the 2008 cycle, it was determined that station 3-MAO000.62 is on the free flowing section of Masons Mill Swamp. The stream remained impaired for dissolved oxygen due to an exceedance rate of 4/13. The dissolved oxygen TMDL due date was changed to 2018.

Additional monitoring during the 2012 cycle confirmed the dissolved oxygen impairment (6/14).

A Natural Conditions Assessment was developed during the 2014 cycle. The report states “Based on the above information, a change in the water quality standards classification to Class VII Swampwater due to natural conditions, rather than a TMDL, is NOT indicated for Masons Mill Swamp because of TP elevated almost twice the USGS background level, for a total of 3.36 rivermiles. Masons Mill Swamp will be assessed as Category 4C, Impaired due to natural condition, no TMDL needed, although natural TP was greater than that recommended in USGS 1999.” However, based on the elevated nutrients, the stream will remain Category 5C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25R_MAO01A00 / Masons Mill Swamp / Masons Mill Swamp from its headwaters to its tidal limit near Route 604.	5C	Dissolved Oxygen	2008	L	3.37

Masons Mill Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.37

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E26E-01-SF** Meachim Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 179A, 12/9/1996 closed on 030-179A, 8/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 030-179A, 8/15/2020

Two portions of Meachim Creek were included on the 1998 303(d) list due to 179A and 179B, 12/9/1996. The Shellfish TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

The condemnations have expanded and shrunk several times. In the 2018 cycle, the condemnations became smaller than the TMDL study areas and re-opened areas were delisted.

The condemnation expanded slightly in the 2022 cycle, but remains smaller than the TMDL extent.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MEA01A00 / Meachim Creek / Described in VDH shellfish condemnation 030-179A, 8/15/2020. Segment expanded in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.077

Meachim Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.077		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-02-SF** Meachim Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 030-179B, 8/15/2020.

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 030-179B, 8/15/2020

This area was included on the 1998 303(d) list due to VDH condemnation 179B, 12/9/1996. The impairment was addressed in the Meachim and Whiting Creek Shellfish TMDL, which was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The impairment has subsequently expanded and contracted in multiple cycles.

During the 2012 cycle, the condemnation shrank considerably and became smaller than the TMDL study area. The open area within the TMDL study area was partially delisted (Category 2C.). The condemnation remains Category 4A.

In the 2022 cycle, the condemnation grew and is now larger than the TMDL extent; the expansion will be nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MEA01B00 / Meachim Creek / Described in VDH shellfish condemnation 179B, 12/9/1996. Merged in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.032
VAP-E26E_MEA02B22 / Meachim Creek, UT / Portion of VDH Shellfish Condemnation 030-179B, 8/15/2020 downstream of 030-179, 12/9/1996. RPPMH	4A	Fecal Coliform	2022	L	0.004

Meachim Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.036		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-04-EBEN** **Corrotoman River**

Cause Location: The mainstem Corrotoman River and its large branches within segment CRRMH.

Cause City/County: Lancaster County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2014 cycle, the mainstem Corrotoman River and its large tributaries were impaired of the Aquatic Life Use due to an insufficient Chesapeake Bay Index of Biological Integrity (B-IBI).

The impairment continued in the 2022 cycle. In addition, the smaller tributaries were added to the impairment.

Also, an impaired benthic community was noted at estuarine probabilistic monitoring station 3-CTM000.38 during monitoring in 2015. It was attributed to water quality.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BES01A98 / Bells Creek / As described in VDH shellfish condemnation 58B, 4/28/1997. CRRMH	5A	Estuarine Bioassessments	2022	L	0.055
VAP-E26E_BLD01A98 / Belwood Swamp / Tidal limit to its mouth at the Western Branch Corrotoman River. CRRMH	5A	Estuarine Bioassessments	2022	L	0.009
VAP-E26E_CRR01A00 / Corrotoman River / The mainstem of the Corrotoman River within segment CRRMH.	5A	Estuarine Bioassessments	2014	L	3.769
VAP-E26E_CTM01A00 / Eastern Branch Corrotoman River / The boundaries are described in VDH shellfish condemnations 021-058B, -C, and -D, 11/15/2020. Expanded in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2014	L	0.485
VAP-E26E_CTM01B10 / Eastern Branch Corrotoman River / Portion of VDH shellfish condemnation 058C, 4/28/1997 open on 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2014	L	0.046
VAP-E26E_CTM01C20 / Eastern Branch Corrotoman River / Described in VDH shellfish condemnation 021-058S61, 11/15/2020. Shortened in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2014	L	0.091
VAP-E26E_CTM02A08 / Eastern Branch Corrotoman River, UT / Described in VDH Shellfish Condemnation 021-058E, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.010
VAP-E26E_CTM03A08 / Eastern Branch Corrotoman River / Downstream boundary of VDH condemnation 021-058C, 4/28/1997 to mouth. CRRMH	5A	Estuarine Bioassessments	2014	L	0.758

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTO01A02 / Western Branch Corrotoman River / As described in VDH shellfish condemnation 021-132A, 11/15/2020, not otherwise segmented. Segment expanded in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2014	L	0.452
VAP-E26E_CTO01B12 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 included in 021-132S64, 11/15/2020 Split in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2014	L	0.202
VAP-E26E_CTO01C22 / Western Branch Corrotoman River / Portion of SFC 132, 4/28/1997 open in VDH-DSS condemnation 021-132, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2014	L	0.100
VAP-E26E_CTO02A06 / Western Branch Corrotoman River / Mainstem downstream of SFC 132A, 4/28/1997 CRRMH	5A	Estuarine Bioassessments	2014	L	1.209
VAP-E26E_DAS01A02 / Davis Creek / As described in VDH-DSS SFC 021-132S63, 11/15/2020. Segment shrank in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2022	L	0.029
VAP-E26E_EWE01A00 / Ewells Prong / Portion of VDH condemnation 187A, 4/28/1997 open on 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.002
VAP-E26E_EWE01B20 / Ewells Prong / As described in VDH shellfish condemnation 021-187S53, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.034
VAP-E26E_EWE02A08 / Ewells Prong / Portion of VDH Shellfish Condemnation 021-187B, 10/17/2012 not included on 187A, 4/28/1997. CRRMH	5A	Estuarine Bioassessments	2022	L	0.012
VAP-E26E_HLS01A00 / Hills Creek / As described in VDH shellfish condemnation 021-058A, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.038
VAP-E26E_HLS01B20 / Hills Creek / The portion of VDH shellfish condemnation 58A, 4/28/1997 seasonally condemned/open (021-058S59, 11/15/2020). CRRMH	5A	Estuarine Bioassessments	2022	L	0.024
VAP-E26E_JON01A08 / John Creek / Described in VDH-DSS Condemnation 021-132C, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_JON02A08 / John Creek / Downstream of condemnation 021-132C, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.016
VAP-E26E_LIT01A06 / Little Branch / Tidal limit to mouth at Western Branch Corrotoman River CRRMH	5A	Estuarine Bioassessments	2022	L	0.114
VAP-E26E_LOW01A08 / Lowrey Creek / Described in VDH Shellfish Condemnation 021-132S62, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.028
VAP-E26E_MIP01A00 / Millenbeck Prong / Portion of VDH shellfish condemnation 187B, 4/28/1997 open on 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.004
VAP-E26E_MIP01B20 / Millenbeck Prong / Described in VDH shellfish condemnation 021-187S101, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.037
VAP-E26E_MOR01A08 / Moran Creek / Described in VDH Condemnation 021-198S56, 11/15/2020. Size reduced in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2022	L	0.038
VAP-E26E_MOR01B12 / Moran Creek / Described in VDH-DSS condemnation 021-198S57, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.010
VAP-E26E_MOR01C22 / Moran Creek, UT / Described in VDH Condemnation 021-198D, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.011
VAP-E26E_MOR02A08 / Moran Creek / Downstream of condemnations 021-198, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.095
VAP-E26E_MYE01A00 / Myer Creek / As described in VDH shellfish condemnation 198, 4/28/1997. Merged in the 2020 cycle. CRRMH	5A	Estuarine Bioassessments	2022	L	0.081
VAP-E26E_MYE01B02 / Myer Creek, UT / As described in VDH-DSS SFC 021-198S58, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.026
VAP-E26E_MYE01D18 / Myer Creek / Portion of VDH-DSS condemnation 021-198A, 11/15/2020 open in 198, 4/28/1997. Merged in the 2022 cycle CRRMH	5A	Estuarine Bioassessments	2022	L	0.094
VAP-E26E_MYE03A08 / Myer Creek / Downstream of condemnations to mouth at Corrotoman River. CRRMH	5A	Estuarine Bioassessments	2022	L	0.470

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_SEN01A00 / Senior Creek / As described in VDH shellfish condemnation 021-132B, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.030
VAP-E26E_SEN01B20 / Senior Creek / As described in VDH shellfish condemnation 021-132S105, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.040
VAP-E26E_TAY01A00 / Taylor Creek / As described in VDH-DSS condemnations 021-198B and -C, 11/15/2020. Size reduced slightly in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2022	L	0.068
VAP-E26E_TAY02A08 / Taylor Creek / Described in VDH Shellfish Condemnation 021-198S55, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.024
VAP-E26E_TAY03A12 / Taylor Creek / Portion of VDH-DSS condemnation 205, 4/28/1997 open 11/15/2020. Split in the 2022 cycle CRRMH	5A	Estuarine Bioassessments	2022	L	0.056
VAP-E26E_TAY03B22 / Taylor Creek / Described in VDH-DSS condemnation 021-198S103, 11/15/2020. CRRMH	5A	Estuarine Bioassessments	2022	L	0.042
VAP-E26E_TON01A00 / Town Creek / The boundaries are described in VDH shellfish condemnation 021-187S54, 10/31/2018. CRRMH	5A	Estuarine Bioassessments	2022	L	0.057
VAP-E26E_WHR01A00 / Whitehouse Creek / As described in VDH shellfish condemnation 021-187SS52, 11/15/2020. Expanded in the 2022 cycle. CRRMH	5A	Estuarine Bioassessments	2022	L	0.083
VAP-E26E_ZZZ02A14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA70 CRRMH	5A	Estuarine Bioassessments	2022	L	0.105
VAP-E26E_ZZZ02C14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA72 CRRMH	5A	Estuarine Bioassessments	2022	L	0.471

Corrotoman River

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
9.358		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge;

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Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **E26E-05-SF** Myer Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 021-198A, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 021-198A, 11/15/2020

A portion of Myer Creek was included on the 1998 303(d) list due to VDH-DSS Condemnation 198, 4/28/1997. The TMDL was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

The condemnation has since varied in size.

During the 2020 cycle, the condemnation shrank considerably and a large portion is now seasonally condemned (021-198S104, 10/31/2018). The restricted area became smaller than the 1997 TMDL area and partially delisted (Category 2C/2B).

In the 2022 cycle, the area expanded and is now larger than the 1997 condemnation. The expansion will be proposed for nesting.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MYE01A00 / Myer Creek / As described in VDH shellfish condemnation 198, 4/28/1997. Merged in the 2020 cycle. CRRMH	4A	Fecal Coliform	1998	L	0.081
VAP-E26E_MYE01D18 / Myer Creek / Portion of VDH-DSS condemnation 021-198A, 11/15/2020 open in 198, 4/28/1997. Merged in the 2022 cycle CRRMH	4A	Fecal Coliform	2022	L	0.094

Myer Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.175	Reservoir (Acres)	River (Miles)
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Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-08-SF** Senior Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 021-132B, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 021-132B, 11/15/2020

Senior Creek was included on the 1998 303(d) list due to VDH condemnation 132B, 4/28/1997. The TMDL was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

The condemnation shrank in the 2020 cycle and a portion is now seasonally condemned (021-132S105, 10/31/2018) and was partially delisted. The condemned portion is considered Category 4A; the seasonal closure is Category 2C/2B.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_SEN01A00 / Senior Creek / As described in VDH shellfish condemnation 021-132B, 11/15/2020. CRRMH	4A	Fecal Coliform	1998	L	0.03

Senior Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.03		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-09-SF Western Branch Corrotoman River

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 021-132A, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 021-132A, 11/15/2020

A portion of the Western Branch Corrotoman River was included on the 1998 303(d) list due to VDH condemnation 132A, 4/28/1997. The condemnation has subsequently shortened several times. In the 2020 cycle, the closure contracted again and split (021-132A and -C, 10/31/2018). It re-merged in the 2022 cycle.

The TMDL was completed for the 1998 boundary; it was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. The condemned portion is considered Category 4A; the open portion is considered Category 2C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BLD01A98 / Belwood Swamp / Tidal limit to its mouth at the Western Branch Corrotoman River. CRRMH	4A	Fecal Coliform	2002	L	0.009
VAP-E26E_CTO01A02 / Western Branch Corrotoman River / As described in VDH shellfish condemnation 021-132A, 11/15/2020, not otherwise segmented. Segment expanded in the 2022 cycle. CRRMH	4A	Fecal Coliform	1998	L	0.452
VAP-E26E_LIT01A06 / Little Branch / Tidal limit to mouth at Western Branch Corrotoman River CRRMH	4A	Fecal Coliform	1998	L	0.114

Western Branch Corrotoman River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.574		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E26E-10-SF** **Bush Park Creek / Rappahannock River**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 032-109A, 12/10/2009 that is not administratively condemned.

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 032-109A, 12/10/2009

Bush Park Creek was included on the 1998 303(d) list as impaired of the Shellfish Consumption Use due to VDH condemnation 109, 4/27/1989. The TMDL for this area was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007.

In the 2022 cycle, the condemnation merged with the condemnation on neighboring Woods Creek (administrative) and expanded into a portion of the Rappahannock River. The expansion will be proposed for nesting.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BPC01A98 / Bush Park Creek / As delineated in VDH shellfish condemnation 109, 4/27/1989. RPPMH	4A	Fecal Coliform	1998	L	0.103
VAP-E26E_RPP08A22 / Rappahannock River / Portion of VDH-DSS Condemnation 032-109A, 9/15/2019 that is within the mainstem Rappahannock River. RPPMH	4A	Fecal Coliform	2022	L	0.012

Bush Park Creek / Rappahannock River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.114		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E26E-11-SF** Mill Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 031-102B, 8/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 031-102A, 8/15/2020

A portion of Mills Creek was impaired in the 1998 cycle due to VDH condemnation 103, 12/10/1991. The TMDL for this segment was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007. The segment is considered Category 4A.

However, during the 2012 cycle, the condemnation retracted and became smaller than the TMDL study area. The open area within the TMDL study area was partially delisted (Category 2C.)

The condemnation has continued to vary in size, but remains smaller than the TMDL extent.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MLL01A98 / Mill Creek / Described in VDH shellfish condemnation 031-102A, 8/15/2020 Expanded slightly in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.089

Mill Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.089		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-12-SF Sturgeon Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 032-104A, 9/15/2019

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH condemnation 032-104A, 9/15/2019

A portion of Sturgeon Creek was included on the 1998 303(d) list due to VDH shellfish condemnation 104, 11/28/1994. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007.

The condemnation has subsequently shrunk and open/seasonally condemned portions were partially delisted.

In the 2022 cycle, the condemnation grew but remains smaller than the TMDL extent; the residual is seasonally condemned (Cat 2C/2B).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_STE01A98 / Sturgeon Creek / As delineated in VDH shellfish condemnation 032-104A, 9/15/2019. Merged in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.066

Sturgeon Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.066		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-13-BAC Locklies Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 102, 10/31/1994

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Locklies Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 3-LOL000.77.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

As this impairment is within the study area for the Locklies and Mill Creek Shellfish TMDL, which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007, the impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_LOL01A02 / Locklies Creek / Delineated in VDH shellfish condemnation 031-102B, 8/15/2020. Size increased in the 2022 cycle. RPPMH	4A	Enterococcus	2012	L	0.078
VAP-E26E_LOL01B12 / Locklies Creek / Portion of VDH shellfish condemnation 102, 10/31/1994 seasonally condemned in 031-102M1, 8/15/2020. Shrank slightly in the 2022 cycle. RPPMH	4A	Enterococcus	2012	L	0.023

Locklies Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.101		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-13-SF** Locklies Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 102,10/31/1994 included in 031-102B, 8/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 031-102B, 8/15/2020

Locklies Creek was included on the 1998 303(d) list due to VDH condemnation 102, 4/13/1993. The Locklies Creek Shellfish TMDL was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007; the TMDL was based on the extent of condemnation 102, 10/31/1994.

During the 2012 cycle, the condemnation retracted and a portion of the TMDL study area was included in seasonal condemnation 031-102M1. The seasonally condemned segment was partially delisted (Category 2C); the condemned area is considered a Category 4A water.

The condemnation grew slightly during the 2022 cycle, but remains smaller than the TMDL study area.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_LOL01A02 / Locklies Creek / Delineated in VDH shellfish condemnation 031-102B, 8/15/2020. Size increased in the 2022 cycle. RPPMH	4A	Fecal Coliform	1998	L	0.078

Locklies Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.078		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-14-SF** Hills Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 58A, 4/25/1997

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnation 021-058A, 11/15/2020

Hills Creek was included on the 1998 303(d) list due to VDH-DSS Condemnation 58A, 4/28/1997. The TMDL was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

During the 2020 cycle, the condemnation shrank and a portion is now seasonally condemned and was partially delisted (021-058S59, 10/31/2018). The closed segment is considered Category 4A and the seasonal area is Category 2C/2B

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_HLS01A00 / Hills Creek / As described in VDH shellfish condemnation 021-058A, 11/15/2020. CRRMH	4A	Fecal Coliform	1998	L	0.038

Hills Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.038		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-16-SF Eastern Branch Corrotoman River

Cause Location: As described in VDH Notice and Description of Shellfish Condemnations 021-058B, -C, and -D, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH shellfish condemnations 021-058B, -C, and - D, 11/15/2020

The Eastern Branch Corrotoman River was included on the 1998 303(d) list due to VDH condemnation 58C, 4/28/1997. The TMDL was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. The condemnation subsequently shortened. The condemned area is considered Category 4A waters; the open area was previously partially delisted and is Category 2C.

The condemned area has expanded and contracted several times.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTM01A00 / Eastern Branch Corrotoman River / The boundaries are described in VDH shellfish condemnations 021-058B, -C, and -D, 11/15/2020. Expanded in the 2022 cycle. CRRMH	4A	Fecal Coliform	1998	L	0.485

Eastern Branch Corrotoman River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.485		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-17-SF Eastern Branch Carter Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 041C, 11/1/1996

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 020-041A, 11/15/2020

A portion of Eastern Branch Carters Creek was assessed as impaired of the Shellfish Use during the 1998 303(d) cycle due to VDH condemnation 41C, 11/1/1996. Although the segment has expanded several times, the TMDL was completed only for the original segment. It was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008. The original segment is considered Category 4A; the expansion is addressed in fact sheet E26E-46-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CEB01A00 / Eastern Branch Carter Creek / Described in VDH shellfish condemnation 041C, 11/1/1996. RPPMH	4A	Fecal Coliform	1998	L	0.084

Eastern Branch Carter Creek

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.084		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-21-SF XII - Windmill Point, UT (aka White Marsh)**

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 018-053B, 7/23/2018

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 018-053B, 7/23/2018

The impairment is nested in the shellfish TMDL for Oyster Creek, which was approved by the EPA on 4/15/2009 and by the SWCB on 7/27/2009. It is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_XII01A18 / XII - Windmill Point, UT (aka White Marsh) / Described in VDH-DSS condemnation 018-053B, 7/23/2018 RPPMH	4A	Fecal Coliform	2018	L	0.034

XII - Windmill Point, UT (aka White Marsh)

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.034		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-24-BAC** **Whiting Creek**

Cause Location: Tidal Whiting Creek as described in VDH Shellfish Condemnation 030-051A, 9/1/2015

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: During the 2012 cycle, Whiting Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 3/19 at 3-WHS000.89.

Although Whiting Creek is administratively condemned by VDH and the Shellfish Use is therefore considered removed, the TMDL was completed and was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. However, the TMDL did not include a nearby VPDES discharger; therefore, the Recreation Use cannot be considered nested.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_WHS01B00 / Whiting Creek / As delineated in VDH shellfish condemnation 030-051A, 9/1/2015. RPPMH	5A	Enterococcus	2012	L	0.195

Whiting Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.195		

Sources: Source Unknown

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Rappahannock River Basin

Cause Group Code: **E26E-26-BAC** **Little Branch**

Cause Location: Little Branch from its tidal limit to its mouth at the Western Branch Corrotoman River

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Little Branch was assessed as not supporting of the Recreation Use during the 2006 cycle due to enterococci exceedances at 3-LIT000.85, which is located at a private dock off Route 620. The segment remained impaired during the 2010 cycle; the violation rate was 3/11.

The area was addressed in the Western Branch Corrotoman River Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. Because the bacterial standard for the Shellfish Use is more stringent than the standard for the Recreation Use, the impairment is considered to be nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_LIT01A06 / Little Branch / Tidal limit to mouth at Western Branch Corrotoman River CRRMH	4A	Enterococcus	2006	L	0.114

Little Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.114		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-27-BAC** **Belwood Swamp**

Cause Location: Tidal Belwood Swamp

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Riverine Belwood Swamp was initially assessed in 1998 as fully supporting but threatened of the Recreation Use based on exceedances of the fecal coliform standard at monitoring station 3-BLD000.58, located at the Route 3 bridge. During the year 2002 cycle, the segment was downgraded to impaired.

However, in the 2006 cycle, it was determined that the station is tidally influenced. The station remained impaired for fecal coliform and the fact sheet and AU were renamed. The TMDL was due in 2014. There had been no enterococci monitoring at this site; therefore, the fecal coliform impairment was carried over.

The area was addressed in the Western Branch Corrotoman River Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. Because the bacterial standard for the Shellfish Use is more stringent than the standard for the Recreation Use, the impairment is considered to be nested (Category 4A).

Additional monitoring was conducted during the 2012 cycle. The impairment converted to enterococci due to an exceedance rate of 8/12 at 3-BLD000.58.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_BLD01A98 / Belwood Swamp / Tidal limit to its mouth at the Western Branch Corrotoman River. CRRMH	4A	Enterococcus	2012	L	0.009

Belwood Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.009		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-28-BAC** **Western Branch Corrotoman River**

Cause Location: The Western Branch Corrotoman River from its tidal limit to the downstream extent of VDH-DSS condemnation 021-132A, 11/15/2020

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, the upper portion of the Western Branch Corrotoman River was impaired of the Recreation Use due to an enterococci exceedance rate of 7/12 at 3-CTO007.51, which is located off of Route 3.

The area was already addressed in the Corrotoman River Watershed Shellfish Bacterial TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. The condemned portion is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTO01A02 / Western Branch Corrotoman River / As described in VDH shellfish condemnation 021-132A, 11/15/2020, not otherwise segmented. Segment expanded in the 2022 cycle. CRRMH	4A	Enterococcus	2012	L	0.452

Western Branch Corrotoman River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.452		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-42-SF** **Hunting Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 032-104B, 9/15/2019

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 032-104B, 9/15/2019

The Hunting Creek shellfish impairment is nested in the nearby Sturgeon Creek Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_HNU01A08 / Hunting Creek / Described in VDH-DSS Condemnation 032-104B, 9/15/2019. RPPMH	4A	Fecal Coliform	2008	L	0.02

Hunting Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-46-SF** **Eastern Branch Carter Creek**

Cause Location: Portion of VDH condemnation 020-041A, 11/15/2020 not included on condemnation 41, 11/1/1996

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH shellfish condemnation 020-041A, 11/15/2020

A portion of Eastern Branch Carter Creek was assessed as impaired of the Shellfish Use during the 1998 303(d) cycle due to VDH condemnation 41C, 11/1/1996. Although the segment has expanded several times, the TMDL was completed only for the original segment. The TMDL due date for this downstream portion was 2014 since it first expanded during the 2002 cycle.

It is considered nested in the upstream Eastern Branch Carter Creek Shellfish TMDL, which was approved by the EPA on 9/20/2007.

It expanded further in the 2018 cycle.

The closure shrank and split in the 2020 cycle (portion of 020-041A, 1/8/2018 and 020-041C, 11/8/2018).

In the 2022 cycle, condemnation A expanded, however condemnation C converted to administratively condemned on 11/15/2020 and will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CEB01B08 / Eastern Branch Carter Creek / Portion of VDH shellfish condemnation 020-041A, 11/15/2020 not included in 041C, 11/1/1996. Expanded and split in the 2022 cycle. RPPMH	4A	Fecal Coliform	2002	L	0.041

Eastern Branch Carter Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.041		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-53-SF John Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 021-132C, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 021-132C, 11/15/2020

The segment has been listed since the 2008 cycle.

John Creek is considered nested within the Western Branch Corrotoman River Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_JON01A08 / John Creek / Described in VDH-DSS Condemnation 021-132C, 11/15/2020. CRRMH	4A	Fecal Coliform	2008	L	0.036

John Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.036		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-55-SF** Mosquito Creek

Cause Location: As described in VDH Notice and Description of Shellfish Condemnation 018-203A, 1/6/2005

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 018-203A, 11/15/2020

Mosquito Creek was included on the 1998 303(d) list due to VDH Condemnation 203, 11/22/1996. The Mosquito Creek Shellfish TMDL was approved by the EPA on 4/15/2009 and by the SWCB on 7/27/2009. The TMDL was based on the 1/6/2005 condemnation, as that had been the largest condemnation to date.

The condemnation was subsequently rescinded several times.

A portion was relisted in the 2020 cycle (018-203A, 10/28/2014).

In the 2022 cycle, the condemned area expanded to the TMDL extent. It is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MOS01C20 / Mosquito Creek / As delineated in VDH shellfish condemnation 018-203, 1/6/2005. Merged in the 2022 cycle. RPPMH	4A	Fecal Coliform	2020	L	0.069

Mosquito Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.069		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26E-56-SF Roane Cove of Locklies Creek

Cause Location: Described in VDH Shellfish Condemnation 031-102C, 8/15/2020.

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 031-102C, 8/15/2020

Roane Cove was listed in the 2022 cycle. The impairment is proposed for nesting in the Locklies and Mill Creeks Shellfish TMDL, which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_LOL03A08 / Roane Cove of Locklies Creek / Described in VDH-DSS Shellfish Condemnation 031-102C, 8/15/2020. RPPMH	4A	Fecal Coliform	2022	L	0.034

Roane Cove of Locklies Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.034		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-57-EBTOX** **Eastern Branch Carter Creek**

Cause Location: Described in VDH shellfish condemnation 041C, 11/1/1996.

Cause City/County: Lancaster County

Use(s): Aquatic Life

Causes(s)/VA Category: Sediment Bioassay/5A

Cause Description: During the 2022 cycle, upper Eastern Branch Carter Creek and its tidal tributaries were assessed as impaired of the Aquatic Life Use due to the weight-of-evidence assessment at estuarine probabilistic monitoring station 3-DUN000.08 (Category 5A, scenario 1). The station is located on Dunton Cove.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CEB01A00 / Eastern Branch Carter Creek / Described in VDH shellfish condemnation 041C, 11/1/1996. RPPMH	5A	Sediment Bioassay	2022	L	0.084

Eastern Branch Carter Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Sediment Bioassay - Total Impaired Size by Water Type:	0.084		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E26E-58-SF** **Bridge Cove**

Cause Location: Portion of VDH-DSS Condemnation 020-041D, 11/15/2020 that is not administratively condemned.

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Condemnation 020-041D, 11/15/2020

A portion of Bridge Cove was impaired of the Shellfish Use in the 2022 cycle. The impairment is proposed for nesting in the neighboring Eastern Branch Carter Creek Shellfish TMDL, which was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTR03E22 / Bridge Cove / Portion of VDH-DSS Condemnation 020-041D, 11/15/2020 that is not administratively condemned. RPPMH	4A	Fecal Coliform	2022	L	0.035

Bridge Cove

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.035		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E26E-59-SF** **Carter Cove**

Cause Location: Described in VDH-DSS Condemnation 020-041E, 11/15/2020.

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 020-041E, 11/15/2020

An area of Carters Cove was assessed as impaired of the Shellfish Use during the 1998 303(d) cycle due to VDH condemnation 41A, 11/1/1996. The TMDL was approved by the EPA on 9/20/2007 and by the SWCB on 7/31/2008.

The closure was rescinded in the 2020 cycle and the segment was delisted (Category 2C/2B.)

A portion was relisted in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTR04A02 / Carter Cove / Described in VDH-DSS Condemnation 020-041E, 11/15/2020. Expanded in the 2022 cycle. RPPMH	4A	Fecal Coliform	2022	L	0.04

Carter Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.04		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-60-SF** **Eastern Branch Corrotoman River, UT**

Cause Location: Described in VDH-DSS Condemnation 021-058E, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 021-058E, 11/15/2020

The area was listed in the 2022 cycle. It is considered nested in the nearby Eastern Branch Corrotoman River Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTM02A08 / Eastern Branch Corrotoman River, UT / Described in VDH Condemnation 021-058E, 11/15/2020. CRRMH	4A	Fecal Coliform	2022	L	0.01

Eastern Branch Corrotoman River, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.01		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Rappahannock River Basin

Cause Group Code: **E26E-61-SF** Moran Creek, UT

Cause Location: Described in VDH-DSS Condemnation 021-198D, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 021-198D, 11/15/2020

Moran Creek is impaired of the Shellfish Use in the 2022 cycle. It is nested within the nearby Taylor Creek Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MOR01C22 / Moran Creek, UT / Described in VDH Condemnation 021-198D, 11/15/2020. CRRMH	4A	Fecal Coliform	2022	L	0.011

Moran Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.011		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26E-62-SF** Taylor Creek

Cause Location: Described in VDH-DSS Condemnations 021-198B and -C, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnations 021-198B and -C, 11/15/2020

A large portion of Taylor Creek was included on the 1998 303(d) list due to VDH condemnation 205, 4/28/1997. The Taylors Creek TMDL was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

The condemnation has been listed and re-listed in several cycles. Currently, two coves of Taylor Creek are impaired (Category 4A). The remainder is Category 2C or 2C/2B.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_TAY01A00 / Taylor Creek / As described in VDH-DSS condemnations 021-198B and -C, 11/15/2020. Size reduced slightly in the 2022 cycle. CRRMH	4A	Fecal Coliform	2022	L	0.068

Taylor Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.068		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: E26R-01-BAC Belwood Swamp and Tributaries

Cause Location: Belwood Swamp and tributaries from its headwaters to its tidal limit.

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the nontidal Belwood Swamp watershed was impaired of the Recreation Use due to E. coli exceedances at Belwood Swamp at station 3-BLD001.54 and McMahon Swamp at 3-MCM000.96. In the 2014 cycle, the exceedance rates were 9/27 and 6/12, respectively.

Additional monitoring was conducted at 3-BLD001.54 in the 2020 cycle; the E. coli exceedance rate was 5/11.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected at 3-BLD001.54, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples. No additional data have been collected at 3-MCM000.96 either; therefore, the impairment is carried over at that station.

The area drains to tidal Belwood Swamp, which was included in the Corrotoman River Shellfish Bacterial TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. Implementation of the TMDL is expected to address the nontidal area; therefore, the impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26R_BLD01A08 / Belwood Swamp and Tributaries / Watershed from its headwaters to tidal limit	4A	Escherichia coli (E. coli)	2012	L	24.54

Belwood Swamp and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			24.54

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26R-03-DO** **Norris Prong**

Cause Location: Norris Prong from its headwaters to its tidal limit.

Cause City/County: Lancaster County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Norris Prong was considered impaired of the Aquatic Life Use based on a dissolved oxygen exceedance rate of 4/10 at the Route 3 bridge (3-NOR001.00).

No additional data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26R_NOR01A08 / Norris Prong / Headwaters to tidal limit	5C	Dissolved Oxygen	2008	L	2.47

Norris Prong

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.47

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: E26R-04-BAC Browns Creek

Cause Location: Browns Creek from its headwaters to its tidal limit.

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Browns Creek was considered impaired of the Recreation Use based on E. coli exceedances at the Route 614 bridge (3-BON001.65).

The exceedance rate was 5/24 in the 2014 cycle.

Additional monitoring was conducted in the 2020 cycle; the exceedance rate was 4/11.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The impairment is considered nested (Category 4A) because it is located within the watershed study area for the Corrotoman River Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26R_BON01A08 / Browns Creek / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2008	L	2.59

Browns Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 2.59

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **E26R-04-DO** **Browns Creek**

Cause Location: Browns Creek from its headwaters to its tidal limit.

Cause City/County: Lancaster County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Browns Creek was considered impaired of the Aquatic Life Use based on dissolved oxygen exceedances at the Route 614 bridge (3-BON001.65).

The exceedance rate was 5/25 during the 2014 cycle.

Additional monitoring was conducted in the 2020 cycle; the exceedance rate was 3/12.

Natural conditions are suspected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26R_BON01A08 / Browns Creek / Headwaters to tidal limit	5C	Dissolved Oxygen	2008	L	2.59

Browns Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.59

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Rappahannock River Basin

Cause Group Code: **E26R-05-BAC** **Little Branch**

Cause Location: Nontidal Little Branch below Blakemore Millpond

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, the segment was impaired of the Recreation Use due to an E. coli exceedance rate of 5/12 at station 3-LIT001.89, which is located on Little Branch at Route 201.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The watershed was addressed in the Western Branch Corrotoman River Shellfish Bacterial TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. Implementation of the TMDL is expected to address the nontidal area; therefore, the impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26R_LIT01A14 / Little Branch / Blakemore Millpond dam downstream to its tidal limit	4A	Escherichia coli (E. coli)	2014	L	0.64

Little Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.64

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Rappahannock River Basin

Cause Group Code: **RPPMH-DO-BAY** **Rappahannock River**

Cause Location: The mesohaline Rappahannock River and tidal tributaries.

Cause City/County: Essex County; Lancaster County; Middlesex County; Richmond County

Use(s): Aquatic Life; Deep-Channel Seasonal Refuge; Deep-Water Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The mainstem of the Rappahannock River from Myrtle Swamp to its mouth was originally listed in 1998 by DEQ due to dissolved oxygen exceedances and nutrient overenrichment. The EPA extended the segment upstream to the confluence with Totuskey Creek. In the 2004 cycle, dissolved oxygen exceedances were noted in deep water and deep channel stations downstream of the confluence with Lancaster Creek (Morattico), which is further downstream.

The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. During the 2014 cycle, the mesohaline portion of the Rappahannock failed the Chesapeake Bay Open Water Subuse’s summer 30-day mean dissolved oxygen criterion. Applicable areas also failed the Deep Water 30-day mean dissolved oxygen criteria and the Deep Channel Subuse’s instantaneous minimum dissolved oxygen criteria.

RPPMH passed both Open Water Subuse 30-day mean criterion as well as the Deep Water summer 30-day mean criterion in the 2016 cycle; these areas were delisted in the tributaries (Category 2C). However, due to EPA rules, areas included on the 1998 EPA overlist for dissolved oxygen must remain listed until all dissolved oxygen criteria can be assessed. This includes the Rappahannock River mainstem from Totuskey Creek to the mouth as well as the tidal Corrotoman River. These areas were considered Category 4D.

In the 2018 cycle, Deep Water areas also were impaired.

In the 2020 cycle, the Deep Water and Deep Channel Subuses continue to be impaired in applicable areas. In addition, the Open Water Use also failed. The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, all areas are considered Category 4A.

The Open Water summer-, Deep Water-, and Deep Channel criteria continue to fail in the 2022 cycle. The Open Water rest-of-year criteria is met and there is insufficient information to assess the other frequencies.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E22E_RPP05A02 / Rappahannock River / The oligohaline/mesohaline boundary at river mile 48.51 to the downstream boundary of VDH shellfish condemnation area 025A-068B, 4/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	6.958
VAP-E22E_WAR01A18 / Waterview Creek / Tidal portion of Waterview Creek RPPMH	4A	Dissolved Oxygen	2020	L	0.038
VAP-E22E_ZZZ02A06 / Unsegmented estuaries in E22 / Unsegmented portion of watershed. RPPMH	4A	Dissolved Oxygen	2020	L	0.013
VAP-E23E_CAT01A02 / Cat Point Creek / The tidal portion of Cat Point Creek. RPPMH	4A	Dissolved Oxygen	2020	L	1.280
VAP-E23E_CRC01A08 / Church Swamp / Tidal limit to mouth at Hoskins Creek RPPMH	4A	Dissolved Oxygen	2020	L	0.002

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E23E_HOK01A98 / Hoskins Creek / Hoskins Creek from the Tappahannock STP downstream to the mouth at the Rappahannock River. RPPMH	4A	Dissolved Oxygen	2020	L	0.084
VAP-E23E_HOK02A08 / Hoskins Creek / Hoskins Creek from its tidal limit to the confluence with Church Swamp. RPPMH	4A	Dissolved Oxygen	2020	L	0.052
VAP-E23E_HOK02A10 / Hoskins Creek / Hoskins Creek from the confluence with Church Swamp downstream to the Tappahannock STP. RPPMH	4A	Dissolved Oxygen	2020	L	0.016
VAP-E23E_LIE01A98 / Little Carter Creek, Jugs Creek / Tidal limit to mouth at the Rappahannock River. RPPMH	4A	Dissolved Oxygen	2020	L	0.419
VAP-E23E_MTL01A10 / Mount Landing Creek / Tidal limit to mouth at the Rappahannock River. RPPMH	4A	Dissolved Oxygen	2020	L	0.172
VAP-E23E_PIS02A00 / Piscataway Creek / The estuarine portion of Piscataway Creek. RPPMH	4A	Dissolved Oxygen	2020	L	0.589
VAP-E23E_RPP02A98 / Rappahannock River / Mainstem Rappahannock as described in VDH shellfish condemnation 025A-068A, 4/15/2020 excluding administratively condemned portion. Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	8.123
VAP-E23E_RPP02B10 / Rappahannock River / Portion of mainstem Rappahannock River that is administratively condemned within condemnation 025A-068A, 4/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.158
VAP-E23E_RPP02C12 / Rappahannock River / Portion of VDH shellfish condemnation 025A-068A, 11/14/2005 not included in 025A-068A, 4/15/2020. Size reduced in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.388
VAP-E23E_ZZZ02A06 / Unsegmented estuaries in E23 / Unsegmented portion within SFC 025A-068A, 4/15/2020. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.049
VAP-E23E_ZZZ02B10 / Unsegmented estuaries in E23 / Administrative portion within SFC 025A-068A, 4/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	0.007
VAP-E24E_LIK01A12 / Little Totuskey Creek / Tidal limit to mouth at Totuskey Creek RPPMH	4A	Dissolved Oxygen	2020	L	0.055

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_RIC01A04 / Richardson Creek / Richardson Creek within SFC 025-071A, 4/15/2020 (non-administrative.) Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.321
VAP-E24E_RIC01C10 / Richardson Creek / Portion of Richardson Creek within the administratively condemned portion of SFC 025-071A, 4/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	0.024
VAP-E24E_RPP01B14 / Garrett's Marina / As delineated in VDH shellfish condemnation 026-181A, 4/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.003
VAP-E24E_RPP01B98 / Rappahannock River: Garrett's Marina / As delineated in VDH shellfish condemnation 026-181M1, 4/15/2020. RPPMH	4A	Dissolved Oxygen	1998	L	0.025
VAP-E24E_RPP01C06 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 3/16/2007 (non-admin) that is currently open Shrank in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	1998	L	0.528
VAP-E24E_RPP01D10 / Rappahannock River / The portion of the Rappahannock River within the administratively closed area of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	4A	Dissolved Oxygen	1998	L	0.137
VAP-E24E_RPP01E18 / Rappahannock River / The Rappahannock River mainstem within VDH shellfish condemnation 025-071A, 4/15/2020 (non-admin) Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	1998	L	0.177
VAP-E24E_RPP03A00 / Rappahannock River / The Rappahannock River from the limit of VDH shellfish condemnation 068A, 11/14/2005 downstream to end of MSN (Sharps/0.7 mi DS of Mark Haven Beach) unless otherwise segmented RPPMH	4A	Dissolved Oxygen	1998	L	10.919
VAP-E24E_TOT01A00 / Totuskey Creek / The segment boundary is delineated in VDH condemnation 025-071B, 4/15/2020 excluding Little Totuskey Creek. RPPMH	4A	Dissolved Oxygen	2020	L	0.302
VAP-E24E_TOT02A00 / Totuskey Creek / Portion of VDH shellfish condemnation 025-071A, 4/15/2020 within Totuskey Creek. RPPMH	4A	Dissolved Oxygen	2020	L	0.647

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E24E_TOT02B10 / Totuskey Creek / Downstream of VDH shellfish condemnation 025-071A, 4/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	0.064
VAP-E25E_DEE01A04 / Deep Creek / Described in VDH shellfish condemnation 121, 11/16/1994. RPPMH	4A	Dissolved Oxygen	2020	L	0.049
VAP-E25E_DEE01B08 / Deep Creek / Portions of VDH-DSS condemnations 023-121B, -C, and -D, 11/15/2020 not included in the 11/16/1994 condemnation. Size decreased in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.050
VAP-E25E_DEE02A20 / Deep Creek / As described in VDH-DSS Condemnation 023-121S121, 11/15/2020. Extent adjusted in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.120
VAP-E25E_FAM01A98 / Farnham Creek / Portion of VDH shellfish condemnation 070, 10/22/1996 not administratively condemned in 024-070A, 1/7/2019. RPPMH	4A	Dissolved Oxygen	2020	L	0.357
VAP-E25E_FAM01B22 / Farnham Creek / Portion of VDH shellfish condemnation 070, 10/22/1996 administratively condemned in 024-070A, 1/7/2019. RPPMH	4A	Dissolved Oxygen	2020	L	0.074
VAP-E25E_GEE01A98 / Greenvale Creek / As delineated in VDH shellfish condemnation 094, 11/7/1994. RPPMH	4A	Dissolved Oxygen	2020	L	0.087
VAP-E25E_GEE02A06 / Greenvale Creek / Portion of VDH-DSS condemnation 022-094A, 11/15/2020 not included in 94, 11/7/1994. RPPMH	4A	Dissolved Oxygen	2020	L	0.012
VAP-E25E_GEE02B10 / Greenvale Creek/Belmont Creek / Portion of Greenvale Creek downstream of the 9/24/2009 condemnation RPPMH	4A	Dissolved Oxygen	2020	L	0.038
VAP-E25E_HRY01A06 / Harry George Creek / Designated in VDH SFC 027-202B, 9/11/2013 RPPMH	4A	Dissolved Oxygen	2020	L	0.095
VAP-E25E_LAN01A98 / Lancaster Creek / As delineated in VDH SFC 023-120A, 8/14/1995. RPPMH	4A	Dissolved Oxygen	2020	L	0.270
VAP-E25E_LAN01B08 / Lancaster Creek / The portion of VDH Shellfish Condemnation 023-120A, 11/15/2020 not included in 120A, 8/14/1995. Size reduced in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.023

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_LAN01C20 / Lancaster Creek / As described in VDH SFC 023-120S118, 11/15/2020. Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.215
VAP-E25E_LAN02A02 / Lancaster Creek / Lancaster Creek downstream of VDH SFC 023-120, 11/15/2020, not otherwise segmented. Size reduced in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	1.075
VAP-E25E_LAN03A06 / Lancaster Creek / Described in VDH SFC 023-120M1, 11/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	0.023
VAP-E25E_LGG01A98 / Lagrange Creek / As described in VDH SFC 028-127A, 1/12/2018. RPPMH	4A	Dissolved Oxygen	2020	L	0.470
VAP-E25E_LGG01B18 / Lagrange Creek / Portion of VDH Shellfish Condemnation 127, 6/11/1996 open on 028-127, 1/23/2018. RPPMH	4A	Dissolved Oxygen	2020	L	0.120
VAP-E25E_LGG02A06 / Lagrange Creek / Lagrange Creek downstream of SFC 127, 6/11/1996 RPPMH	4A	Dissolved Oxygen	2020	L	0.048
VAP-E25E_MTT01A00 / Morattico Creek / Delineated in VDH SFC 023-120B, 11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.138
VAP-E25E_MTT02B20 / Morattico Creek / Described in VDH Shellfish Condemnation 023-120S119, 11/15/2020 Expanded and renamed in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.207
VAP-E25E_MUB01A02 / Mulberry Creek / Described in VDH shellfish condemnation 023-121A, 11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.094
VAP-E25E_MUB01B16 / Mulberry Creek / Portion of VDH shellfish condemnation 120B, 8/14/1995 included in 023-121S120,11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.054
VAP-E25E_MUB02A06 / Mulberry Creek / Portion of VDH shellfish condemnation 023-121S120, 11/15/2020 not included in 120B, 8/14/1995 or 023-121C, 1/7/2019. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.092
VAP-E25E_MUB03A08 / Mulberry Creek / Described in VDH shellfish condemnation 023-021C, 1/7/2019. RPPMH	4A	Dissolved Oxygen	2020	L	0.008

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_MUC01A04 / Mud Creek / Described in VDH SFC 027-090B, 8/26/2008 RPPMH	4A	Dissolved Oxygen	2020	L	0.204
VAP-E25E_PAY01A02 / Paynes Creek / As delineated in VDH-DSS SFC 022-094B, 11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.049
VAP-E25E_PRR01A02 / Parrotts Creek / The segment boundaries are delineated in VDH shellfish condemnation 090, 4/27/1989. RPPMH	4A	Dissolved Oxygen	2020	L	0.153
VAP-E25E_PRR02A08 / Parrotts Creek / Portion of VDH-DSS Condemnation 027-090A, 1/27/2015 downstream of VDH Condemnation 090, 4/27/1989. RPPMH	4A	Dissolved Oxygen	2020	L	0.011
VAP-E25E_ROS01A00 / Robinson Creek / Described in VDH shellfish condemnation 028-177A and -D, 3/15/2020 Expanded and modified in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.143
VAP-E25E_ROS01B20 / Robinson Creek / Described in VDH shellfish condemnation 028-177M2, 3/15/2020 Size reduced in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.021
VAP-E25E_ROS01C20 / Robinson Creek / Portion of VDH shellfish condemnation 177, 5/28/1997 open in 028-177, 3/15/2020 Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.042
VAP-E25E_ROS02A04 / Robinson Creek, UT and Perkins Creek / Described in VDH Shellfish Condemnation 028-177B and -C, 3/15/2020. RPPMH	4A	Dissolved Oxygen	2010	L	0.039
VAP-E25E_ROS02B12 / Robinson Creek / Described in VDH Shellfish Condemnation 028-177M1, 3/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.007
VAP-E25E_ROS02C16 / Robinson Creek, UT / Described in VDH Shellfish Condemnation 028-177M3, 3/15/2020. Size reduced slightly in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.013
VAP-E25E_RPP01C10 / Rappahannock River: Mark Haven Beach Basin / The portion of VDH shellfish condemnation 026-181B, 1/20/2006 not administratively closed. RPPMH	4A	Dissolved Oxygen	1998	L	0.010

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_RPP01C98 / Mark Haven Beach Basin / As delineated in VDH shellfish condemnation 026-181A, 4/3/2012. RPPMH	4A	Dissolved Oxygen	2020	L	0.004
VAP-E25E_RPP02A02 / Rappahannock River / The mainstem of the Rappahannock River from the end of MSN (Sharps/0.7 mi DS of Mark Haven Beach to the mouth, excluding area in SFC 051A. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	1998	L	81.272
VAP-E25E_RPP03A06 / Rappahannock River / Described in VDH Shellfish Condemnation 024-070B, 1/7/2019. RPPMH	4A	Dissolved Oxygen	1998	L	0.008
VAP-E25E_RPP03B16 / Rappahannock River / As described in VDH shellfish condemnation 026-181M2, 4/15/2020 RPPMH	4A	Dissolved Oxygen	1998	L	0.003
VAP-E25E_TWN01A12 / Town Bridge Swamp / Tidal limit to mouth at Urbanna Creek RPPMH	4A	Dissolved Oxygen	2020	L	0.002
VAP-E25E_URB01A00 / Urbanna Creek / As described in VDH-DSS SFC 029-042B, 2/14/2006. RPPMH	4A	Dissolved Oxygen	2020	L	0.215
VAP-E25E_URB02A00 / Urbanna Creek / As delineated in VDH shellfish condemnation 029-042A, 2/14/2006. RPPMH	4A	Dissolved Oxygen	2020	L	0.238
VAP-E25E_WEE01A00 / Weeks Creek / The segment boundaries are delineated in VDH shellfish condemnation 202, 10/8/1996. RPPMH	4A	Dissolved Oxygen	2020	L	0.123
VAP-E25E_WEE02A04 / Weeks Creek / The portion of VDH shellfish condemnation 027-202A, 1/27/2015 not included in the 1989 closure. RPPMH	4A	Dissolved Oxygen	2020	L	0.013
VAP-E25E_XDV01A02 / XDV - Rappahannock River, UT (aka Beach Creek) / The segment boundaries are delineated in VDH shellfish condemnation 022-116S107, 11/7/2018. RPPMH	4A	Dissolved Oxygen	2020	L	0.083
VAP-E25E_ZZZ01A14 / Unsegmented estuaries in E25 / Unsegmented portion of watershed RA65 RPPMH	4A	Dissolved Oxygen	2020	L	0.077
VAP-E25E_ZZZ01C14 / Unsegmented estuaries in E25 / Unsegmented portion of watershed RA68. RPPMH	4A	Dissolved Oxygen	2020	L	0.213

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E25E_ZZZ01D14 / Unsegmented estuaries in E25 / Unsegmented portion of watershed RA69. RPPMH	4A	Dissolved Oxygen	2018	L	0.277
VAP-E26E_BPC01A98 / Bush Park Creek / As delineated in VDH shellfish condemnation 109, 4/27/1989. RPPMH	4A	Dissolved Oxygen	2020	L	0.103
VAP-E26E_BRD01A00 / Broad Creek / As delineated in VDH shellfish condemnation 033-038B, 11/21/2013. RPPMH	4A	Dissolved Oxygen	2020	L	0.084
VAP-E26E_BRD02A00 / Broad Creek / As delineated in VDH shellfish condemnation 033-038A, 11/21/2013. RPPMH	4A	Dissolved Oxygen	2020	L	0.040
VAP-E26E_BRD04A00 / Broad Creek / Described in VDH-DSS condemnation 033-038M1, 11/21/2013. RPPMH	4A	Dissolved Oxygen	2020	L	0.037
VAP-E26E_CEB01A00 / Eastern Branch Carter Creek / Described in VDH shellfish condemnation 041C, 11/1/1996. RPPMH	4A	Dissolved Oxygen	2020	L	0.084
VAP-E26E_CEB01B08 / Eastern Branch Carter Creek / Portion of VDH shellfish condemnation 020-041A, 11/15/2020 not included in 041C, 11/1/1996. Expanded and split in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.041
VAP-E26E_CEB01C22 / Eastern Branch Carter Creek / Described in VDH-DSS condemnation 020-041C, 11/15/2020 RPPMH	4A	Dissolved Oxygen	2020	L	0.012
VAP-E26E_CRR02A08 / Corrotoman River / The portion of the Corrotoman River that is within CB segment RPPMH.	4A	Dissolved Oxygen	1998	L	1.039
VAP-E26E_CTR01A00 / Carter Creek / As delineated in VDH shellfish condemnation 020-041F, 11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.204
VAP-E26E_CTR02A00 / Carter Creek / The segment boundaries are delineated in VDH shellfish condemnation 020-041B, 11/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.058
VAP-E26E_CTR03A00 / Carter Creek / Portion of VDH-DSS SFC 020-041M1, 11/15/2020 not included in 020-041A, 11/1/1996. RPPMH	4A	Dissolved Oxygen	2020	L	0.114

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_CTR03B16 / Carter Creek / Carter Creek open in 020-041, 11/15/2020 excluding Yopps Cove. Split in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.260
VAP-E26E_CTR03C18 / Bridge Cove / Described in VDH-DSS condemnation 020-041D, 11/8/2018. RPPMH	4A	Dissolved Oxygen	2020	L	0.005
VAP-E26E_CTR03D18 / Yopps Cove / Described in VDH-DSS condemnation 020-041E, 10/25/2016. RPPMH	4A	Dissolved Oxygen	2020	L	0.022
VAP-E26E_CTR03E22 / Bridge Cove / Portion of VDH-DSS Condemnation 020-041D, 11/15/2020 that is not administratively condemned. RPPMH	4A	Dissolved Oxygen	2020	L	0.035
VAP-E26E_CTR04A02 / Carter Cove / Described in VDH-DSS Condemnation 020-041E, 11/15/2020. Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.040
VAP-E26E_CTR04B14 / Carter Cove / Portion of VDH-DSS SFC 020-041A, 11/1/1996 included in 020-041M1, 11/15/2020. Shrank in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.016
VAP-E26E_HNU01A08 / Hunting Creek / Described in VDH-DSS Condemnation 032-104B, 9/15/2019. RPPMH	4A	Dissolved Oxygen	2020	L	0.020
VAP-E26E_HNU02A20 / Hunting Creek / Described in VDH-DSS condemnation 032-104S36, 9/15/2019 RPPMH	4A	Dissolved Oxygen	2020	L	0.017
VAP-E26E_LOL01A02 / Locklies Creek / Delineated in VDH shellfish condemnation 031-102B, 8/15/2020. Size increased in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.078
VAP-E26E_LOL01B12 / Locklies Creek / Portion of VDH shellfish condemnation 102, 10/31/1994 seasonally condemned in 031-102M1, 8/15/2020. Shrank slightly in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.023
VAP-E26E_LOL02A06 / Locklies Creek / Described in VDH-DSS SFC 031-102M1, 1/24/2008. RPPMH	4A	Dissolved Oxygen	2020	L	0.054
VAP-E26E_LOL03A08 / Roane Cove of Locklies Creek / Described in VDH-DSS Shellfish Condemnation 031-102C, 8/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.034

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_MEA01A00 / Meachim Creek / Described in VDH shellfish condemnation 030-179A, 8/15/2020. Segment expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.077
VAP-E26E_MEA01B00 / Meachim Creek / Described in VDH shellfish condemnation 179B, 12/9/1996. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.032
VAP-E26E_MEA01C06 / Meachim Creek / Described in VDH SFC 030-179M1, 8/15/2020. RPPMH	4A	Dissolved Oxygen	2020	L	0.034
VAP-E26E_MEA02A00 / Meachim Creek / Downstream of VDH SFC 030-179, 12/9/1996 not otherwise segmented. RPPMH	4A	Dissolved Oxygen	2020	L	0.132
VAP-E26E_MEA02B22 / Meachim Creek, UT / Portion of VDH Shellfish Condemnation 030-179B, 8/15/2020 downstream of 030-179, 12/9/1996. RPPMH	4A	Dissolved Oxygen	2020	L	0.004
VAP-E26E_MEA03A10 / Meachim Creek / Portions of VDH shellfish condemnation 179A, 12/9/1996 open on 030-179, 8/15/2020. Segment merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.055
VAP-E26E_MLL01A98 / Mill Creek / Described in VDH shellfish condemnation 031-102A, 8/15/2020 Expanded slightly in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.089
VAP-E26E_MLL01B12 / Mill Creek / Portion of VDH shellfish condemnation 103, 12/10/1991 open in 031-102, 8/15/2020. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.035
VAP-E26E_MLL02A06 / Mill Creek / Downstream of VDH shellfish condemnation 103, 12/10/1991 RPPMH	4A	Dissolved Oxygen	2020	L	0.358
VAP-E26E_MOS01C20 / Mosquito Creek / As delineated in VDH shellfish condemnation 018-203, 1/6/2005. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.069
VAP-E26E_RPP02A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051A, 10/3/2005. RPPMH	4A	Dissolved Oxygen	1998	L	0.127

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_RPP03A00 / Rappahannock River / The Rappahannock River in the area delineated in VDH shellfish condemnation 030-051D, 10/3/2005. RPPMH	4A	Dissolved Oxygen	1998	L	0.031
VAP-E26E_RPP04A00 / Rappahannock River / Described in VDH Shellfish Condemnation 030-051B, 9/1/2015. RPPMH	4A	Dissolved Oxygen	1998	L	0.131
VAP-E26E_RPP05A00 / Rappahannock River / Delineated in VDH-DSS condemnation 030-051C, 9/1/2015. RPPMH	4A	Dissolved Oxygen	1998	L	0.049
VAP-E26E_RPP07A02 / Rappahannock River / As delineated in VDH-DSS SFC 018-053A, 7/23/2018 RPPMH	4A	Dissolved Oxygen	1998	L	0.139
VAP-E26E_RPP08A22 / Rappahannock River / Portion of VDH-DSS Condemnation 032-109A, 9/15/2019 that is within the mainstem Rappahannock River. RPPMH	4A	Dissolved Oxygen	1998	L	0.012
VAP-E26E_STE01A98 / Sturgeon Creek / As delineated in VDH shellfish condemnation 032-104A, 9/15/2019. Merged in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.066
VAP-E26E_STE01B12 / Sturgeon Creek / Portion of VDH shellfish condemnation 104, 11/28/1994 within 032-104S37, 9/15/2019. Expanded in the 2022 cycle. RPPMH	4A	Dissolved Oxygen	2020	L	0.019
VAP-E26E_STE02A08 / Sturgeon Creek / Sturgeon Creek downstream of condemnation 104, 11/28/1994. RPPMH	4A	Dissolved Oxygen	2020	L	0.192
VAP-E26E_WHS01B00 / Whiting Creek / As delineated in VDH shellfish condemnation 030-051A, 9/1/2015. RPPMH	4A	Dissolved Oxygen	2020	L	0.195
VAP-E26E_WID01A12 / Windmill Point Creek / Described in VDH-DSS condemnation 018-053B, 11/2/2010. RPPMH	4A	Dissolved Oxygen	2020	L	0.082
VAP-E26E_WOO01A08 / Woods Creek / Tidal Woods Creek RPPMH	4A	Dissolved Oxygen	2020	L	0.037
VAP-E26E_XEV01A02 / Windmill Point Yacht Harbor / As delineated in VDH-DSS SFC 018-053C, 7/23/2018 RPPMH	4A	Dissolved Oxygen	2020	L	0.015

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-E26E_XII01A18 / XII - Windmill Point, UT (aka White Marsh) / Described in VDH-DSS condemnation 018-053B, 7/23/2018 RPPMH	4A	Dissolved Oxygen	2020	L	0.034
VAP-E26E_ZZZ01D14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA73 RPPMH	4A	Dissolved Oxygen	2020	L	0.028
VAP-E26E_ZZZ01E14 / Unsegmented estuaries in E26 / Unsegmented portion of watershed RA74 RPPMH	4A	Dissolved Oxygen	2020	L	0.613

Rappahannock River

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
123.559		

Rappahannock River

Deep-Channel Seasonal Refuge

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
93.277		

Rappahannock River

Deep-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
99.84		

Rappahannock River

Migratory Fish Spawning and Nursery

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
31.575		

Rappahannock River

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
123.559		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Rappahannock River Basin

Cause Group Code: **RPPTF-DO-BAY** **Rappahannock Tidal Freshwater Estuary**

Cause Location: The tidal freshwater Rappahannock River and its tributaries to the segment.

Cause City/County: Caroline County; Essex County; Fredericksburg; King George County; Spotsylvania County; Stafford County; Westmoreland County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Chesapeake Bay standards were implemented in the 2006 cycle.

Since the 2018 cycle, the tidal freshwater Rappahannock estuary (RPPTF) has failed the Open Water Subuse 30-day mean summer dissolved oxygen criterion. The Open Water rest-of-year criterion was met and there was insufficient data to assess the other dissolved oxygen criteria.

The Chesapeake Bay TMDL was approved by the EPA on 12/19/2010; therefore, RPPTF is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E20E_RPP01A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the outlet of waterbody VAN-E20E. This segment represents the upper reach of VAN-E21E_RPP05A02. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.188
VAN-E20E_RPP02A02 / Rappahannock River / Segment begins at the confluence with Deep Run and continues downstream until the confluence with Massaponax Creek. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.231
VAN-E20E_RPP03A02 / Rappahannock River / Segment begins at the fall line at Route 1 and continues downstream until the confluence with Deep Run. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.195
VAN-E21E_MIC01A06 / Mill Creek / Segment includes all tidal waters of Mill Creek. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.203
VAN-E21E_RPP01A02 / Rappahannock River / Segment begins at the confluence with Mill Creek, at rivermile 78.94, and continues downstream until immediately upstream of Devils Elbow, at rivermile 70.52. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	4.547
VAN-E21E_RPP03A02 / Rappahannock River / Segment begins at the confluence with Mount Creek and continues downstream until the confluence with Mill Creek. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	1.366
VAN-E21E_RPP04A02 / Rappahannock River / Segment begins at the confluence with Ware Creek and continues downstream until the confluence with Mount Creek. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	1.206

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-E21E_RPP05A02 / Rappahannock River / Segment begins at the confluence with Massaponax Creek and continues downstream until the confluence with Ware Creek. The upper reach of this segment (approx. 0.3 sq mi) extends into waterbody VAN-E20E. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.579
VAN-E21E_RPP48A02 / Rappahannock River-Muddy Creek / Segment includes all tidal waters in watershed RA48 not included in other delineated stream segments. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.006
VAN-E21E_RPP49A02 / Rappahannock River-Mount Creek / Segment includes all tidal waters in watershed RA49 not included in other delineated stream segments. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2014	L	0.147
VAN-E21E_RPP51A02 / Rappahannock River-Goldenvale Creek / Segment includes all tidal waters in watershed RA51 not included in other delineated stream segments. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2014	L	0.192
VAN-E21E_RPP52A02 / Rappahannock River-Portobago Creek / Segment includes all tidal waters in watershed RA52 not included in other delineated stream segments. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2014	L	0.079
VAN-E22E_ZZZ01A08 / Unnamed Rappahannock River Embayments / Segment includes all tidal waters in watershed not included in other delineated stream segments. Portion of CBP segment RPPTF.	4A	Dissolved Oxygen	2008	L	0.073
VAP-E22E_ELM01A10 / Elmwood Creek / Tidal limit to mouth at the Rappahannock River. RPPTF	4A	Dissolved Oxygen	2018	L	0.047
VAP-E22E_RPP01A02 / Rappahannock River / The Rappahannock River from Devils Elbow at Toby Point and Green Bay (river mile 70.52) downstream to the tidal freshwater/oligohaline boundary at river mile 57.85. RPPTF	4A	Dissolved Oxygen	2018	L	5.133
VAP-E22E_ZZZ01A00 / Unsegmented estuaries in E22 / Unsegmented portion of watershed within RPPTF.	4A	Dissolved Oxygen	2018	L	0.164

Rappahannock Tidal Freshwater Estuary

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
14.356		

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Rappahannock Tidal Freshwater Estuary

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Migratory Fish Spawning and Nursery			
Dissolved Oxygen - Total Impaired Size by Water Type:	14.356		

Rappahannock Tidal Freshwater Estuary

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Open-Water Aquatic Life			
Dissolved Oxygen - Total Impaired Size by Water Type:	14.356		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Roanoke and Yadkin River Basins

Cause Group Code: **L01R-01-BAC** **Roanoke River, South Fork and Goose Creek**

Cause Location: South Fork Roanoke River mainstem from the mouth of Elliott Creek extending downstream to the confluence of the North and South Forks of the Roanoke River. And Goose Creek from the Lick Fork mouth downstream to its confluence with the South Fork Roanoke River.

Cause City/County: Floyd County; Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2004 assessment initially 303(d) Listed the 12.61 mile fecal coliform (FC) bacteria impairment. Two stations on the S.F. Roanoke River, 4ARSF011.73 located on the Rt. 637 Bridge and 4ARSF002.20 above the old Green Hill industrial site near Rt. 11/460, find the Recreational Use is not supported. The 2012 assessment extends the bacteria impairment upstream 6.27 miles based on data from station 4ARSF014.02. The 2012 assessment also incorporates the Goose Creek 2012 bacteria impairment. The South Fork Roanoke River nested extension of 6.43 miles and Goose Creek nested addition of 2.30 miles brings the total impaired miles to 19.61.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2006. Assessment Units below are nested within the approved Roanoke River TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2016 total bacteria impaired length on the Roanoke River is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the South Fork Roanoke River or Goose Creek bacteria impairments but are nested within the overall Roanoke River Bacteria TMDL Watershed and allocations.

South Fork Roanoke River:

4ARSF014.02 (Persimmon Road Bridge) No new data since the 2018 Integrated Report found four of 12 E.Coli samples in excess of the 235 cfu/100 ml instantaneous criterion. Exceedances occurred in 2016: 315, 697, 318, and 301 cfu/100ml. The 2012, 2014 and 2016 Integrated Reports (IRs) find two escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion from 12 observations at 650 & 1500 cfu/100 ml.

4ARSF011.73 (Rt. 637 Bridge) The 2004 Integrated Report (IR) reveals three excursions from 12 fecal coliform (FC) observations in excess of the former instantaneous criterion of 400 cfu/100 ml. 2004 exceedances range from 600 to 3000 cfu/100 ml. 2010 and 2008 E.coli observations are insufficient to delist where no excursions of the E.coli criterion are found in eight samples. Therefore the 2004 FC impaired status remains.

4ARSF002.20- (Private Bridge above Green Hill) There are no additional data beyond the 2004 IR. Three of 18 FC observations exceed the instantaneous criterion in 2004. 2004 IR exceedances range from 600 to 5300 cfu/100 ml. The waters remain impaired for FC. There are no E.coli data to assess.

4ARSF000.88- (Rt. 11 Bridge - below Green Hill) The 2016 and 2018 Integrated Reports (IRs) find two of 12 E.coli collections exceed the WQS instantaneous criterion of 235 cfu/100 ml. The exceeding values are 450 and 1350 cfu/100 ml. Prior E.coli data were insufficient to assess for each of the 2008,2010 and 2012 data windows with one of nine samples exceeding at 300 cfu/100 ml. There were no additional data within the 2014 data window.

Goose Creek:

4AGOS000.71 (Along Rt. 653) The 2018 Integrated Report shows one E.Coli sample (292 cfu/100 ml) out of 12 exceeds the 235 cfu/100 ml instantaneous criterion. The 2012, 2014 and 2016 assessments report three of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion at 400, 480 and 780 cfu/100 ml. There are no additional data beyond the 2012 IR.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_GOS01A02 / Goose Creek / Goose Creek from its confluence with the South Fork Roanoke R. upstream to the mouth of Lick Fork (RU01).	4A	Escherichia coli (E. coli)	2012	L	2.30
VAW-L01R_RS01A00 / S.F. Roanoke River / South Fork Roanoke River mainstem extends from the PWS WQS upstream ending on downstream to the South Fork's confluence with the North Fork Roanoke River (RU05).	4A	Escherichia coli (E. coli)	2016	L	3.27
VAW-L01R_RS02A00 / S.F. Roanoke River / South Fork Roanoke River mainstem segment extends from Shawsville STP downstream to the WQS designated PWS upstream ending (RU05).	4A	Escherichia coli (E. coli)	2016	L	3.00
VAW-L01R_RS03A00 / S.F. Roanoke River / South Fork Roanoke River from the mouth of Elliott Creek downstream to the Shawsville STP (RU05).	4A	Escherichia coli (E. coli)	2012	L	6.43
VAW-L01R_RS04A02 / S.F. Roanoke River / South Fork Roanoke R. from the confluence of Elliot Creek upstream to the mouth of Bottom Creek (RU03).	4A	Escherichia coli (E. coli)	2012	L	4.61

Roanoke River, South Fork and Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.61

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L01R-01-BEN** **Smith Creek, UT (XMV)**

Cause Location: Smith Creek, UT (XMV) from its mouth on Smith Creek upstream to its headwaters.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 2010 original assessment finds the WQS General Standard contravened with benthic community impairment continuing through the 2012 and 2014 Cycles. There are no additional data beyond the 2010 Integrated Report (IR). The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approval on 9/07/2006. The Smith Creek unnamed tributary (UT) is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

4AXMV000.63 (Off Rt. 615 along Chaucer Lane)- A 2007 Probabilistic site. Two Virginia Stream Condition Index (VSCI) surveys scoring spring 46.6 and fall 62.5 for an average score of 54.6. Taxa richness scores were higher in the spring sample; however, the abundance of pollution-tolerant organisms was high as well resulting in a lower VSCI score. Stream habitat scores were affected by the lack of instream cover for macroinvertebrates and fish, lack of bank vegetation and lack of riparian vegetative buffer. The station is on a 1st order headwater stream. There are ponds upstream of the station and immediate land use is residences with mowed lawns adjacent to the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_XMV01A10 / Smith Creek, UT (XMV) / Smith Creek, UT (XMV) from its mouth on Smith Creek upstream to its headwaters (RU04).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	1.61

Smith Creek, UT (XMV)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.61

Sources: Loss of Riparian Habitat

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Roanoke and Yadkin River Basins

Cause Group Code: L01R-01-TEMP Roanoke River, South Fork

Cause Location: South Fork Roanoke River mainstem from the mouth of Elliott Creek extending downstream to the confluence of the South and North Forks of the Roanoke River.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: USGS Gaging Station 02053800 (S.F. Roanoke R. near Shawsville)- There are no additional data beyond the 2010 IR. 2010 assessment reveals two of 12 temperature measurements exceed the Class V 21°C criterion. Measurements in excess of the criterion occur on 8/07/2007 at 24.5°C and 8/29/2007 at 22°C. These data result in the return of 6.43 miles to the temperature 303(d) List that were partially de-listed with the 2008 IR. The temperature impairment is extended upstream for 4.61 miles based on 2012 Cycle data for 4ARSF014.02.

4ARSF014.02 (Persimmon Road Bridge) One excursion of the Class V 21°C criterion occurs within the 2018, 2020, and 2022 data window at 23°C (7/20/2016). The 2012, 2014 and 2016 assessments find three temp measurements from 12 observations exceed the 21°C criterion at 23°C (8/13/2009); 22°C (6/10/2010) and 23°C (8/31/2010).

4ARSF011.73- (Rt. 637 Bridge) There are no additional data beyond the 2008 IR. Observations within the 2010 data window find no excursions of the respective criterion for temperature. The 2008 IR finds only one exceedance of the Class V 21°C criterion from 12 observations. 2008 data resulted in the partial de-list of temperature for 6.43 miles. The 2004 IR reported two of 12 temperature measurements in excess of the criterion. Each exceedance is 22°C occurring on 7/22/99 and 6/06/01. The 2004 Category 5C assessment remains. Low stream flows and drought conditions were observed during both 1999 and 2001.

4ARSF002.20- (above the old Green Hill industrial site near Rt. 11/460) There are no additional data beyond the 2004 IR. The 2004 IR records two of 18 temperature measurements exceed the WQS criterion. Each 2004 exceedance is 22°C occurring on 7/22/99 and 6/06/01. The 6.27 mile waters remain impaired (Category 5C) for temperature.

4ARSF000.88- (Rt. 11 Bridge - below Green Hill) The 2022 data window finds 3/12 excursions at 21°C at (7/10/19), 23°C (8/7/19), and 23°C (9/12/19). Two of 12 temperature measurements exceed the WQS Class V 21°C criterion at 21.8 °C (6/9/2014) and 21.9 °C (7/1/2014) within the 2016 and 2018 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_RSFO1A00 / S.F. Roanoke River / South Fork Roanoke River mainstem extends from the PWS WQS upstream ending on downstream to the South Fork's confluence with the North Fork Roanoke River (RU05).	5C	Temperature	2004	L	3.27
VAW-L01R_RSFO2A00 / S.F. Roanoke River / South Fork Roanoke River mainstem segment extends from Shawsville STP downstream to the WQS designated PWS upstream ending (RU05).	5C	Temperature	2004	L	3.00
VAW-L01R_RSFO3A00 / S.F. Roanoke River / South Fork Roanoke River from the mouth of Elliott Creek downstream to the Shawsville STP (RU05).	5C	Temperature	2010	L	6.43
VAW-L01R_RSFO4A02 / S.F. Roanoke River / South Fork Roanoke R. from the confluence of Elliot Creek upstream to the mouth of Bottom Creek (RU03).	5C	Temperature	2012	L	4.61

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Roanoke River, South Fork

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)

River
(Miles)

17.31

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Roanoke and Yadkin River Basins

Cause Group Code: L01R-02-TEMP Bottom Creek

Cause Location: Bottom Creek mainstem from its mouth on the South Fork Roanoke River on upstream to the Rt. 669 crossing.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: 4ABTM000.04 (Rt. 637 Bridge)- Two 2015 temperature measurements within the 2018 IR data window do not exceed the Class VI criterion, but are insufficient to delist. Temperature measurements within the 2016, 2014 and 2012 data windows result in three exceeding values from 12 observations with no additional data beyond the 2012 IR. Measurements in excess of the Class VI criterion occur on 8/13/2009 at 22.9, 6/10/2010 at 23.0 and 8/31/2010 at 24.0 °C. The 2012 data window reports five of 20 measurements exceeding the 20°C criterion. Exceeding values range from 20.5 to 24°C. Temperature measurements within the 2010 data window find two of nine measurements exceeding the WQS Class VI 20°C criterion. Exceeding values occur on 7/7/2005 at 21 and 7/25/2006 at 20.5 °C. The 2008 IR finds three of 10 temperature measurements exceed the Class VI criterion on 06/04/02 at 24.4 °C; 7/7/2005 at 21 and 7/25/2006 at 20.5 °C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_BTM01A06 / Bottom Creek / Bottom Creek mainstem from its mouth on the South Fork Roanoke River on upstream to the downstream WQS Tier III ending at the southern most Nature Conservancy property boundary (RU02).	5C	Temperature	2008	L	2.33
VAW-L01R_BTM02A06 / Bottom Creek / Bottom Creek mainstem from the southern most Nature Conservancy property boundary upstream to the Rt. 669 crossing. WQS designated Tier III waters (RU02).	5C	Temperature	2008	L	2.18

Bottom Creek

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				4.51

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Roanoke and Yadkin River Basins

Cause Group Code: **L01R-03-TEMP** **Goose Creek**

Cause Location: Goose Creek from its confluence with the South Fork Roanoke R. upstream to the mouth of Lick Fork (RU01).

Cause City/County: Floyd County; Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The 2020 data window records the initial Aquatic Life Use 303(d) listing of Goose Creek based on Temperature data collected in 2015 that exceeds the Class V Stockable Waters criterion of 21 degrees Celsius.

4AGOS000.71 (Along Rt. 653)- Two 2015 Temp measurements exceed the Class V 21 C criterion at 23 C (6/22/15) and 23 C (9/2/15). The 2022 data window adds one observation of 22 (7/13/21).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_GOS01A02 / Goose Creek / Goose Creek from its confluence with the South Fork Roanoke R. upstream to the mouth of Lick Fork (RU01).	5C	Temperature	2020	L	2.3

Goose Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			2.3

Sources: Natural Sources

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Roanoke and Yadkin River Basins

Cause Group Code: **L02R-01-BAC** **Roanoke River, North Fork**

Cause Location: North Fork Roanoke River from the mouth of Dry Run on the North Fork Roanoke River downstream to an unnamed tributary in the community of Ironto.

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 4ARNF013.66 located at Rt. 603 Bridge near Ellett (incorrectly coded 4ARNF015.09 in previous cycles), originally listed for fecal coliform (FC) bacteria in 2002 is now listed for escherichia coli (E.coli). The bacteria impairment is extended upstream with the 2012 assessment by 9.16 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 9/07/2006. The Roanoke Bacteria TMDL watershed encompasses the North Fork Roanoke River. This recreational impairment is nested within the overall Roanoke River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake.

4ARNF016.80 (Rt. 712 Bridge) No new data since the 2018 data window recorded nine of 24 Escherichia coli (E.Coli) measurements exceeding the 235 cfu/100 ml instantaneous criterion. E.coli exceed the 235 cfu/100 ml instantaneous criterion in six of 24 observations within the 2016 data window. The range of excessive values is from 250 to 1000 cfu/100 ml. The 2012 and 2014 assessments find four of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion; exceeding values range from 520 to 1000 cfu/100 ml.

4ARNF013.66 (Rt. 603 Bridge) The 2020 data window finds eighteen E.coli excursions from 29 total samples. Fifteen of 35 and Ten of 35 E.coli exceedances are recorded within the 2018 and 2016 data windows, respectively. The range of exceedance is from 272 cfu/100 ml to greater than 2000. The 2014 data window finds seven of 36 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is 250 to 1400 cfu/100 ml. 2012 data find E.coli bacteria exceeds in nine of 36 samples with the same range of exceedance. Seventeen of 45 E.coli samples exceed the instantaneous criterion within the 2010 data window. E.coli exceedances range from 280 to 1500 cfu/100 ml. Sufficient data does not exist to determine the new WQS geometric mean. The 2008 Integrated Report (IR) finds E.coli bacteria exceeds the 235 cfu/100 ml instantaneous criterion in 14 of 33 samples with the same range of exceedance as 2010. The former WQS E.coli geomean, minimum two samples/calendar month, of 126 cfu/100 ml is exceeded in three of six calculations. The 2006 IR reports E.coli bacteria exceeds the 235 cfu/100 ml instantaneous criterion in 12 of 21 samples with exceedances also ranging from 280 to 1500 cfu/100 ml. The former E.coli WQS geomean exceeds in three of four calculations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_RNF03A02 / N.F. Roanoke River / North Fork Roanoke River mainstem from a right bank entry of an unnamed tributary in the community of Ironto upstream to the mouth of Wilson Cr (RU07).	4A	Escherichia coli (E. coli)	2006	L	6.94
VAW-L02R_RNF04A02 / N.F. Roanoke River / North Fork Roanoke River mainstem from the mouth of Wilson Creek upstream to the mouth of Dry Run (RU06).	4A	Escherichia coli (E. coli)	2012	L	9.16

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Roanoke River, North Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.1

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L02R-01-PH Bradshaw Creek

Cause Location: Bradshaw Creek from its mouth on the N.F. Roanoke River upstream to its headwaters.

Cause City/County: Montgomery County; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 4ABDC002.36 (Rt. 629 Bridge)- The aquatic life use is impaired based on 2010 pH data. Four of 16 pH observations exceed the minimum pH criterion of 6.5. The range of exceeding values are 6.1 to 6.3 SU. There are no additional data beyond the 2010 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_BDC01A04 / Bradshaw Creek / Bradshaw Creek from the upstream end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River (RU08).	5C	pH	2010	L	0.85
VAW-L02R_BDC02A04 / Bradshaw Creek / Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation (RU08).	5C	pH	2010	L	9.52

Bradshaw Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10.37

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Roanoke and Yadkin River Basins

Cause Group Code: L02R-02-BAC Wilson Creek and Wilson Creek, UT

Cause Location: Wilson Creek to include a northern unnamed tributary from its headwaters downstream to the Wilson Creek confluence on the North Fork Roanoke River.

Note: The northern arm extends upstream from mainstem Wilson Creek to near the Rt. 114 & Rt. 460 intersection behind a commercially developed area near New River Valley Mall.

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Wilson Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/02/2006 [Fed ID 23395] and SWCB approved 6/27/2007. Wilson Creek is originally 303(d) listed for bacteria (fecal coliform) with the 2002 assessment. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The 6.99 mile bacteria impairment remains.

4AWLN000.40 - There are no additional data since the 2010 data window. E.coli data within the 2010 data window find 11 of 23 samples exceed the WQS 235 cfu/100 ml instantaneous criterion. There are no additional data beyond the 2008 assessment where 13 of 27 E. coli samples exceed the instantaneous criterion. The minimum exceedance is 300 cfu/100 ml with a maximum of 2,200. In 2006 twelve of 23 E. coli samples exceed the instantaneous criterion of 235 cfu/100 ml with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_WLN01A00 / Wilson Creek / Wilson Creek mainstem segment extends from WLN02A00 downstream to the Wilson Creek mouth on the North Fork Roanoke River (RU07).	4A	Escherichia coli (E. coli)	2004	L	2.77
VAW-L02R_WLN02A00 / Wilson Creek / This northern arm extends upstream from mainstem Wilson Creek to the Rt. 114 & Rt. 460 intersection behind major developed area near New River Valley Mall (RU07).	4A	Escherichia coli (E. coli)	2004	L	1.74
VAW-L02R_WLN03A00 / Wilson Creek / Wilson Creek mainstem segment extends from near Rt. 460/I-81 intersection downstream to intersection of segments WLN02A with WLN01A (RU07).	4A	Escherichia coli (E. coli)	2004	L	2.51

Wilson Creek and Wilson Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.02

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L02R-03-BAC** **Bradshaw Creek**

Cause Location: Bradshaw Creek from its mouth on the N.F. Roanoke River upstream to its headwaters.

Cause City/County: Montgomery County; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2010 assessment finds Bradshaw Creek does not support the Recreational Use. Escherichia coli (E.coli) exceed the WQS instantaneous criterion. The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 9/07/2006. Bradshaw Creek is nested within the Roanoke River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ABDC002.36 (Rt. 629 Bridge)- There are no additional data beyond the 2010 Integrated Report (IR). The 2010 assessment finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in two of 12 observations. Values in excess of the criterion are 250 and greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_BDC01A04 / Bradshaw Creek / Bradshaw Creek from the upstream end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River (RU08).	4A	Escherichia coli (E. coli)	2010	L	0.85
VAW-L02R_BDC02A04 / Bradshaw Creek / Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation (RU08).	4A	Escherichia coli (E. coli)	2010	L	9.52

Bradshaw Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.37

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L03R-01-TEMP Roanoke River

Cause Location: Roanoke River mainstem from Spring Hollow Reservoir extending downstream to the Rt. 419 Bridge crossing.

Cause City/County: Roanoke County; Salem

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The waters remain impaired for the Aquatic Life Use. Station 4AROA227.42 is located within the Water Quality Standards 'hh' special standard [9VAC25-260-310] establishing a maximum temperature of 31°C May 1 through October 31 for these seasonally stockable trout waters. Temperature data from 4AROA227.42 (located at the Rt. 773 Bridge in Lafayette) now meets the temperature criterion and 1.28 miles of the Roanoke are delisted with the 2012 Integrated Report (IR). Station 4AROA227.42 is no longer a Listing station for the temperature impairment.

4AROA212.17- (Rt. 11 Bridge - below Eaton, Inc.) No additional data since the 2016 data window which found one exceedance at 22.8°C (6/8/2010) from four observations. One temperature excursion from six observations exceeds the stockable trout water criterion at 22.8°C (6/08/2010) within the 2014 data window. This same excursion occurs within the 2012 data window from a total of 8 measurements. Two of 17 temperature measurements exceed the criterion within the 2010 data window. Measurements in excess of the criterion are 21.3 on 7/15/2003 and 25.4 on 7/13/2004. These same exceedances occur within the 2008 data window where two of 21 temperature measurements exceed the 21°C criterion. Temperature data within the 2006 data window finds exceedances in six of 32 measurements ranging from 21 to 25°C. The 2004 assessment finds temperature exceeds the stockable trout water criterion in eight of 42 measurements. Exceedances range from 22 to 25°C. Eleven of 67 temperature measurements exceed the criterion within the 2002 assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	5C	Temperature	2002	L	2.68
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	5C	Temperature	2002	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	5C	Temperature	2002	L	5.58
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	5C	Temperature	2002	L	1.44

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Roanoke River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			13.12

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-01-BAC Roanoke River and Smith Mountain Lake

Cause Location: The upstream limit is at the confluence of the North and South Forks of the Roanoke River downstream to 3/4 miles upstream of the Hardy Ford Bridge.

Cause City/County: Bedford County; Franklin County; Montgomery County; Roanoke; Roanoke County; Salem

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Roanoke R. Bacteria TMDL is EPA approved 8/2/06 [Fed ID 24538] with SWCB approval 9/7/06.1996 & 2002 fecal coliform (FC) samples are the basis for the original bacteria listing. The 2010 total bacteria impaired length: 29.56 mi & 349.99 ac in Smith Mtn. Lake. Previous geomean calcs are not valid in 2010 in light of the 4 samples/mo. requirement of the new WQS criterion.

Improvement is noted in 4AROA202.20, 4AROA199.20, 4AROA196.05 & 4AROA192.94 within 2016 data window. E.coli maxima are greatly reduced as compared to previous assessments. 2016 Flow Adjusted Trend Analysis finds an improving trend for FC at 4AROA202.20; whereas the 2012 Flow Adjusted Trend Analysis shows a declining trend for E.coli at 4AROA202.20.

4AROA192.94 & 4AROA192.55 have exceedance rates <10.5%. Waters in Smith Mtn. Lake from ~3/4 mi upstr of Hardy Rd Br dwnstr to the confl. of Falling Ck were partially delisted in 2014 (184.70 ac). 4AROA202.20 also has an exceedance rate <10.5% but not proposed for delisting in 2014 or 2016 due to 4AROA199.20 & 4AROA196.05 continuing to exceed at rates >10.5 %. Upstr tribs continue to have exceedances >10.5%.

4AROA227.42 (Rt. 773 Br, Lafayette) 1999 Fed Consent Decree Attachment B station for FC. Not listed in 2002 as exceedances of the former 1000 cfu/100 ml instantaneous criterion were at 5% & not delisted due to upcoming change of the FC WQS from 1000 to 400 cfu/100 ml. 2004: 11.8% exceedance rate & initial 303(d) Listing for FC. 2006: 8/49 FC samples exceeded. 2008: 1/21 E.coli exceed & partially delisted for 2.21 mi (rev. 2014 NHD). 2010, 2012 & 2014: continued Full Support. 2016: 6/36 with 2 exceeding values in 2013, 2014 & 2009. 2020 & 2018: 10/36 & 8/36, respectively.

4AROA224.54 (Rt. 639 Br at Riverside) No additional E.coli data beyond 2008 IR: 2/11 at 400 & 780 cfu/100 ml. Same for 2008 & 2010 IRs. 2006: 2/8 with max of 780 cfu/100 ml.

4AROA220.94 (Rt. 639 Br S. of Wabun) 2012, 2010 & 2008: same results with no additional data: 2/12 from 250-850 cfu/100 ml. 2006: 2/8 with max of 780 cfu/100 ml.

4AROA215.13 - No additional E.coli data beyond 2008 IR: 1/12 at 920 cfu/100 ml. 2006: 1/9 with same exceedance.

4AROA212.17 (Rt. 11 Br below Eaton, Inc.) No additional E.coli data beyond 2010 IR: 4/23 from 290-790 cfu/100 ml. 2008: 4/23 with same exceedances.

4AROA205.73 (Franklin Rd Br) No additional E.coli data beyond 2008 IR: 8/32 from 270-570 cfu/100 ml & 3/5 geomeans. 2006: 7/20 with same range as 2008 & 3/6 geomeans.

4AROA202.20 (13th St Br abv STP) 2020 & 2018: 6/35 & 5/34, respectively from 400-1918 cfu/100 ml. 2016: 2/16 from 400-1,400 cfu/100 ml. 2014: 3/34 from 300-1,400 cfu/10 ml. 2012: 4/36 from 280-1400 cfu/100 ml. 2010: 9/45 from 280 to >2000 cfu/100 ml. 2008: 8/33 with same range as 2010 & 2/6 geomeans. 2006: 6/21 from 330 to >2000 cfu/100 ml & 2/6 geomeans.

4AROA199.20 (Blue Ridge Parkway Br - Niagara) 2020: 8/32. 2018 & 2016: 10/32 & 8/35, respectively from 250-9208 cfu/100 ml.2014: 5/23 from 250-775 cfu/100 ml. 2012: 5/20 from 250 to >2000 cfu/100 ml. 2010 & 2008: 9/21 from 280 to >2000 cfu/100 ml. 2006: 6/12 from 280-610 cfu/100 ml.

4AROA196.05- (McVeigh Ford) 2016: 10/42 from 250-1,616 cfu/100 ml. 2014: 5/40 from 250-750 cfu/100 ml. 2012: 9/41 from 250-1,000 cfu/100 ml. 2010: 10/38 from 250 to >2000 cfu/100 ml. 2008: 10/32 from 250 to >2,000 cfu/100 ml. 2006: 5/18 from 400 to >2,000 cfu/100 ml.

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4AROA192.94- (Upstream of Hardy Ford) 2016: 4/43 from 300 to > 2,000 cfu/100 ml. 2014: 1/42 at 1,600 cfu/100 ml. 2012: 2/42 at 350 & 1,600 cfu/100 ml. 2010: 8/51 from 280 to >2000 cfu/10 ml. 2008: 8/44 with same range as 2010. 2006: 7/30 & the same range of exceedance.

4AROA192.55 (Hardy Bridge) 2016 & 2014: 1/24 & 1/36 at 325 cfu/100 ml. Historical info available in previous IRs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA01A00 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth upstream to the Rt. 419 Bridge (RU09).	4A	Escherichia coli (E. coli)	2006	L	1.21
VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	4A	Escherichia coli (E. coli)	2006	L	2.68
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	4A	Escherichia coli (E. coli)	2006	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	4A	Escherichia coli (E. coli)	2006	L	5.58
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	4A	Escherichia coli (E. coli)	2006	L	1.44
VAW-L03R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Roanoke County Spring Hollow Reservoir intake upstream to the Montgomery/Roanoke County Line (RU09).	4A	Escherichia coli (E. coli)	2006	L	0.95
VAW-L03R_ROA07A12 / Roanoke River / Roanoke River mainstem from the Montgomery/Roanoke County Line upstream to the confluence of the North & South Forks of the Roanoke River (RU09).	4A	Escherichia coli (E. coli)	2022	L	1.27
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	Escherichia coli (E. coli)	2006	L	3.17
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.77
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.87

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Escherichia coli (E. coli)	2006	L	4.35
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	3.33
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.23
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	4A	Escherichia coli (E. coli)	2006	L	165.30

Roanoke River and Smith Mountain Lake

Recreation	<table> <tr> <td style="text-align: right;">Estuary (Sq. Miles)</td> <td style="text-align: right;">Reservoir (Acres)</td> <td style="text-align: right;">River (Miles)</td> </tr> <tr> <td></td> <td style="text-align: right;">165.3</td> <td style="text-align: right;">31.87</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)		165.3	31.87
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)					
	165.3	31.87					
Escherichia coli (E. coli) - Total Impaired Size by Water Type:							

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-01-BEN Roanoke River

Cause Location: Roanoke River mainstem from the Murray Run confluence downstream to the backwaters of the Niagara impoundment.

Note: Impounded waters of Niagara Dam are not included with this impairment.

Cause City/County: Roanoke; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Roanoke River General Standard - Benthic (Sediment) TMDL is U.S. EPA approved 5/10/2006 [Fed. ID 33861] and SWCB approved 9/7/2006. Formerly VAW-L04R-01.

The 2010 IR extended the benthic impairment upstream 3.87 mi from the mouth of Mason Ck upstream to the City of Salem downtown intake on the Roanoke R. These mainstem waters were delisted in the 2014 IR along with an additional 5.54 mi downstream to Murray Run confluence on Roanoke R. A total of 9.41 mi were delisted based on stations 4AROA212.17 (Rt. 11 Br - below Eaton, Inc.), 4AROA206.27 (Wasena Park) & probabilistic site 4AROA210.56 (Behind Veterans Admin Hospital-Salem). Category 4A waters = 5.81 mi and does not include the impounded waters of Niagara Dam.

The benthic impairment is extended downstream in the 2008 IR 3.16 mi from Niagara Dam downstream to the mouth of Back Ck (station 4AROA198.08). This portion is Category 5A as the TMDL Study did not address these waters. Cause Group Code L04R-03-BEN is assigned to this portion in the 2012 IR.

4AROA202.20 (13th St Br abv STP) Bio 'IM' 6 surveys (2012, 2014, 2015) w/avg score 59.5. Previous assessments observed benthics declined overall Fall 2003 to Fall 2005. 2014 IR: 3/4 samples abv impairment threshold (avg score 60.2). Additional 2014 data show improvement in Spr. & decline in Fall. Spr. 2015 declined compared to Spr. 2014 & Fall 2015 score improved well abv the impaired threshold. The final 6-yr avg is approaching non-impaired & Spr. score is well below the impaired threshold. Variability between Spr. & Fall seasons and consistently low Spr. scores indicate stress to the community. Bio 'IM' 6 VSCI surveys (2009-2010; 2012 & 2014) w/in the 2016 data window avg score 59.7 (IM). Spr. & Fall 2009 surveys (Fall 67.6) & 2010 (Spr. 60.5) indicate water quality is non-impaired. Following the 2009 & 2010 surveys, scores declined. One sample was below impairment (Spr. 2012, 51.2) and 1 abv (Fall 2012, 63.9). All Spr. 2016 scores < Fall scores. The 6 yr avg is slightly below impairment threshold (57.0 & 59.9). 2016 final rating is IM per continued slight decline in VSCI scores.

Benthic scores declined overall from Fall 2003 to Fall 2005, improved Spr. & Fall 2004 then declined Fall 2005. 2014 IR: 3/4 samples abv impairment threshold (60.2).

Historically sedimentation has decreased the amount of substrate available for macroinvertebrate colonization. A TMDL study was completed to determine the stressors to the benthic community and the reductions in pollutants necessary to restore the community. The TMDL IP process began in June 2013 with a goal of identifying steps necessary to reduce the stressor (sedimentation) & restore water quality.

Bio 'J' 2014 IR 4 surveys (2009, 2010 & 2012) avg 60.8. Spr. & Fall samples in 2009 & 2010 indicate water quality is non-impaired. Fall 2009 survey records the highest score (67.6). Following the 2009 & 2010 samples, scores declined. One sample is below the impairment threshold (51.5) and 1 abv (63.9). The final 2 yr avg is below the impairment threshold while 6 yr avg is abv. As a result, final 2014 rating was to reserve judgment and conduct additional surveys to aid in determining if the 6 yr avg is an indicator of typical water quality or of the abnormal conditions during 2011 & 2012.

2012 data from 3 surveys (2005 & 2009-2010) avg 54.28. Final 6-yr avg (n=3) score is driven by Fall 2005 score (34.69). No data collected for 7 seasons, eighth and ninth seasons were non-impaired. An active hurricane season occurred in 2004. No additional data after 2010 IR where 4 surveys (2003-2005) show avg score 49.9 (IM). 2008 IR: 5 surveys (2001-2005) avg score 51.4 (IM). Benthic scores declined Fall 2001 to Fall 2003 and improved Spr. & Fall 2004. Fall 2004 survey resulted in a non-impaired score (65.08). This was the only Roanoke R. station sampled in Fall 2004 and used as

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	4.35

Roanoke River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.82

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Industrial/Commercial Site Stormwater Discharge (Permitted); Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Post-development Erosion and Sedimentation; Residential Districts; Sediment Resuspension (Clean Sediment); Sediment Resuspension (Contaminated Sediment); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-01-HG Roanoke River

Cause Location: Roanoke River from the confluence of Mason Creek downstream to the confluence of Tinker Creek.

Cause City/County: Roanoke; Roanoke County; Salem

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) and Virginia Department of Health (VDH) level of concern of 0.5 ppm are found in fish tissue causing impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. Please visit <http://www.deq.virginia.gov> for more information about mercury contamination and <http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/> for VDH Advisories or Bans.

4AROA206.80 (Roanoke R. @Wasena Park near Rt. 11 Bridge)- Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm is found in two species from 2006 collections; smallmouth bass (1 fish 37.0 cm) at 0.37 ppm and (4 fish composite 21.8-27.5 cm) at 0.537 ppm and rock bass (6 fish composite 17.4-19.4 cm) at 0.446 ppm. There are no additional data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	5A	Mercury in Fish Tissue	2010	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	5A	Mercury in Fish Tissue	2010	L	4.35
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	5A	Mercury in Fish Tissue	2010	L	3.33
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	5A	Mercury in Fish Tissue	2010	L	2.23

Roanoke River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.31

Sources: Landfills; Source Unknown; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-02-BAC** **Mud Lick Creek**

Cause Location: Mud Lick Creek mainstem from its confluence on the Roanoke River upstream to its headwaters.

Cause City/County: Roanoke; Roanoke County; Salem

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Mud Lick Creek 2006 initially 303(d) Listed bacterial impairment extends for 7.61 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 Roanoke River total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Mud Lick Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMDL000.34- (Downstream of Brambleton Ave. behind Shell) There are no additional escherichia coli (E.coli) data beyond the 2010 IR. E.coli exceeds the WQS instantaneous criterion of 235 cfu/100 ml in four of 12 observations in both the 2010 and 2008 assessments. Exceeding values range from 550 cfu/100 ml to greater than 2000. The 2006 E.coli initial 303(d) Listing reports four of nine exceedances with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MDL01A06 / Mud Lick Creek / Mud Lick Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2006	L	7.61

Mud Lick Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.61

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-02-BEN** Mud Lick Creek

Cause Location: Mud Lick Creek mainstem from its confluence on the Roanoke River upstream to its headwaters.

Cause City/County: Roanoke; Roanoke County; Salem

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Virginia Stream Condition Index (VSCI) surveys find the Mud Lick Creek benthic community is impaired for 7.61 miles as a result of the 2008 assessment. The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approved on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Mudlick Creek is a nested benthic impairment within the Roanoke River Benthic (Sediment) TMDL watershed.

4AMDL003.34- (Downstream of Brambleton Ave. behind Shell) Bio 'IM' Two VSCI surveys spring 2006 scoring 22.2 and fall 2005 scoring 35.1 for an average score of 28.7. There are no additional data beyond the 2008 assessment. Habitat data show stream impacts related to sedimentation, extensive bank erosion, and riparian zone disturbance. Low scores were observed for most of the eight individual metrics in the VSCI indicating a benthic community that is tolerant of pollution. Urban land cover with high levels of impervious surface causes an altered hydrology and resulting bank erosion. Sedimentation impacts may also be increased as land in the watershed is quickly being developed.

4AMDL002.93- (Near Foot Bridge Lower Station) The 2020 data window reports Bio 'IM' from four VSCI scores averaging 33.4 (2017-18). This station was sampled to collect data after a stream restoration project in 2008 as well as to validate citizen SOS monitoring. Roanoke County implemented a stream restoration project along the Garst Mill Park Greenway in 2008. Habitat data indicated stream impacts related to sedimentation, extensive bank erosion, and riparian zone disturbance. Most of the individual metrics in the VSCI show a degraded benthic community that is tolerant of pollution. Prior to 2017, there were no additional data beyond the 2012 IR. Two remaining surveys within the 2016 data window (2008-2009) have an average score of 24.3. The 2014 reports four VSCI surveys (2007 & 2009) with an average score of 20.10. The 2012 assessment reports seven VSCI surveys (2005 - 2009) with and average score of 24.3. Five (2005-2007) VSCI surveys score 25.5 within the 2010 data window. 2007 probabilistic sediment sampling finds no PEC Sediment exceedances; metals only. 2008 assessment reports three VSCI surveys (2005 - 2006) with and average score of 29.9.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MDL01A06 / Mud Lick Creek / Mud Lick Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.61

Mud Lick Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.61

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-03-BEN** **Roanoke River**

Cause Location: Roanoke River mainstem from Niagara Dam downstream to the mouth of Back Creek.

Cause City/County: Bedford County; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The benthic impairment is extended downstream with the 2008 Integrated Report (IR) for 3.16 miles from Niagara Dam downstream to the mouth of Back Creek. The 2008 and 2010 Integrated Reports assigned a Cause Group Code of L04R-01-BEN incorporating the entire 14.45 mile benthic impairment. This 3.14 mile portion is Category 5A as the TMDL Study did not address these waters. Thus a new Cause Group Code of L04R-03-BEN is assigned with the 2012 Integrated Report. The impairment does not include the impounded waters of Niagara Dam.

4AROA198.08- (Explore Park near the Shenandoah Pavilion) The 2022 data window contains eight VSCI surveys (2015-17, 2020) with an overall average score of 50 (Bio 'IM').

The 2018 data window contains six VSCI surveys (spring & fall, 2014-2016) with an overall average score of 53.1 (Bio 'IM'). This station was sampled at the request of local Virginia SOS citizen monitors. SOS has a station in the reach along Explore Park. Previous surveys yielded benthic communities dominated by net-spinning caddisfly larvae (Hydropsychidae) and the fourth was dominated by midges (Chironomidae). These organisms typically dominate streams that have high amounts of organic matter. All surveys had lower taxa richness and diversity as well as low numbers of pollution-sensitive taxa such as mayflies and stoneflies and caddisflies. Instream habitat, riparian zone vegetation, and bank stability were all optimal providing conditions favorable for a healthy benthic community. However, filamentous algae and periphyton growth was thick on stream substrates indicating that nutrients may be excessive in this reach of the Roanoke River.

The 2016 data window finds impairment from four spring and fall VSCI surveys (2010 & 2014) with an average score of 46.4. Previous surveys yielded benthic communities dominated by net-spinning caddisfly larvae (Hydropsychidae) and the fourth was dominated by midges (Chironomidae). These organisms typically dominate streams that have high amounts of organic matter. All surveys had low taxa richness and diversity as well as low numbers of pollution-sensitive taxa such as mayflies and stoneflies. Instream habitat, riparian zone vegetation, and bank stability were all optimal providing conditions favorable for a healthy benthic community. However, filamentous algae and periphyton growth was thick on stream substrates indicating that nutrients may be excessive in this reach of the Roanoke River. There were no additional within the 2014 data window. The 2012 assessment reports four VSCI surveys (fall 2005 & fall 2009 & 2010 spring & fall) with an average score of 51.5. 2010 and 2008 data windows contain two VSCI surveys 2005 and 2006 both fall scores are 56.3 and 55.0.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2008	H	3.17

Roanoke River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.17

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Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Industrial/Commercial Site Stormwater Discharge (Permitted); Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Post-development Erosion and Sedimentation; Residential Districts; Sediment Resuspension (Clean Sediment); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-04-BAC** **Ore Branch**

Cause Location: Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (Garden City and Roanoke Quads).

Cause City/County: Roanoke; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Ore Branch Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/02/2006 [Fed ID 24539] and SWCB approved 6/27/2007. The impairment was initially Listed in 1996 for fecal coliform bacteria.

4AORE000.19- (Sherwood Avenue - Roanoke City) There are no additional escherichia coli (E.coli) data within the 2014, 2016, or 2018 data windows. The 2012 data window finds six of the remaining 12 samples exceed the instantaneous criterion. Both 2010 and 2008 data reveal E.coli bacteria exceed the 235 cfu/100 ml instantaneous criterion in 22 of 33 observations. The range of exceedance is from 320 cfu/100 ml to 7,600. The 2006 Integrated Report (IR) finds E.coli exceeds the instantaneous criterion in 16 of 21 samples. Exceedances are the same range as in 2010 and 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ORE01A00 / Ore Branch / Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.56

Ore Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.56

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L04R-04-BEN Ore Branch

Cause Location: Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (Garden City and Roanoke Quads).

Cause City/County: Roanoke; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Roanoke River General Standard - Benthic (Sediment) TMDL Study is US EPA approved 5/10/2006 (FED ID: 33861) and State Water Control Board (SWCB) approved 9/07/2006. Ore Branch is nested within the Roanoke River General Standard- Benthic (Sediment) TMDL watershed.

4AORE000.01 (Mouth of Ore Branch)- A 2011 Probabilistic site. Bio 'IM' Two VSCI surveys scoring spring 22.5 and fall 24.1 with an average score of 23.3. The benthic community is severely impacted. Both samples were dominated by midges (Chironomidae) which can tolerate sediment deposition, nutrient enrichment and/or other impacts. VDEQ uses a target of 200 (minimum) organisms per sample in its benthic lab procedures. The entire sample was processed resulting in only 142 (spring) and 78 (fall) organisms collected. An average benthic sample will contain thousands of organisms.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ ORE01A00 / Ore Branch / Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.56

Ore Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.56

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-05-BAC** **Mason Creek**

Cause Location: Mason Creek mainstem from the Mason Cove Community, river mile 7.61, extending downstream to the mouth of Mason Creek on the Roanoke River (Salem Quad).

Cause City/County: Roanoke County; Salem

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Mason Creek Recreational Use remains impaired for 7.72 miles from the original 2002 303(d) Listing based on 1997 special study (SS 975101) data and fecal coliform exceedances.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Mason Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment.

4AMSN000.67- (Boulevard) The 2018 data window finds E.Coli exceeds 235 cfu/100ml instantaneous criterion in four of 12 samples. Exceedances range from 341 to 1935 cfu/100ml. There are no additional escherichia coli (E.coli) data beyond the 2010 IR where seven of 32 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml in both the 2010 and 2008 assessments. Exceedances range from 250 to 1000 cfu/100 ml. 2006 Integrated Report (IR) shows five of 20 E.coli samples exceed the instantaneous criterion with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MSN01A00 / Mason Creek / Mason Creek mainstem from its confluence with the Roanoke River upstream to near the Mason Cove Community (RU10).	4A	Escherichia coli (E. coli)	2006	L	7.72

Mason Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.72

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-05-BEN** **Mason Creek**

Cause Location: Mason Creek mainstem from the Mason Cove Community, river mile 7.61, extending downstream to the mouth of Mason Creek on the Roanoke River (Salem Quad).

Cause City/County: Roanoke County; Salem

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Mason Creek benthic community exhibits impaired conditions for the 7.72 mile 2008 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Mason Creek is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

4AMSN003.05- (Off Kessler Mill Rd.) Bio 'IM' There are no additional data beyond the 2008 IR. Three Virginia Stream Condition Index (VSCI) surveys (2004 - 2005) assessed with an average score of 55.4. The average VSCI score indicates the benthic community is impaired. Most of the habitat scores are in the optimal and sub-optimal range indicating that potential water quality problems are related to water chemistry rather than habitat limitations.

4AMSN000.53- (Arnold Burton Technical School Campus) Bio 'IM' Two VSCI surveys (2013) scoring spring 45.5 and fall 43.4. The average score is 44.4. The benthic community is dominated by pollution tolerant organisms, particularly Chironomidae (midges) in the spring and Hydropsychidae (net-spinning caddisfly) in the fall. The watershed is in an urban setting with industrial, commercial and residential land uses. Most of the habitat scores are in the optimal and sub-optimal range indicating that potential water quality problems are related to water chemistry rather than habitat limitations. The 2008 IR reports from three VSCI surveys (2004 - 2005) an average score of 37.6.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MSN01A00 / Mason Creek / Mason Creek mainstem from its confluence with the Roanoke River upstream to near the Mason Cove Community (RU10).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.72

Mason Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.72

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Residential Districts; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-06-BAC Peters Creek

Cause Location: Peters Creek mainstem from its headwaters (Salem Quad) extending downstream to the Peters Creek confluence on the Roanoke River (Roanoke Quad).

Cause City/County: Roanoke; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2002 303(d) Listed 7.20 mile Peters Creek Recreational impairment remains.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles on the Roanoke and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Peters Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4APEE001.04- (Shenandoah Avenue Bridge) There are no additional data beyond the 2012 assessment which reported escherichia coli (E.coli) exceedances of the 235 cfu/100 ml instantaneous criterion in two of 14 samples at 280 and 420 cfu/10 ml. There are no additional data beyond the 2012 data window. One of two remaining observations exceeds at 280 cfu/100 ml within both the 2014 and 2016 data windows. Data within both the 2010 and 2008 data windows find E.coli exceeds the instantaneous criterion in 11 of 32 observations ranging from 250 cfu/100 ml to greater than 2000. The 2006 Integrated Report (IR) finds the same range of exceedance from 10 of 20 samples. The original 2002 bacteria 303(d) Listing is based on a Special Study (SS 975101) conducted in 1997 where fecal coliform data resulted in geometric mean exceedances of the former WQS criterion and frequency of samples derived from the special study data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.59
VAW-L04R_PEE02A02 / Peters Creek / Peters Creek mainstem from the Melrose Avenue Bridge (Rt. 11/460) upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2006	L	4.62

Peters Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.21

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-06-BEN** **Barnhardt Creek**

Cause Location: Barnhardt Creek from its confluence on the Roanoke River upstream to its headwaters.

Cause City/County: Roanoke; Roanoke County; Salem

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Barnhart Creek is nested within the Roanoke River General Standard- Benthic (Sediment) TMDL watershed.

The 2012 Integrated Report (IR) finds the Aquatic Life Use is impaired. There are no additional data within the 2014 or 2016 data windows.

4ABHT001.90 (Downstream of Rt. 419, Roanoke City) Bio 'IM' Three VSCI surveys (2009-2010) with an average score of 36.8 indicating a benthic community dominated by pollution-tolerant taxa. Although several habitat scores were sub-optimal the habitat in this reach should support more mayfly and stonefly taxa which were extremely low during the surveys. Suburban land cover with a major road (Rt. 419) upstream of this station may cause altered hydrology and resulting bank erosion, sediment deposition, and runoff from roads. Riparian buffers are impacted on both sides by the sports fields at the school and residential backyards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_BHT01A10 / Barnhardt Creek / Barnhardt Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2012	L	5.31

Barnhardt Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.31

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-07-BAC** **Murray Run**

Cause Location: Murray Run mainstem from its headwaters to its mouth on the Roanoke River.

Cause City/County: Roanoke; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Murray Run 3.57 mile 2004 303(d) Listed Recreational impairment remains.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Murray Run bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMUR001.63- There are no escherichia coli (E.coli) data to assess since the 2004 data window. The 2004 Integrated Report (IR) reports FC exceeds the former 400 cfu/100 ml instantaneous criterion in two of six observations. Exceeding values are 600 and 8,000+ cfu/100 ml. Observations within the 2008 data window find one of three FC samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MUR01A00 / Murray Run / Murray Run mainstem from its headwaters to its mouth on the Roanoke River (RU14).	4A	Fecal Coliform	2004	L	3.58

Murray Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			3.58

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-07-BEN** **Murray Run**

Cause Location: Murray Run mainstem from its headwaters to its mouth on the Roanoke River.

Cause City/County: Roanoke; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Murray Run is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

The Aquatic Life Use is found impaired with the 2012 assessment.

4AMUR001.82- Bio 'IM' There are no additional data within the 2014, 2016, 2018, 2020, or 2022 data windows. The 2012 Integrated Report (IR) reports three VSCI surveys (2009-2010) with an average score of 19.5 indicating a benthic community dominated by pollution-tolerant taxa most notably Chironomidae (midge larvae). Although several habitat scores were sub-optimal the habitat in this reach should support more mayfly and stonefly taxa which were extremely low or absent during the surveys. Urban land cover with high levels of impervious surface upstream causes altered hydrology and resulting bank erosion, sediment deposition, and runoff of toxic substances from roads. Riparian buffers are good on one side of the stream while the opposite side of the stream is bordered by a mowed field.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MUR01A00 / Murray Run / Murray Run mainstem from its headwaters to its mouth on the Roanoke River (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2012	L	3.58

Murray Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.58

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-08-BEN** **Gish Branch**

Cause Location: Gish Branch mainstem from its mouth on Mason Creek upstream to its headwaters.

Cause City/County: Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Gish Branch benthic community exhibits impaired conditions for the 2.40 mile 2014 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Gish Branch is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed. There are no additional data beyond the 2014 Integrated Report (IR).

4AGSH001.28 (Off Rt. 311 downstream of I-81)- Bio 'IM' Two 2012 VSCI surveys scoring an average of 47.9. The results of benthic sampling indicate a community dominated by pollution-tolerant taxa in the both spring and fall. There were more midges (Chironomidae) and stoneflies (Nemouridae) in the spring sample whereas beetles accounted for a high percentage (33.1%) of the fall sample. Beetles in the fall are from the families Psephenidae (water pennies) and Elmidae (riffle beetles) helped increase the %Scrapper score. Both seasons had relatively low taxa richness and low numbers of mayflies.

The instream habitat was affected by sediment deposition. The sediment load results in a low embeddedness score meaning that the interstitial spaces between rocks is clogged by fine material thus limiting available habitat for sensitive macroinvertebrates. The banks appeared eroded possibly due to flashy flows from storm water runoff from highways in the upper reaches of the watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_GSH01A14 / Gish Branch / Gish Branch mainstem from its mouth on Mason Creek upstream to its headwaters (RU10).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.4

Gish Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.4

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Residential Districts; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-09-BEN Peters Creek

Cause Location: Peters Creek mainstem from its headwaters (Salem Quad) extending downstream to the Peters Creek confluence on the Roanoke River (Roanoke Quad).

Cause City/County: Roanoke; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Peters Creek benthic community exhibits impaired conditions for the 7.20 mile 2016 initially 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Peters Creek is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed (2016 IR).

4APEE001.16 (Strass Park, on Westside Boulevard)- Bio- 'IM' Two 2013 VSCI surveys scoring spring 26.3 and fall 27.5 with an average score of 26.9. The benthic community is dominated by pollution tolerant organisms, particularly Chironomidae (midges) in both spring and fall. This station is located in a suburban and commercial watershed which receives high levels of storm water runoff. During both sampling events algae is very thick on stream substrate indicating nutrient enrichment. Habitat scores were impacted by excessive sedimentation, eroded stream banks and sparse riparian buffers.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2016	L	2.59
VAW-L04R_PEE02A02 / Peters Creek / Peters Creek mainstem from the Melrose Avenue Bridge (Rt. 11/460) upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2016	L	4.62

Peters Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.21

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Residential Districts; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L04R-10-BAC** **Wolf Creek**

Cause Location: Wolf Creek from its mouth on the Roanoke River upstream to its headwaters (RU14).

Cause City/County: Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Wolf Creek is first listed for not meeting the Recreational Use during the 2018 IR window. The impairment is 4.5 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Wolf Creek bacteria impairment but Wolf Creek is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AWOR000.34 - Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in five of 12 samples. Exceedances range from 275 to 1421 cfu/100 ml during the 2020 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_WOR01A10 / Wolf Creek / Wolf Creek from its mouth on the Roanoke River upstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU14).	4A	Escherichia coli (E. coli)	2018	L	2.62
VAW-L04R_WOR02A08 / Wolf Creek / Wolf Creek from the upstream PWS end upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2018	L	1.90

Wolf Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 4.52

Sources: On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L04R-10-BEN Wolf Creek

Cause Location: Wolf Creek from its mouth on the Roanoke River upstream to its headwaters (RU14).

Cause City/County: Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This initial 2018 303(d) listing is based on Virginia Stream Condition Index (VSCI) scores during the 2018 IR window. The Aquatic Life Use impairment is 4.5 miles in length.

4AWOR000.34 (Niagara Rd. Crossing) - Bio 'IM' carries during the 2020 data window with an additional two 2017 VSCI Scores: 46.4 (Spring) and 44.3 (Fall). The 2018 IR window finds Impairment for benthic macroinvertebrate community based on four VSCI scores (2015-2016) averaging 49.4 (seasonal averages are: 35.8 Spring; 63.0 Fall). Station was originally established for TMDL development. The 2015 and 2016 Fall samples scored above the impairment threshold (VSCI 60). Spring scores scored well below the impairment threshold. The spring samples had lower numbers of total taxa and pollution sensitive plecoptera and trichoptera than the fall samples. Fall samples contained less chironomidae. The stream is impacted by fine sediments, lack of instream habitat and eroded stream banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_WOR01A10 / Wolf Creek / Wolf Creek from its mouth on the Roanoke River upstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2018	H	2.62
VAW-L04R_WOR02A08 / Wolf Creek / Wolf Creek from the upstream PWS end upstream to its headwaters (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2018	H	1.90

Wolf Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.52

Sources: Clean Sediments; Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Non-Point Source; Residential Districts; Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: **L05R-01-BAC** **Tinker Creek**

Cause Location: Tinker Creek mainstem from its headwaters downstream to the Tinker Creek confluence with the Roanoke River.

Cause City/County: Botetourt County; Roanoke; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Originally 303(d) Listed in 1998 for fecal coliform (FC) bacteria the Tinker Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/04 [Fed IDs: 7787 (FC), 21671 and 21672] and SWCB approved 12/02/04. The 19.58 mile bacteria impairment remains.

4ATKR015.88 (Off Rt. 779 at USGS Gage) There are no additional data beyond the 2014 IR where 10 of 24 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Five of 12 remaining samples within the 2016 data window exceed with the same range as the 2014 IR. The 2012 assessment finds 6 of 15 E.coli observations exceed the instantaneous criterion ranging from 320 cfu/100 ml to greater than 2000. E.coli exceed the instantaneous criterion in 22 of 37 samples within the 2010 data window. 2008 collections find E.coli in excess of the instantaneous criterion in 18 of 30 samples with the same range of exceedance as 2010. The 2006 Integrated Report (IR) exceedance range is the same from 17 of 25 samples.

4ATKR009.30 (Rt. 11 Bridge near Hollins) The 2022 data window applies new E.coli criteria and finds 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. Nine of 25 E.coli samples exceed the instantaneous criterion during the 2020 data window. The 2018 assessment window finds 5 of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. There are no additional data beyond the 2008 assessment. One of three remaining E.coli observations exceeds the instantaneous criterion of 235 cfu/100 ml at 250 within the 2012 data window. 2010 data finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 9 of 15 samples with the same range of exceedance as in 2008. 2008 samples reveal 10 excursions of the instantaneous criterion from 18 samples. Exceedances range from 420 to 1100 cfu/100 ml. 2006 IR reports 9 of 15 E. coli excursions of the instantaneous criterion and the same range of exceedance as 2008.

4ATKR000.69 (Rt. 24 Bridge, Vinton) The 2022 data window new Ecoli WQS confirms 'IM' with 2 or more STV hits in the same 90-day period with < 10 samples. Twenty-four of 35 and 21 of 36 E.coli samples exceed the instantaneous criterion (235 cfu/100 ml) during the 2020 and 2018 IR windows, respectively. Exceedances range from 250 - 5794 cfu/100 ml. The 2016 IR reports 13 of 35 E.coli samples are in excess of the instantaneous criterion. Excessive values range from 250 to 800 cfu/100 ml. E.coli exceed the instantaneous criterion of 235 cfu/100 ml in 13 of 35 observations ranging from 320 cfu/100 ml to 800 in 2014. The 2012 data window finds E.coli exceed the instantaneous criterion in 16 of 35 observations ranging from 280 cfu/100 ml to 1200. 2010 E.coli samples exceed the instantaneous criterion in 31 of 49 observations. The 2008 assessment finds E.coli exceedances occur in 29 of 44 observations with the same range of exceedance as 2010. The 2006 (IR) reports E.coli exceeding the instantaneous criterion in 20 of 30 observations.

4ATKR000.08 (Upstream of Roanoke R. confluence) - E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 18 of 24 and 9 of 12 samples within the 2020 and 2018 IR data windows, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	5.37
VAW-L05R_TKR01B06 / Tinker Creek / Tinker Creek mainstem from the Carvin Creek mouth upstream to the confluence of Buffalo Creek (RU11).	4A	Escherichia coli (E. coli)	2006	L	6.51

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR02A00 / Tinker Creek / Tinker Creek mainstem from the mouth of Buffalo Creek upstream to the Roanoke City diversion tunnel located just upstream of the USGS stream gaging station (RU11).	4A	Escherichia coli (E. coli)	2006	L	4.47
VAW-L05R_TKR03A00 / Tinker Creek / Tinker Creek mainstem from the Roanoke City diversion tunnel to Carvin Cove on upstream to its headwaters (RU11).	4A	Escherichia coli (E. coli)	2006	L	3.26

Tinker Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.61

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L05R-01-BEN** **Tinker Creek**

Cause Location: Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the confluence of Buffalo Creek (RU11).

Cause City/County: Botetourt County; Roanoke; Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The benthic community is impaired for 5.37 miles based on a 2008 Virginia Stream Condition Index survey (VSCI). The 2018 IR data window extends the benthic impairment 6.5 mile upstream for a total of 11.87 miles impaired for benthic macroinvertebrate communities.

4ATKR009.30 (Rt. 11 bridge near Hollins) Bio 'IM' from 16 VSCI scores avg 60.9 (2015-16, 2018-19) during the 2022 data window. In July 2017, a fishkill occurred in this section Tinker Creek due to the release of a surfactant from a chemical manufacturing plant. Sampling in 2018 occurred as part of follow-up monitoring from the fishkill and continued through 2019. This station is in the middle of the five-plus mile section that was affected during the fishkill. Macroinvertebrates including crayfish, caddisflies and snails were also affected during the fishkill. The 2020 data window reports Bio 'IM' from six VSCI scores averaging 58.5 (2015-16, 2018). 2018 IR finds Bio 'IM' from four VSCI scores averaging 58.4. Habitat surveys indicated a stream section with substrates that were impacted by sediment, eroded banks and sparse riparian vegetative buffers. Spring 2015 and 2016 VSCI scores indicated an impaired condition. Fall 2015 and 2016 VSCI scores indicated a non-impaired condition.

4ATKR000.69 (Rt. 24 Bridge - Vinton) Bio 'IM' from six VSCI surveys (2015-17) with an average score of 46.7 during the 2020 and 2022 data windows. Impacts noted: sedimentation, eroded banks and sparse riparian vegetative buffers; a highly developed watershed. 2018 assessment window finds four VSCI surveys (2015-2016) with an average score of 48.6. Habitat surveys indicated a stream section with substrates that were impacted by sediment, eroded banks and sparse riparian vegetative buffers. This section of Tinker Creek is impacted by a highly developed watershed. The VADEQ TMDL Stressor Identification tool determines that any RBPII Total Habitat Scores <100 have a high risk to Aquatic Life. The average Total Habitat Score for this station for the four biomonitoring samples was 92.75. Prior cycles included one 2008 VSCI survey scoring 50.9 with no additional surveys within the 2012, 2014 or 2016 data windows. The score indicates a stressed community with low taxonomic diversity and low abundance of pollution-sensitive organisms. A visual assessment indicates that more than 70% of the stream substrate was covered with a thick mat of algae which may limit habitat available for macroinvertebrates that require clean substrates.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.37
VAW-L05R_TKR01B06 / Tinker Creek / Tinker Creek mainstem from the Carvin Creek mouth upstream to the confluence of Buffalo Creek (RU11).	5A	Benthic Macroinvertebrates Bioassessments	2018	H	6.51

Tinker Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.88

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Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Non-Point Source; Residential Districts; Sediment Resuspension (Clean Sediment); Source Unknown; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L05R-02-BAC** Carvin Creek

Cause Location: Carvin Creek mainstem from just upstream of I-81 at the mouth of an unnamed tributary extending downstream to the mouth of Carvin Creek on Tinker Creek (Roanoke Quad).

Cause City/County: Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Carvin Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/05/04 [Fed ID 24541] and SWCB approved on 12/02/04 (formerly VAW-L05R-02). These waters are previously 303(d) Listed in 2002 based on 1997 Special Study data. The 5.45 mile impairment remains with the 2016 and 2018 Integrated Reports (IR).

4ACRV005.10- (Hollins U. campus back parking lot) E.coli exceeds the 235 cfu/100ml instantaneous criterion in five of 12 samples (exceedance range 259-563 cfu/100ml) during the 2018 IR window. There is no additional E.coli data at this station.

4ACRV001.88- (Brookside Park off Rt. 623 Hollins) There are no additional data beyond the 2012 assessment where six of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 250 to 950 cfu/100 ml.

4ACRV000.28- (Plantation Road -Rt. 115) There are no additional data since the 2010 data window. The 2010 assessment reports five of 10 escherichia coli (E.coli) samples exceed the instantaneous criterion of 235 cfu/100 ml. The range of exceedance is from 260 to 1500 cfu/100 ml. E.coli exceed the instantaneous criterion in six of 12 samples in 2008 ranging from 240 to 1500 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the criterion in five of 10 samples ranging from 260 to 1500 cfu/100 ml.

Original 2002 Listing stations below had exceedances of the former fecal coliform instantaneous criterion of 400 cfu/100 ml. 4ACRV005.58- (Plantation Road -Rt. 115)

4ACRV001.88- (Brookside Park off Rt. 623 Hollins) 4ACRV000.28- (Plantation Road -Rt. 115)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_CRV01A00 / Carvin Creek / Carvin Creek mainstem from its confluence with Tinker Creek upstream to the mouth of Deer Branch (RU12).	4A	Escherichia coli (E. coli)	2004	L	1.83
VAW-L05R_CRV02A00 / Carvin Creek / Carvin Creek mainstem from the mouth of Deer Branch upstream to an unnamed tributary upstream of I-81 (RU12).	4A	Escherichia coli (E. coli)	2006	L	3.62

Carvin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.45

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L05R-02-BEN** **Deer Branch**

Cause Location: Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118).

Cause City/County: Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 2014 assessment reports the Deer Branch Aquatic Life Use (General Standard - Benthic) is impaired for 1.38 miles. These waters are Nested during the 2022 cycle in the Upper Roanoke River Sediment TMDL which was approved by EPA on 5/10/06. A subsequent Implementation Plan addressing sediment and bacteria was approved by EPA on 4/22/16.

4ADEE000.06 (Brookside Park, Roanoke City)- No new data since the 2018 IR window which includes six VSCI scores (2012, 2015-2016) averaging 47.2 resulting in a continued impairment for Deer Branch. This station was originally sampled to validate citizen SOS monitoring assessments but in 2016 was sampled as a targeted-stressed station for Probabilistic data collection. The average VSCI score was 47.2 indicating a benthic community that was dominated by pollution-tolerant taxa. The 2014 IR finds Bio 'IM' with two 2012 surveys score spring 45.1 and fall 61.8 for an average score of 53.4 indicating a benthic community dominated by pollution-tolerant taxa in the spring. Midges (Chironomidae) dominated the spring sample; whereas, the fall sample had a high abundance of filter-feeding caddisflies (Hydropsychidae and Philopotamidae). Suburban/commercial land cover along with major roads upstream of this station may cause periodic flooding in this stream that results in bank erosion, sediment deposition, and runoff. Riparian buffers are impacted on both banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_DEE01A08 / Deer Branch / Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.38

Deer Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.38

Sources: Industrial/Commercial Site Stormwater Discharge (Permitted); Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Post-development Erosion and Sedimentation; Residential Districts; Sediment Resuspension (Clean Sediment); Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L05R-03-BAC** **Glade Creek**

Cause Location: Glade Creek mainstem from its headwaters (Stewartsville Quad) downstream to its confluence with Tinker Creek at river mile 0.83 (Roanoke Quad).

Cause City/County: Botetourt County; Roanoke; Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The fecal coliform bacteria impairment originally 303(d) Listed in 1998 for 5.97 miles and extended in 2002 (6.98 miles) now totals 12.95 miles. The Glade Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/05/04 [Fed ID 24799] and SWCB approved 12/02/04. Formerly VAW-L05R-03.

4AGLA008.10- There are no additional data beyond the 2008 IR. 2010 data find three of 10 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion. 2008 data reveal three of 12 E.coli samples exceed the WQS instantaneous criterion. Exceedances range from 250 to 550 cfu/100 ml. Three of 10 E.coli samples exceed the WQS instantaneous criterion in 2006 with the same range of exceedance as in 2008.

4AGLA004.39- There are no additional data beyond the 2008 IR. Three non-exceeding escherichia coli (E.coli) samples remain within the 2012 data window and none within the 2014 or 2016 data windows. E.coli exceeds the 235 cfu/100 ml instantaneous criterion in eight of 16 samples in 2010. Values in excess of the criterion range from 260 to 820 cfu/100 ml. 2008 results find E.coli exceeds the instantaneous criterion in 10 of 18 samples. The range of exceedance is from 240 to 820 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the instantaneous criterion in 10 of 15 samples with the same range of exceedance as in 2008.

4AGLA000.20- There are no additional data beyond the 2010 IR. Four of 12 escherichia coli (E.coli) remaining observations exceed the 235 cfu/10 ml instantaneous criterion in 2014. Values in excess of the criterion range from 250 to 400 cfu/100 ml. The 2012 IR finds nine exceeding values from 24 remaining samples with a range of 250 to 750 cfu/100 ml in excess of the criterion. E.coli exceeds the WQS instantaneous criterion in 18 of 46 samples with exceeding values ranging from 250 to greater than 2000 cfu/100 ml in 2010. The 2008 IR finds 15 of 28 E.coli exceedances of the instantaneous criterion. Exceedance range is the same as 2010. Ten of 25 E.coli instantaneous criterion exceedances are found at this station in 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_GLA01A00 / Glade Creek / Glade Creek mainstem from the Glade Creek mouth on Tinker Creek upstream to the Berkley Rd. crossing (RU13).	4A	Escherichia coli (E. coli)	2006	L	1.59
VAW-L05R_GLA02A00 / Glade Creek / Glade Creek mainstem from the Berkley Rd. Crossing on upstream to the confluence of Cook Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	3.15
VAW-L05R_GLA03A00 / Glade Creek / Glade Creek mainstem from the Cook Creek mouth upstream to the confluence of Coyner Spring Branch (RU13).	4A	Escherichia coli (E. coli)	2006	L	1.23
VAW-L05R_GLA04A00 / Glade Creek / Glade Creek mainstem from the mouth of Coyner Spring Branch upstream to its headwaters (RU13).	4A	Escherichia coli (E. coli)	2006	L	6.98

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Glade Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.95

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L05R-04-BAC Lick Run

Cause Location: The upper limit is near Shaffers Crossing rail yard and headwaters from along I-581 on downstream to the mouth of Lick Run on Tinker Creek at river mile 1.41. The 1996, 1998 and 2002 impaired waters have expanded by 5.01 miles with the 2004 Listing (Roanoke Quad).

Cause City/County: Roanoke

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Originally 303(d) Listed in 2002 for fecal coliform (FC) bacteria. The Tinker Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/04 [Fed ID 24540] and SWCB approved 12/02/04. The bacteria impairment remains for these 9.64 mile waters.

4ALCK002.17- (Washington Park) There are no additional data beyond the 2008 IR. One of three remaining escherichia coli (E.coli) samples exceed the instantaneous criterion at 250 cfu/100 ml in 2012. Seven of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2010 data window. Excessive values range from 250 to greater than 2000 cfu/100 ml. The 2008 data window reports E.coli samples exceed the WQS instantaneous criterion in nine of 18 samples. Exceeding values range from 250 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) reveals eight of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion with the same range of exceedance.

4ALCK000.38 (Norfolk Southern parking lot bridge) The 2002 original listing station found exceedances of the former FC instantaneous and geomean criteria in a Special Study conducted in 1997. E.coli excursions of the 235 cfu/100 ml instantaneous criterion within the 2010 data window are 21 of 46 E.coli samples with exceedances ranging from 280 to 3000 cfu/100 ml. There are no additional data beyond the 2010 IR. Five E.coli observations exceed from the remaining 12 samples in 2014 with values ranging from 350 to greater than 2000 cfu/100 ml. The 2012 assessment finds 10 of 24 remaining samples in excess of the instantaneous criterion. The range of exceeding values is 350 to greater than 2000 cfu/100 ml. The 2008 IR finds 19 of 38 E.coli samples in excess of the instantaneous criterion with exceedances ranging from 280 to 3000 cfu/100 ml. 2006 E.coli excursions of the instantaneous criterion are found in 13 of 25 samples with the same exceedance range as in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_LCK01A00 / Lick Run / Lick Run mainstem from near Shaffer's Crossing downstream to Lick Run mouth on Tinker Creek.	4A	Escherichia coli (E. coli)	2004	L	9.65

Lick Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.65

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L05R-05-BAC Laymantown Creek

Cause Location: Laymantown Creek mainstem from just upstream of the Rt. 657 Bridge at a small pond downstream to the mouth of Laymantown Creek on Glade Creek (Stewartsville Quad).

Cause City/County: Botetourt County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2.11 mile 2002 303(d) Listed Laymantown Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/04 [Fed ID: 24544] and SWCB approved 12/02/2004.

4ALAY000.37- (Rt. 460 Bridge - near Blue Ridge) There are no additional data beyond the 2008 IR where escherichia coli (E.coli) samples exceed the 235 cfu/100 ml WQS instantaneous criterion in two of nine samples. Exceeding values are 300 and 800 cfu/100 ml. The original 2002 fecal coliform (FC) listing is based on a Special Study conducted in 1997 where the former FC instantaneous criterion were exceeded.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_LAY01A00 / Laymantown Creek / Laymantown Creek mainstem from an outlet of a small pond downstream to the Laymantown Creek mouth on Glade Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	2.12

Laymantown Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.12

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-06-BAC** **Deer Branch**

Cause Location: Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).

Cause City/County: Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 1.08 mile Deer Branch is initially 303(d) listed with the 2018 Integrated Report and Nested within the Tinker Cr. Bacteria TMDL US EPA approved 8/05/04 Fed ID 24541. SWCB approved 12/2/2004.

4ADEE000.05 (Brookside Park, Roanoke City) - The 2018 assessment cycle finds Escherichia Coli (E.Coli) excursions of the 235 cfu/100 ml instantaneous criterion in five of 13 samples during 2015 and 2016. These excursions range from 253 to 884 cfu/100 ml. There is no new data beyond the 2018 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_DEE01A08 / Deer Branch / Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).	4A	Escherichia coli (E. coli)	2018	L	1.38

Deer Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.38

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L06R-01-BEN** Back Creek

Cause Location: Back Creek mainstem waters from ~0.1 miles downstream of the Mt. Haran Church on downstream of the Blue Ridge Parkway crossing and downstream of the Back Creek Church.

Cause City/County: Roanoke County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2014 initial 303(d) Listing finds the benthic community impaired from a total of six Virginia Stream Condition Index (VSCI) surveys conducted in 2005, 2008, 2009 and 2012. The average score is 57.8 resulting in this Listing.

4ABAA023.07 (Along Rt. 221 Roanoke County) - Initially a fall 2005 sediment discharge from a construction site prompted sampling of this site. The 2005 fall score of 61.3 and 2006 scores spring of 50.9 and fall 60.9 caused assessment decisions to be reserved due to the improvement of scores in fall 2006 and fall 2008 (70.3). Subsequent 2009 fall survey scored 52.8 and 2012 surveys scored spring 52.5 and fall 2012 at 64.9. The abundance of macroinvertebrates that feed by scraping algae and periphyton (%Scrapers) has always been low indicating a lack of clean substrate or often scoured substrates. The 2008, 2009, and 2012 habitat surveys find sand and fine sediment impact the stream substrate. This would indicate continued sources of fines beyond the initial 2005 release. The 2018 data window finds full support of the Aquatic Life Use standard from six VSCI surveys averaging 62.1 (2012, 2015-2016). Bio 'FS' from 8 VSCI scores avg 62 (2015-17, 2019). This station was sampled to determine the impact from an illegal discharge of sediment laden water from a holding pond at a construction site in fall 2005. An upstream station (4ABAA023.29) was used as a control site during earlier surveys. While this station is showing signs of recovery, the impairment remains while additional data is collected at this station and 4ABAA017.14.

Anecdotal biomonitoring data is presented from 4ABAA017.14 (Rt. 613 near Merriman Soccer Complex) which was subsequently identified as impaired for benthic macroinvertebrate communities. Bio 'IM' from 8 VSCI scores avg 59 (2015-17, 2019) during the 2022 cycle. This station was surveyed to determine the potential impact to the benthic community after upstream sections were found to be impaired during the 2016 assessment cycle. Additional data will be collected to evaluate biological condition.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L06R_BAA04A00 / Back Creek / Back Creek mainstem waters from the confluence of an unnamed tributary (XVE) on downstream of the Blue Ridge Parkway crossing and Back Creek Church (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.12
VAW-L06R_BAA04B14 / Back Creek / Back Creek mainstem waters from the mouth of Little Back Creek on downstream to the confluence of an unnamed tributary to Back Creek (XVE) (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.26
VAW-L06R_BAA05A08 / Back Creek / Back Creek from ~0.1 miles downstream of the Mt. Haran Church on downstream to the mouth of Little Back Creek (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	0.57

Back Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
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6.95

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Sources: Municipal (Urbanized High Density Area); Non-Point Source; Residential Districts; Site Clearance (Land Development or Redevelopment); Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L06R-02-BAC** **Back Creek**

Cause Location: Back Creek mainstem waters from ~0.1 miles downstream of the Mt. Haran Church downstream to the confluence of an unnamed tributary to Back Creek (XVE) (RU15).

Cause City/County: Roanoke County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window finds Recreational Use impairment and 303(d) lists the upper section of Back Creek. These waters are Nested in the Roanoke River Bacteria Total Maximum Daily Load (TMDL) which was U.S. EPA approved on 8/02/06 [Fed ID 24538] and SWCB approved on 9/07/06.

4ABAA023.07 (Below Old Mill Plantation) - The 2020 data window finds three excursions of the 235 cfu/100 ml instantaneous criterion from twelve total samples. There are no additional data within the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L06R_BAA04B14 / Back Creek / Back Creek mainstem waters from the mouth of Little Back Creek on downstream to the confluence of an unnamed tributary to Back Creek (XVE) (RU15).	4A	Escherichia coli (E. coli)	2020	L	1.26
VAW-L06R_BAA05A08 / Back Creek / Back Creek from ~0.1 miles downstream of the Mt. Haran Church on downstream to the mouth of Little Back Creek (RU15).	4A	Escherichia coli (E. coli)	2020	L	0.57

Back Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.83

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L07L-01-PH **Beaverdam Reservoir**

Cause Location: Beaverdam Reservoir, Bedford County

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Beaverdam Creek Reservoir located in Bedford County is owned by the Western Virginia Water Authority. The reservoir is fenced and public access is not permitted. There are no known sources other than from the natural landscape.

4AXKD0003.34 (100 ft. from Dam) There are no additional data within the 2014 data window. The reservoir 2012 data window reports 5 of 36 pH measurements in excess of the Class IV pH acidity criterion of 6.0. Four values in excess of the criterion are at 5.7 and one at 5.8 during one sampling event on 4/22/2010 from a total of 13 sampling events in 2005 and 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_XKD01A02 / Beaverdam Reservoir (XKD) / Beaverdam Reservoir from its impounding structure upstream to its backwaters.	5C	pH	2012	L	66.93

Beaverdam Reservoir

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		66.93	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L07L-02-BAC **Smith Mtn. Lake (Lynville Creek)**

Cause Location: Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The initial 2020 303(d) Listing of these waters is a result of escherichia coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion in six of 12 samples. Excursions range from 272 to 5794 cfu/100ml.

2022: E.coli- Impaired - 2 or more STV exceedances in the same 90 day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_LVL01A10 / Smith Mtn. Lake (Lynville Creek) / Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.	4A	Escherichia coli (E. coli)	2020	L	76.75

Smith Mtn. Lake (Lynville Creek)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type:		76.75

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Roanoke and Yadkin River Basins

Cause Group Code: **L07L-03-BAC** **Smith Mtn. Lake (Roanoke River)**

Cause Location: Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.

Cause City/County: Bedford County; Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The initial 2020 303(d) Listing of these waters is a result of escherichia coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion in seven of 40 samples. Excursions range from 300-8,164 cfu/100ml

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_ROA04A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.	4A	Escherichia coli (E. coli)	2010	L	184.71

Smith Mtn. Lake (Roanoke River)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		184.71	

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L07R-01-BAC Beaverdam Creek

Cause Location: Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mountain Lake at River Mile 2.78 (Stewartsville, Irving, Goodview and Hardy Quads).

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Beaverdam Creek Bacteria TMDL Load Duration is U.S. EPA approved 7/07/2006 [Fed ID 17733] and SWCB approved 6/27/2007. The 1999 Federal Consent Decree includes 4ABDA003.63 as an Attachment B station for fecal coliform bacteria- 303(d) Listed 2002. The 4.98 bacteria impairment remains.

4ABDA003.63- (Off Rt. 757) There are no additional data beyond the 2014 IR where 13 of 35 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. The range of excessive values is from 250 to 1275 cfu/100 ml. E.coli data remaining within the 2016 data window are eight of 23 observations and the same range of exceedance. The 2012 assessment reports E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 15 of 36 samples. Exceeding observations range from 250 cfu/100 ml to greater than 2000. E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 25 of 45 samples within the 2010 data window. Exceeding observations range from 300 to greater than 2000 cfu/100 ml. 2008 E.coli data exceeds the instantaneous criterion in 20 of 33 samples and the same range of exceedance as 2010. The 2006 Integrated Report (IR) reveals exceedances of the instantaneous criterion in 14 of 21 samples. Exceeding observations range from 300 to 1800 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_BDA01A00 / Beaverdam Creek / Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section 6i, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mtn. Lake (RU17).	4A	Escherichia coli (E. coli)	2006	L	4.99

Beaverdam Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 4.99		

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L07R-01-BEN** **Beaverdam Creek**

Cause Location: Beaverdam Creek mainstem waters from the 795 ft. pool elevation of Smith Mtn. Lake on upstream to its headwaters (Stewartsville, Irving, Goodview and Hardy Quads).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2010 Virginia Stream Condition Index (VSCI) surveys find the Aquatic Life Use is impaired for 10.33 miles. There are no additional data beyond the 2010 Integrated Report (IR).

4ABDA006.72 (Rt. 24 Crossing)- Two 2008 Virginia Stream Condition Index (VSCI) surveys with an average score of 45.0 find the benthic community impaired. This watershed is influenced by agricultural land use with open pastures including some with no riparian vegetation. Habitat scores show this stream reach is impacted by sediment deposition and a poor riparian buffer.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_BDA01A00 / Beaverdam Creek / Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section 6i, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mtn. Lake (RU17).	5A	Benthic Macroinvertebrates Bioassessments	2010	H	4.99
VAW-L07R_BDA02A00 / Beaverdam Creek / Beaverdam Creek mainstem from its headwaters downstream to the WQS designated public water supply (PWS) ending section 6i, eg. 5 miles above the Smith Mtn. Lake 795 ft. pool elevation (RU17).	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.36

Beaverdam Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.35

Sources: Agriculture; Loss of Riparian Habitat; Residential Districts; Rural (Residential Areas); Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L07R-02-BAC** Merriman Run, UT (XUO)

Cause Location: Merriman Run, UT (XUO) mainstem from the backwaters of Smith Mtn. Lake upstream to its headwaters; public water supply (PWS) section 6i, eg. within 5 miles of 795 ft. Smith Mtn. Lake pool elevation (RU19).

Cause City/County: Bedford County; Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreational Use is 303(d) listed based on E.coli samples collected during the 2020 data window.

4AXUO000.49 (Free flowing to Smith Mtn. Lake backwaters) shows nine of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion during the 2020 data window. E.coli impairment carries during the 2022 cycle due to new E.coli WQS finding one Statistical Threshold Value (STV) exceedance in one or multiple 90-day periods but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_XUO01A06 / Merriman Run, UT (XUO) / Merriman Run, UT (XUO) mainstem from the backwaters of Smith Mtn. Lake upstream to its headwaters; public water supply (PWS) section 6i, eg. within 5 miles of 795 ft. Smith Mtn. Lake pool elevation (RU19).	5A	Escherichia coli (E. coli)	2020	L	0.89

Merriman Run, UT (XUO)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.89

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L07R-04-BEN** Lynville Creek

Cause Location: Lynville Creek mainstem from the backwaters of Smith Mtn. Lake (pool elevation 795 ft.) within the WQS designated public water supply (PWS) section 6i, eg. within 5 miles of Smith Mtn. Lake pool elevation (RU16).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2020 303(d) listing of the Aquatic Life Use on Lynville Creek is a result of benthic macroinvertebrate community samples collected during 2017 and 2018 as a follow-up to Virginia Save-Our-Streams citizen monitoring.

4ALVL003.26- Bio 'IM' from four 2017-18 VSCI scores averaging 52.5. This station was surveyed to collect information to follow-up Save-our-Stream (SOS) volunteer monitoring. This site is in a watershed that has agricultural land cover. Habitat scores indicated excessive sediment deposition and eroded banks in the immediate stream reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_LVL01A02 / Lynville Creek / Lynville Creek mainstem from the backwaters of Smith Mtn. Lake (pool elevation 795 ft.) within the WQS designated public water supply (PWS) section 6i, eg. within 5 miles of Smith Mtn. Lake pool elevation (RU16).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.85

Lynville Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.85

Sources: Clean Sediments; Loss of Riparian Habitat; Non-Point Source

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L08R-01-BAC** Green Creek

Cause Location: Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork of the Blackwater River begins (Callaway Quad).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Green Creek 4.09 mile bacteria impairment is a 2004 303(d) Listing due to fecal coliform (FC) exceedances (formerly VAW-L08R-01). The Bacteria Total Maximum Daily Load (TMDL) for the South Fork Blackwater River is U.S. EPA approved 02/02/01 [Fed IDs: 1886 / 7791 / 21330 / 24549] and SWCB approved 6/17/04. The SWCB approved the Bacteria Implementation Plan on 6/17/04.

The Upper Blackwater River Bacteria Implementation Plan (IP) received SWCB approval on 6/17/2004. Green Creek is tributary to the South Fork and is included in the TMDL Watershed and allocations. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Bacteria IP encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks.

4AGCR000.01- (Rt. 739 Bridge at Algoma) There are no additional data beyond the 2012 data window. Six of 33 escherichia coli (E.coli) samples are in excess of the 235 cfu/100 ml instantaneous criterion ranging from 250 to 480 cfu/100 ml for 2012. Data remaining within the 2016 data window are one of 12 and 2014 three of 24 measurements. The 2010 assessment finds five of 21 E.coli samples in excess of the instantaneous criterion ranging from 280 to 480 cfu/100 ml. 2008 results are three of nine E.coli samples in excess of the instantaneous criterion ranging from 280 to 300 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_GCR01A00 / Green Creek / Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork Blackwater River begins (RU21).	4A	Escherichia coli (E. coli)	2008	L	4.1

Green Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-01-TEMP** **Green Creek**

Cause Location: Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork of the Blackwater River begins.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The 4.09 mile temperature impairment returns with the 2012 assessment. The 2010 IR de-listed the temperature impairment.

4AGCR000.01- (Rt. 739 Bridge at Algoma) The 2020 and 2018 data windows report no exceedances of the temperature Class VI 20°C criterion from two samples taken in 2015. Impairment remains due to the small sample size (n=2). Prior to 2018, there were no additional data beyond the 2012 IR. The 2012 assessment finds four of 33 temperature measurements exceed the Class VI 20°C criterion for an exceedance rate of 12%. The exceeding values occur in the summer months with an exceedance range from 21.6°C to 22.6°C. Data remaining within the 2016 data window are two of 12 measurements exceed and within the 2014 data window two of 24. The waters were initially Listed in 2002 with two of 17 temperature measurements exceeding the Class VI 20°C criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_GCR01A00 / Green Creek / Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork Blackwater River begins (RU21).	5C	Temperature	2012	L	4.1

Green Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.1

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L08R-02-BAC Blackwater River, South Fork

Cause Location: South Fork Blackwater waters from the Rt. 739 Bridge in Algoma, Va. (Callaway Quad) on downstream just west of the Rt. 641 Bridge where the North and South Forks join forming the Blackwater River.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The South Fork Blackwater River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 2/02/01 [Fed. IDs: 1886/7791/21330/24549] and SWCB approved 6/17/04. The Bacteria Implementation Plan (IP) is SWCB approved 6/17/04. The waters are originally 303(d) Listed in 1996 for fecal coliform bacteria (FC) for 6.21 miles. The Upper Blackwater River Bacteria Implementation Plan is complete as of 8/23/01 with SWCB approval on 6/17/04. The TMDL Study identified Wildlife as a major source based on TMDL Bacteria Source Tracking (BST). The Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The South Fork Blackwater River 1996 303(d) Listed impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform bacteria sample collections. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform (FC) geometric mean (200 cfu/100 ml & 2 samples 30 day) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) now replaces FC as the bacteria indicator in the Blackwater River drainage as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The 6.21 mile bacteria impairment remains.

4ABSF001.15- (Rt. 641 Bridge east of Callaway) - The 2022 data window applies the new E.coli criterion which confirms impairment due to geomean exceedance in any 90-day period. The 2020 and 2018 IR windows find 25 of 36 and 27 of 36 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion, respectively. The range of exceedances spans 262 to 6867 cfu/100 ml. 2016 excessive E.coli values range from 250 to 2489 cfu/100 ml in 28 of 36 samples. Twenty-nine of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2012 and 2014 data windows. 2010 E.coli results find 25 of 33 samples exceeding the instantaneous criterion where excessive values range from 280 cfu/100 ml to greater than 2000. 2008 E.coli samples exceed the instantaneous criterion in 19 of 27 samples. Twenty of 26 samples exceed the instantaneous criterion in 2006 ranging from 250 to greater than 2000 cfu/100 ml.

4ADRU002.43 (Rt. 642 Bridge) - The 2018 data window finds two of 12 E.coli samples exceed the instantaneous 235 cfu/100 ml criterion at 272 and 298 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BSF01A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from the Callaway Community downstream to the South Fork's confluence with the North Fork Blackwater River (RU21).	4A	Escherichia coli (E. coli)	2004	L	2.27
VAW-L08R_BSF02A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from Algoma, Green Creek mouth, downstream to the Callaway community (RU21).	4A	Escherichia coli (E. coli)	2004	L	3.95
VAW-L08R_DRU01A16 / Daniel's Run / Daniel's Run from its confluence with the South Fork Blackwater River upstream to an Unnamed Tributary (37 00'21.4" / 80 05'43.7") (RU21).	4A	Escherichia coli (E. coli)	2018	L	3.23

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Blackwater River, South Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.45

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L08R-03-BAC** **Blackwater River, North Fork**

Cause Location: North Fork Blackwater River headwaters (~12.25 mi. upstream) on the Bent Mt. Quad on downstream to its confluence with the South Fork Blackwater River forming the Blackwater River (Callaway Quad).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The North Fork of the Blackwater River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 3/09/2001 [Fed. IDs: 7790 & 20479] and SWCB approved on 6/17/04. The Upper Blackwater River Bacteria Implementation Plan (IP) is complete (8/23/01) receiving SWCB approval on 6/17/2004. The TMDL Study identified Wildlife as a major source based on TMDL Bacteria Source Tracking (BST). The Upper Blackwater River Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL Study allocations and Implementation Plans can be viewed at <http://www.deq.virginia.gov>.

The 12.44 mile North Fork Blackwater River bacteria impairment initially 303(d) Listed in 1996 is based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. Abundant fecal coliform bacteria counts failed to support the Recreational Use by exceedances of both the former fecal coliform (FC) geometric mean (200 cfu/100 ml & 2 samples/month) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform as the bacteria indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ABNR004.56- (Rt. 742 Bridge near Dillions Mill) There are no additional E.coli data beyond the 2010 IR where E.coli exceed the 235 cfu/100 ml instantaneous criterion in four of 15 observations. In both 2008 and 2006 two of six E.coli observations exceed the instantaneous criterion.

4ABNR000.40- (Rt. 740 Bridge S.W. of Retreat) The 2022 data window applies the new E.coli criterion and confirms Recreational Use impairment due to geomean exceedance in any 90-day period. E.coli excursions of the 235 cfu/100ml instantaneous criterion were found in 16 of 34 samples during the 2020 and 2018 Integrated Reporting windows, respectively. The 2016 E.coli range of exceeding values are from 250 to greater than 2000 in 23 of 36 and 16 of 34 observations. E.coli exceed the 235 cfu/100 ml instantaneous criterion in 17 of 34 samples in 2014 and 23 of 36 samples in 2012. E.coli exceed the instantaneous criterion in 21 of 36 samples within the 2010 data window. Exceeding values have the same range as 2012,2014 and 2016. 2008 data find E.coli exceeds the instantaneous criterion in 20 of 33 samples also ranging from 250 cfu/100 ml to greater than 2000. The 2006 Integrated Report (IR) finds E.coli exceeds in 19 of 32 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BNR01A00 / N.F. Blackwater River / North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River (RU20).	4A	Escherichia coli (E. coli)	2004	L	3.22
VAW-L08R_BNR02A00 / N.F. Blackwater River / North Fork Blackwater River mainstem headwaters downstream to the Dillions Mill Community (RU20).	4A	Escherichia coli (E. coli)	2006	L	9.24

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Blackwater River, North Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.46

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L08R-03-BEN Blackwater River, North Fork

Cause Location: North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: North Fork Blackwater River General Standard Benthic Total Maximum Daily Load (TMDL) is U.S. EPA approved 4/26/04 [Fed ID 24548 Phosphorus & 24550 Sediment] and SWCB approved 8/31/04. Originally 303(d) listed in 1996 the 3.21 mile benthic impairment remains.

4ABNR001.53 (Rt. 738 Bridge) Bio 'FS' from four VSCI scores avg 64 (2018-19) during the 2022 data window. The 2020 data window finds Bio 'FS' based on one spring 2018 VSCI score of 60.4. The 2018 IR window finds Bio 'IM' from two 2011 Virginia Stream Condition Index (VSCI) scores: Spring 42.3 and Fall 60.0 (average VSCI = 51.2). Four 2010-2011 Virginia Stream Condition Index (VSCI) surveys report an average score of 55.40 for 2014 and 2016. The average score within the 2012 data window is 50.48. The instream habitat (substrate) at this site has been impacted by fine sediment. The riparian zone vegetation is in the marginal to poor categories.

Previous to the 2012 Integrated Report (IR) there were no additional data beyond the 2008 IR where two VSCI surveys (2001 - 2002 all Spring) score an average of 52.8. This site was first surveyed on 7/26/00 as part of benthic TMDL special study in the Blackwater River Watershed. It was sampled in spring 2001 and 2002 along with the other impact sites in the North Fork of the Blackwater River. The benthic community was dominated by several pollution tolerant organisms including midge fly larvae (Chironomidae) which are tolerant of sediment and low dissolved oxygen. The 1999-2001 drought impacted the ecoregion reference stations at Green Creek and Pigg River resulting in a decrease in the benthic community scores. However, the historically impaired stations in the North Fork and the Blackwater did not appear to decrease with the reference site. Instead, some metrics (%Chironomidae, %Ephemeroptera) improved. It appears that less runoff from adjacent fields and pastures may have helped improve the benthic community scores during the drought.

4ABNR000.40- (Rt. 740 Bridge) Bio 'IM' Five (2009-2011) VSCI surveys with an average score of 47.1 remain within the 2016 data window. Six (2007-2012) VSCI surveys scored an average of 49.5 within the 2014 data window. Six (2006-2010) VSCI surveys conducted within the 2012 data window produced an average score of 53.69. The 2010 IR reports an average VSCI score of 53.69 as well. Each cycle resulting in an impaired condition. Instream habitat (substrate) has been impacted by fine sediment. Riparian zone vegetation has been removed and stream banks eroded due to unrestricted cattle access to the stream. This region was affected by several drought years in earlier assessments. Less runoff of non-point source pollution during the low rainfall periods potentially resulted in an improvement in the benthic community. Additionally, recent installation of agricultural best management practices in the watershed may have improved water quality. The 2007 fall samples were replicate samples. The average score of the replicate samples was 61.53. This indicates an improvement from the Fall of 2006 survey. The 2008 IR reported four VSCI surveys (2001/2002-Spring & 2006). The average VSCI score was 47.4.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BNR01A00 / N.F. Blackwater River / North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River (RU20).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.22

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Blackwater River, North Fork

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.22

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: L08R-04-BAC Blackwater River (Upper)

Cause Location: Blackwater River from the confluence of the North and South Forks of the Blackwater River (Callaway Quad) on downstream to the Rt. 122 bridge crossing.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Bacteria TMDL Studies and allocations are complete for the Upper, Middle and Lower Blackwater R drainages. These studies incorporate tributary streams that lie within the boundaries of watershed VAW-L08R and a portion of L10R. This fact sheet addresses the Upper and Middle Blackwater R drainages. Bacteria TMDL approval (EPA) 3/9/01 for the Upper Blackwater R [Fed. ID 1887 / 9634], the Middle Blackwater 12/4/01 [Fed. IDs: 1887 / 1889 / 9633] and the Lower Blackwater R 4/27/01 [Fed. ID 1888]. Each of the aforementioned TMDLs were approved by the SWCB 6/17/04. The studies were formerly coded: Upper Blackwater R - VAW-L08R-01-Green Cr and VAW-L08R-04-Blackwater. Middle Blackwater - VAW-L08R-04 - Blackwater, VAW-L08R-05 - Little Cr, VAW-L08R-06 - Teels Cr). Lower Blackwater R - VAW-L08R-04 ° Blackwater.

The Upper Blackwater R Bacteria IP covering Upper and Middle Blackwater R TMDLs is complete (8/23/01) and SWCB approved 6/17/04. The Lower Blackwater R Bacteria IP is complete and SWCB approved 9/27/06. The Upper Blackwater R Bacteria IP encompasses the Upper Blackwater R drainage (L08R) to include the North and South Forks, Little and Teels Cr. The Lower Blackwater R Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills Cr (L11R).

Blackwater R: The Blackwater R impairment is originally based on a 319 funded special study (SS 925102) and ambient fecal coliform (FC) bacteria sample collections. Initially 303(d) Listed in 1996, found abundant FC counts failed to support recreational use by exceedances of the former FC geomean (200 cfu/100 ml & 2 samples/mo) and former (2002) inst criterion of 1000 cfu/100 ml. Below addresses 28.27 mi of the Blackwater R mainstem bacteria impairment that totals 39.48 mi (See L10R-01-BAC Fact Sheet for the remainder). Escherichia coli (E.coli) replaced FC as the indicator bacteria per [9 VAC 25-260-170. Bacteria; other waters].

Upper Blackwater R. (15.71 miles): 4ABWR061.20- (Rt. 641 Br) 2022: New E.coli WQS confirms impairment due to geomean exceedance in any 90-day period. 2020: 24/36. 2018: 21/36. 2016: 22/35. 2014: 24/36. 2012: 26/35. 2010: 2/35. 2008: 20/31. 2006: 13/18. 4ABWR054.81- (Rt. 734 Br) 2022: New E.coli WQS confirms impairment based on 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. 2020: 24/36. 2018 & 2016: 19/36. 2014: 18/36. 2012: 14/24. 2010 & 2008: 6/9. 2006: 14/20.

Middle Blackwater R (12.56 miles): 4ABWR045.80- (Rt. 812 Bridge) New E.coli WQS confirms impairment due to geomean exceedance in any 90-day period. 2020: 22/35. 2018: 16/35. 2014: 19/35. 2012: 20/35. 2010: 20/36. 2008: 15/33. 2006: 15/32. 4ABWR032.32- (Rt. 122 Br at gaging station) No additional data beyond the 2006 IR. This station will no longer be sampled due to safety concerns. 2006 IR reports E.coli exceed the 235 cfu/100 ml instantaneous criterion in 6/21. E.coli samples within the 2008 data window find one of 10 in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR01B06 / Blackwater River / Blackwater River mainstem from downstream of the Rt. 921 Bridge ~ 1.3 miles at the confluence of an unnamed tributary downstream to the Rt. 122 Bridge (RU22).	4A	Escherichia coli (E. coli)	2004	L	2.97

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR02A00 / Blackwater River / Blackwater River mainstem from the Town of Rocky Mount's water intake on the Blackwater River on downstream of the Rt. 921 Bridge approximately 1.3 miles at the confluence of an unnamed tributary (RU22).	4A	Escherichia coli (E. coli)	2004	L	4.59
VAW-L08R_BWR03A00 / Blackwater River / Blackwater River mainstem from the WQS designated public water supply (PWS) section 6f ending approximately 2 miles upstream of Little Creek's mouth on the Blackwater downstream to the Town of Rocky Mount's water intake on the Blackwater River (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.01
VAW-L08R_BWR04A00 / Blackwater River / Blackwater River mainstem from the mouth of Maple Branch (37°01'14" / 79°58'42") downstream to the WQS PWS section 6f ending approximately 2 miles upstream of Little Creek's mouth on the Blackwater River (37°02'25" / 79°54'51") (RU22).	4A	Escherichia coli (E. coli)	2004	L	10.10
VAW-L08R_BWR05A00 / Blackwater River / Blackwater River mainstem from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42") (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.61

Blackwater River (Upper)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.28

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L08R-04-BEN** **Blackwater River**

Cause Location: Blackwater River from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42").

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Upper Blackwater River General Standard Benthic Total Maximum Daily Load (TMDL) is U.S. EPA approved on 4/26/04 [Phosphorus Fed ID 7789 & Sediment Fed ID 23397] and SWCB approved on 8/31/04 (formerly VAW-L08R-04).

The original 1996 General Standard benthic impairment was based on Green Creek (Blue Ridge) as a reference site. The reference site for the Blackwater River mainstem stations is now in the Pigg River drainage (transitional Blue Ridge to Piedmont). The Pigg River reference site is believed to more closely reflect conditions in the Blackwater River mainstem.

The original 1996 303(d) Listed benthic impaired waters extended from the confluence of the North and South Forks of the Blackwater River on downstream of the Rt. 921 Bridge approximately 1.3 miles at the confluence of an unnamed tributary (25.24 miles). The impaired waters were shortened with the 2004 Integrated Report partial delisting based on improved conditions at downstream stations 4ABWR049.73 and 4ABWR045.80 through the former Rapid Bioassessment Protocol II (RBP II Method) benthic surveys. The US Environmental Protection Agency approved the partial delisting on 1/27/04. The General Standard (Benthic) impairment is now spans 5.61 miles- Category 4A.

Station 4ABWR061.20 (Rt. 641 Bridge) Bio 'IM' from four VSCI scores (2018-19) avg 54 during the 2022 data window. The 2020 data window adds two 2018 VSCI scores: 45.6 (Spring) and 69.6 (Fall). The 2016 and 2018 IRs report average Virginia Stream Condition Index (VSCI) scores of 53.5 and 48.5, respectively. The average VSCI score within the 2014 data window is 55.0 (2007-11). The 2012 assessment finds six VSCI surveys (2006 spring & fall; 2007 fall and 2009 spring - 2010 spring & fall) with an average score of 57.14. Benthic community data within the 2010 data window reports three (2006 spring/fall and 2007 fall) VSCI surveys with an average score of 57.2. The 2008 assessment yields three (2002 spring & 2006 spring/fall) VSCI surveys with an average score of 54.0. Water quality in this reach is affected by NPS pollution from dairy farms from primarily the North Fork of the Blackwater River. Habitat degradation in the form of sediment deposition and riparian vegetation removal occurs at this sight as a result of agricultural practices. This area was affected by several drought years within the 2004 thru 2008 assessment periods. Less runoff of nonpoint source pollution during low rainfall periods potentially resulted in an improvement in the benthic community. Recent installation of agricultural best management practices in the watershed may contribute to improved water quality.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR05A00 / Blackwater River / Blackwater River mainstem from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42") (RU22).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.61

Blackwater River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.61

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Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-05-BAC** **Little Creek and Little Creek, UT (XKF)**

Cause Location: Little Creek and an unnamed tributary (XKF) from just west of Helm off Rt. 693 extending downstream to the Little Creek mouth on the Blackwater River (Boones Mill Quad).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little Creek bacteria impairment is a 1998 (2002) 303(d) Listing for fecal coliform bacteria (formerly VAW-L08R-05). An unnamed tributary (XKF) contributes to the impairment for a total of 8.60 bacteria impaired miles. The Middle Blackwater River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 12/04/2001 [Fed. IDs: 1887(1889)/9633] and SWCB approved 6/17/2004. The Upper Blackwater River Bacteria Implementation Plan is complete (8/23/2001) and SWCB approved on 6/17/2004. Little Creek (formerly VAW-L08R-05) is tributary to the Blackwater River and is included in the approved Middle Blackwater River Bacteria TMDL. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Upper Blackwater River Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL with allocations and the Implementation Plan can be viewed at <http://www.deq.virginia.gov>.

The Blackwater River bacteria impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. The impaired waters, initially 303(d) Listed in 1996, found abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform geometric mean (200 cfu/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Little Creek (7.85 miles): 4ALLE005.22 (Rt. 697 Bridge) The 2022 data window new E.coli criterion confirms impairment due to geomean exceedance in any 90-day period. Twenty of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 and 2018 data windows. 2016 data results in E.coli exceedances of the 235 cfu/10 ml instantaneous criterion in 22 of 36 samples. These excursions range from 250 cfu/10 ml to greater than 2000. The same range of exceedance occurs within the 2014 data window from 21 of 36 observations. The 2012 data window finds E.coli observations yield 25 of 36 samples in excess of the instantaneous criterion. Exceedances range from 250 to greater than 2000 cfu/100 ml. Twenty two E.coli samples exceed the instantaneous criterion from a total of 33 collections within the 2010 data window. The exceeding values range from 350 to greater than 2000 cfu/100 ml. 2008 results reveal 20 E.coli samples exceed the instantaneous criterion from a total of 27 collections. The exceeding values range from 290 to greater than 2000 cfu/100 ml. In 2006 21 E.coli samples exceed the instantaneous criterion from a total of 26 samples. The exceeding values range from 280 to 1000 cfu/100 ml.

Little Creek, UT (XKF 1.04 miles): 4AXKF000.20- (Off Rt. 735) There are no additional data beyond the 2008 Integrated Report (IR). Five of five E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion; all are greater than 2000 cfu/100 ml. 2006 results find two of two E.coli samples exceed the instantaneous criterion; both at greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_LLE01A00 / Little Creek / Little Creek mainstem PWS section 6f from an unnamed tributary's mouth on Little Creek off Rt. 775 downstream to the Little Creek confluence with the Blackwater River (RU22).	4A	Escherichia coli (E. coli)	2004	L	1.90

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_LLE02A00 / Little Creek / Little Creek mainstem from the mouth of Teels Creek downstream to the PWS section 6f upstream end (RU22).	4A	Escherichia coli (E. coli)	2004	L	0.86
VAW-L08R_LLE03A00 / Little Creek / Little Creek mainstem headwaters west of the Helm community off Rt. 693 downstream to the mouth of Teels Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.12
VAW-L08R_XKF01A06 / Little Creek, UT (XKF) / Little Creek, UT (XKF) mainstem from its mouth on Little Creek upstream to its headwaters (RU22).	4A	Escherichia coli (E. coli)	2006	L	1.05

Little Creek and Little Creek, UT (XKF)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.93

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-05-BEN** Little Creek

Cause Location: Little Creek mainstem extending from the confluence of an unnamed tributary (XKF) from just west of Helm off Rt. 693 on downstream to the Little Creek mouth on the Blackwater River (Boones Mill Quad).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is not supported for 7.85 miles due to contravention of the General Standard for aquatic life (formerly VAW-L08R-05). The waters are categorized 5A for the General Standard (Benthic) impairment. The benthic impairment is not addressed by the EPA approved Upper Blackwater River Benthic TMDL Study. The General Standard (Benthic) impairment is a 2002 initial 303(d) Listing.

4ALLE005.22- (Rt. 697 Bridge) Bio 'IM' from five VSCI scores avg 52 (2018-20) during the 2022 data window. Bio 'IM' from one 2018 VSCI score of 51.8 during the 2020 data window. Prior to the 2020 IR, there are no additional data beyond the 2014 Integrated Report (IR) where four (2010-2011) Virginia Stream Condition Index (VSCI) scores yield an average score of 45.2. Two VSCI surveys (2010) produce an average score of 48.98 within the 2012 data window. Previous assessments (2008 and 2010) found impairment from two spring VSCI surveys (2001 & 2002) producing an average score of 32.2. The assemblages collected at this site indicate excessive organic matter, excessive nutrients, and embedded substrates. Habitat surveys also indicate impacts from sediment deposition removal of riparian buffers. Ambient chemical data indicates NPS impacts from bacteria and nutrients. A TMDL study indicating sediment and phosphorus as the stressors in the Upper Blackwater and North Fork Blackwater Rivers was approved by the EPA in 2004. Currently, the Soil and Water Conservation District is implementing agricultural best management practices in the watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_LLE01A00 / Little Creek / Little Creek mainstem PWS section 6f from an unnamed tributary's mouth on Little Creek off Rt. 775 downstream to the Little Creek confluence with the Blackwater River (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	L	1.90
VAW-L08R_LLE02A00 / Little Creek / Little Creek mainstem from the mouth of Teels Creek downstream to the PWS section 6f upstream end (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	L	0.86
VAW-L08R_LLE03A00 / Little Creek / Little Creek mainstem headwaters west of the Helm community off Rt. 693 downstream to the mouth of Teels Creek (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	L	5.12

Little Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.88

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-06-BAC** Teels Creek

Cause Location: Teel Creek mainstem perennial headwaters downstream to its confluence with Little Creek (Boones Mill Quad).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Middle Blackwater River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 12/04/2001 [Fed. IDs: 1887 / 1889 / 9633] and SWCB approval on 6/17/2004. The SWCB approved the Bacteria Implementation Plan on 6/17/2004. The Teels Creek bacteria impairment is a 4.59 mile 1998 (2002) 303(d) Listing for fecal coliform (FC) bacteria (formerly VAW-L08R-06). The Upper Blackwater River Bacteria Implementation Plan is complete (8/23/2001) and SWCB approved on 6/17/2004. Teels Creek is tributary to Little Creek and then onto the Blackwater River and is included in this approved Middle Blackwater River bacteria TMDL Watershed. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks.

The Blackwater River bacteria impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform bacteria sample collections. The 1996 303(d) Listed Blackwater River waters found abundant fecal coliform bacteria counts failed to support the Recreational Use by exceedances of both the former fecal coliform geometric mean (200 cfu/100 ml & 2 samples/calendar month) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) now replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ATEL001.02- (Rt. 697 Bridge) New E.coli WQS confirms impairment due to geomean exceedance in any 90-day period during the 2022 data window. E.coli excursions during the 2020 data window are twenty of 36. Seventeen of 36 and 15 of 36 E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion during the 2018 and 2016 data windows, respectively. The 2018 exceedance range is 250 to 1553 cfu/100 ml. The 2016 IR range of exceeding values was from 250 to 1525 cfu/100 ml. This same range of exceedance is found within the 2014 data window from 15 of 35 samples. 2012 E.coli data find 17 of 35 samples exceed the instantaneous criterion ranging from 250 cfu/100 ml to 1400. E.coli exceed the 235 cfu/100 ml instantaneous criterion in 5 of 21 samples in 2010 ranging from 280 cfu/100 ml to 1400. The 2008 Integrated Report (IR) finds E.coli exceeds the instantaneous criterion in 17 of 27 samples with a range from 250 cfu/100 ml to 1400. In 2006 E.coli exceedances are 19 of 26 samples. The maximum exceedance is greater than 800 and the lowest 250 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_TEL01A00 / Teels Creek / Teels Creek mainstem perennial headwaters downstream to its confluence with Little Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	4.76

Teels Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.76

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-06-BEN** Teels Creek

Cause Location: Teel Creek mainstem perennial headwaters downstream to its confluence with Little Creek (Boones Mill Quad).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is not supported for 4.76 miles due to contravention of the General Standard for aquatic life (formerly VAW-L08R-06). The waters are categorized 5A for the 2002 initially 303(d) Listed General Standard (Benthic) impairment. The General Standard (benthic) impairment is not addressed in the EPA approved Upper Blackwater River Benthic TMDL Study.

4ATEL001.02- (Rt. 697 Bridge) Bio 'IM' from four VSCI scores (2018-20) avg 57.1. The 2 year average VSCI is 65.2 but has only one sample (Fall 2020) that has passed the VSCI threshold during the 2022 assessment cycle. Bio 'IM' - The 2020 data window reports one 2018 VSCI score of 55.1 (Spring). Prior to 2020, there are no additional data beyond the 2014 Integrated Report (IR) where four (2010-2011) Virginia Stream Condition Index (VSCI) surveys yield an average score of 58.3. The 2012 assessment reports two 2010 VSCI surveys with an average score of 57.33. The instream habitat (substrate) at this site has been impacted by fine sediment. The riparian zone vegetation is reduced and stream banks are eroded as a result. Currently, the Soil and Water Conservation District is implementing agricultural best management practices in the watershed for the Implementation Plan of the 2004 Bacteria TMDL. The 2008 and 2010 assessments report a single 2002 VSCI survey scoring 60.2. Although the VSCI score in 2002 was above the 60.0 threshold score for non-impairment, previous surveys indicated impairment. The community in spring 2002 had approximately 50% pollution tolerant organisms. The assemblages collected at this site indicated excessive organic matter, and embedded substrates. Habitat surveys also indicate impacts from sediment deposition, eroded banks and removal of riparian buffers.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_TEL01A00 / Teels Creek / Teels Creek mainstem perennial headwaters downstream to its confluence with Little Creek (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	L	4.76

Teels Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.76

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization; Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-07-BAC** **Buck Run**

Cause Location: Buck Run from its confluence on Little Creek upstream to its headwaters.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2014 initial Listing of these waters are a result of a 58% failure rate to meet the 235 cfu/10 ml Water Quality Standard instantaneous criterion. These waters are nested within the Middle Blackwater River Bacteria TMDL Study U.S. EPA approved on 12/04/2001. Fed. ID 1887 / 1889 / 9633. SWCB approved 6/17/2004. Bacteria Implementation Plan SWCB approved 6/17/2004.

4ABCE001.32 (Above Rt. 731 Bridge) Seven of 12 escherichia coli (E.coli) samples exceed the 235 cfu/10 ml instantaneous criterion in 2014. Exceedances range from 250 to 1100 cfu/100 ml. There are no additional data within the 2016, 2018, 2020, or 2022 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BCE01A08 / Buck Run / Buck Run from its confluence with Little Creek upstream to its headwaters (RU22).	4A	Escherichia coli (E. coli)	2014	L	3.77

Buck Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.77

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L08R-07-BEN** **Buck Run**

Cause Location: Buck Run from its confluence on Little Creek upstream to its headwaters.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The benthic community is impaired for 3.77 miles for this 2008 303(d) Listing.

4ABCE001.32 (Above Rt. 731 Bridge) The 2022 data window finds Bio 'IM' from four VSCI scores avg 39.0. Samples are mostly dominated by pollution tolerant taxa from the midge family (Chironomidae). Bio 'IM' from one Spring 2018 VSCI score of 37.3 during the 2020 data window. There are no additional data beyond the 2014 Integrated Report (IR) where four (2010-2011) Virginia Stream Condition Index (VSCI) surveys yield an average score of 35.2. The instream habitat (substrate) at this site has been impacted by fine sediment. The immediate riparian zone vegetation has been reduced and stream banks are eroded due to reduced vegetation. Runoff from this type of landuse affects water quality by adding sediment, nutrients, and bacteria to the stream.

4ABCE000.87- (Downstream of Rt. 731; end of Twin Hollow Lane) Bio 'IM' There are no additional data beyond the 2010 IR. Four 2006-2007 VSCI surveys with an average score of 35.0. Two remaining 2007 VSCI surveys score 29.8 on average within the 2014 data window. Located in a small second order stream in a watershed influenced by agricultural land use (dairy farms, corn fields). The watershed upstream of this station is dominated by agricultural land cover (67%). The instream habitat was affected by sediment deposition and thick periphyton growth on rocky substrates. Bank vegetation and riparian zones are impacted by the land use. Water chemistry results indicate elevated nutrients relative to other Probabilistic stations in the region.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BCE01A08 / Buck Run / Buck Run from its confluence with Little Creek upstream to its headwaters (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.77

Buck Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.77

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sediment Resuspension (Clean Sediment)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L09R-01-BAC** **Maggodee Creek**

Cause Location: The upstream limit is Maggodee Creek mainstem waters from the North and South Forks confluence downstream to the mouth of Maggodee Creek on the Blackwater River.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Maggodee Cr Bacteria Total Maximum Daily Load (TMDL) was U.S. EPA approved 4/27/01 [Fed. IDs: 1562/9475] and SWCB approved 6/17/04 (formerly VAW-L09R-01) for the former 20.58 mile impairment. A total of 16.15 mi remained impaired after the delisting of VAW-L09R_MEE05A00 in 2008 for Recreational Use.

The 2008 IR results from station 4AMEE021.13 (Rt. 613 Br Below Conflu./w Fork) found 0/12 excursions of the E.coli 235 cfu/100 ml inst. criterion. This portion (4.43 mi) was delisted (EPA approved 12/18/08) with the 2008 IR. This portion returns with the 2012 assessment as described below for 4.43 mi returning the impaired mileage to 20.58 mi. The TMDL Study incorporates tributaries in VAW-L09R. The Lower Blackwater R Bacteria Implementation Plan (IP) received SWCB approval 9/27/06 and encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The bacteria impairment is a 1996 303(d) Listing based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform (FC) bacteria counts failed to support Recreational Use by exceedances of the former FC geometric mean (200 n/100 ml) & 2 samples/mo) and the former (2002) inst. criterion of 1000 n/100 ml. Escherichia coli (E.coli) now replaces FC bacteria as the indicator per WQS [9 VAC 25-260-170. Bacteria; other waters].

4AMEE021.13 (Rt. 613 Br Below Conflu./w Fork): delisted in 2008 but relisted with the 2012 assessment. No additional data beyond the 2014 IR. 2014: 6/35. 2016: 5/23. 2012: 4/26. 2008: 0/12 resulting in full support of Recreational Use and delisting this portion (VAW-L09R_MEE05A00).

4AMEE016.75- (Rt. 684 Winding Way Road Bridge) Station established in 2014 as a Probabilistic Ambient site. 2014: 0/6. 4AMEE016.75 replaces 4AMEE017.24, the original 2014 probabilistic site. No additional data beyond the 2014 window.

4AMEE009.86- (Rt. 635 Br) No additional data beyond the 2014 IR. 2018: 3/12. 2016: 9/24. 2014: 14/36. 2012: 13/27. 2010: 10/24. 2008: 7/18. 4AMEE007.85- (Rt. 687 Br above Mollie Br) No additional data beyond the 2006 IR where E.coli exceed in 8/17. 2008: 2/6. 4AMEE004.90- (Rt. 697 Br) 2020: 24/35 excursions of the inst criterion. 2018: 21/36. 2016: 18/35. 2014: 15/35. 2012: 16/35. 2010: 16/33. 2008: 16/. 2006: 16/26.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE01A00 / Maggodee Creek / Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River (RU23).	4A	Escherichia coli (E. coli)	2004	L	7.48
VAW-L09R_MEE02A00 / Maggodee Creek / Maggodee Creek mainstem from just above Piedmont Mill downstream to Mill Dam (RU23).	4A	Escherichia coli (E. coli)	2004	L	1.67
VAW-L09R_MEE03A00 / Maggodee Creek / Maggodee Creek mainstem waters downstream of Boones Mill STP to just above Piedmont Mill (RU23).	4A	Escherichia coli (E. coli)	2004	L	6.03

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE04A00 / Maggodee Creek / Maggodee Creek mainstem waters from the Boones Mill Town area downstream to Boones Mill STP (RU23) .	4A	Escherichia coli (E. coli)	2006	L	0.99
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	4A	Escherichia coli (E. coli)	2012	L	4.44

Maggodee Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.61

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L09R-01-BEN** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non-support of the Aquatic Life Use is originally based (2002- formerly VAW-L09R-01) on Rapid Bioassessment Protocol II surveys (RBP II) conducted at 4AMEE002.38. The station is assessed using the Virginia Stream Condition Index (VSCI). The 7.47 mile 2002 303(d) Listed General Standard (Benthic) impairment remains.

4AMEE002.38- Bio 'IM' - There are no additional data beyond the 2014 Integrated Report (IR). The 2014 data window yields four (2010-2011) VSCI surveys with an average score of 57.4. Two 2010 VSCI surveys with an average score of 52.1 for the 2012 assessment. The instream habitat (substrate) at this site has been impacted by fine sediment. The immediate riparian zone vegetation has been reduced and stream banks are eroded due to reduced vegetation. Runoff from this type of landuse affects water quality by adding sediment, nutrients, and bacteria to the stream.

4AMEE000.70- (Below Rt. 122 Bridge) Bio 'IM' - There are no additional data beyond the 2008 IR. One 2002 Virginia Stream Condition Index (VSCI) survey scoring 47.2. Sediment deposition from agricultural runoff appears to have a large impact on the benthic community. Habitat scores for embeddedness and sediment deposition were the lowest of the ten habitat parameters. Both parameters fell in the marginal category. In 2006 three RBP II surveys, outside the 2008 data window, produce an average score of 44.9 at this site. Two surveys in the spring result in scores of 30.43 (2000) and 52.17 (2002). The fall 2000 survey score is 52.17.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE01A00 / Maggodee Creek / Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River (RU23).	5A	Benthic Macroinvertebrates Bioassessments	2002	L	7.48

Maggodee Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.48

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment)

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Roanoke and Yadkin River Basins

Cause Group Code: **L09R-01-TEMP** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The Aquatic Life Use is not supported for 4.43 miles due to temperature exceedances for this stockable trout water (21°C).

4AMEE021.13- (Rt. 613 Bridge Below Conflu./w Fork) There are no additional data beyond the 2014 IR where seven of 36 temperature measurements exceed the stockable trout water criterion of 21°C within the 2014 data window. Temperature exceedances range from 21.2 to 25.2°C and occur in the summer months. Five of 23 measurements exceed within the 2016 data window. The 2012 assessment reports six of 27 temperature measurements exceed the stockable trout water criterion ranging from 21.4 to 25.2°C. Four of 24 temperature measurements exceed the criterion in 2010. Temperature exceedances occur at 21.1°C on 8/5/2004; 21.4°C on 6/30/2005; 25.2°C on 8/01/2007; and 23.4°C on 6/11/2008. The 2008 assessment reports one temperature exceedance at 21.1°C on 8/5/2004 and a second at 21.4°C on 6/30/2005 from 12 measurements. These excursions are in excess of the 21°C stockable trout water criterion causing the initial Listing of these waters in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	5C	Temperature	2008	L	4.44

Maggodee Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.44

Sources: Agriculture; Clean Sediments; Livestock (Grazing or Feeding Operations); Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Urban Runoff/Storm Sewers

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Roanoke and Yadkin River Basins

Cause Group Code: **L09R-02-BAC** **Mollie Branch**

Cause Location: The impairment begins in the headwaters of Mollie Branch and extends to its mouth on Maggodee Creek (Boones Mill and Redwood Quads).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Maggodee Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 4/27/2001 [Fed. ID 1562 / 9475] and SWCB approved on 6/17/2004 (formerly VAW-L09R-02). Originally 303(d) Listed in 1998 (2002) for FC. The study incorporates tributary streams that lie within the boundaries of watershed VAW-L09R. The Lower Blackwater River Bacteria Implementation Plan (IP) is complete with SWCB approval on 9/27/2006. The Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study can be viewed at <http://www.deq.virginia.gov>.

The Mollie Branch bacteria impairment is recorded as a 2.74 mile 1998 303(d) Listing for fecal coliform (FC) bacteria based on a 319 funded special study (SS 925102) and ambient sample collections. Actual listing occurred with the 2002 Assessment Cycle. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform geometric mean (200 n/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AMHA000.01 (Off Rt. 687 at confluence/w Maggodee) There are no additional data beyond the 2004/2006 data windows where E.coli exceedances of the 235 cfu/100 ml instantaneous criterion are found in 10 of 16 samples. The range of excursions is 370 cfu/100 ml to greater than 2000. E.coli observations within the 2008 data window find three of six E.coli excursions of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MHA01A00 / Mollie Branch / Mollie Branch mainstem from an unnamed tributary upstream of Piedmont Mill downstream to Mollie Branch mouth on Maggodee Creek (RU23).	4A	Escherichia coli (E. coli)	2004	L	0.92
VAW-L09R_MHA02A00 / Mollie Branch / Mollie Branch mainstem perennial headwaters downstream to an unnamed tributary above Piedmont Mill (RU23).	4A	Escherichia coli (E. coli)	2006	L	1.84

Mollie Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.76

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L09R-02-BEN** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to the Boones Mill STP outfall (RU23).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2016 initial 5.42 mile General Standard - Benthic impairment of the Aquatic Life Use is the result of macroinvertebrate surveys resulting in an impaired status.

4AMEE017.24 (Upstream of Rt. 220 near Boones Mill) Bio 'IM' There are no additional data beyond the 2016 data window where two 2014 Virginia Stream Condition Index (VSCI) surveys scoring spring 46.8 and fall 57.9 indicating impairment. The average VSCI score was 52.4 indicating a benthic community lacking in diversity and dominated by pollution-tolerant organisms. Some instream habitat scores were good; however, those related to sediment deposition were low. Bank erosion and riparian zone width scores were also low. This section of Maggodee Creek appears to be impacted by runoff from Rt. 220 and Rt. 613 upstream of the sampling site as well as agricultural land in the headwaters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE04A00 / Maggodee Creek / Maggodee Creek mainstem waters from the Boones Mill Town area downstream to Boones Mill STP (RU23) .	5A	Benthic Macroinvertebrates Bioassessments	2016	L	0.99
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.44

Maggodee Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.43

Sources: Agriculture; Clean Sediments; Livestock (Grazing or Feeding Operations); Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Urban Runoff/Storm Sewers

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Roanoke and Yadkin River Basins

Cause Group Code: L10L-01-HG Blackwater River

Cause Location: Blackwater River mainstem waters from the Maggodee Creek confluence downstream ending at 37°03'03" / 79°43'49" located ~1.7 miles upstream of the 4H Camp in Smith Mountain Lake.

Cause City/County: Franklin County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) and Virginia Department of Health (VDH) level of concern of 0.5 ppm are found in fish tissue causing impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. Please visit <http://www.deq.virginia.gov/> for more information about mercury contamination and <http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/> for VDH Advisories or Bans.

4ABWR019.75 (Rt. 834 Bridge - Brooks Mill Bridge)- 2006 fish tissue collections find from a total of 12 fish, a flathead catfish and a largemouth bass whose tissue values are in excess of the WQS based tissue value (TV) of 0.3 ppm for mercury; flathead catfish (1 fish 96.0 cm) at 0.477 ppm and largemouth base (1 fish 46.5 cm) at 0.514.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10L_BWR03A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from ~1.6 miles downstream of the Brooks Mill Bridge on downstream to the 4H Camp (RU24).	5A	Mercury in Fish Tissue	2010	L	351.98
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	5A	Mercury in Fish Tissue	2010	L	114.22
VAW-L10L_PCP01A10 / Smith Mtn. Lake (Poplar Camp Creek) / Poplar Camp Creek from its confluence with the Blackwater River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	58.60
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	5A	Mercury in Fish Tissue	2010	L	0.40
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	5A	Mercury in Fish Tissue	2010	L	5.21
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	5A	Mercury in Fish Tissue	2010	L	2.62

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Blackwater River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		524.8	8.23

Sources: Atmospheric Deposition; Contaminated Sediments; Industrial Point Source Discharge; Landfills; Source Unknown; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: L10L-05-BAC Smith Mountain Lake - Crazy Horse Camp Ground

Cause Location: Crazy Horse Camp Ground Beach and Marina area.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Crazy Horse Camp Ground and Marina is located on an unnamed tributary to the Blackwater River. The VDH issued a beach closure at the facility for one week each in June and July 2000 noting a recurrence of bacterial contamination is likely. The facility is located off Route 601 at 37°04'04" / 79°38'54" on the Moneta SW Quad. This is a 2004 Listing (formerly VAW-L12LR-05 & L12L-05-BAC). There are no additional data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10L_XUV01A10 / Smith Mtn. Lake - Crazy Horse Camp Ground and Marina / Off Route 601, Franklin County, on backwaters of an unnamed tributary (XUV) to Blackwater River in Smith Mountain Lake 37°04'04" / 79°38'54".	4A	Escherichia coli (E. coli)	2004	L	30.27

Smith Mountain Lake - Crazy Horse Camp Ground

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		30.27	

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Roanoke and Yadkin River Basins

Cause Group Code: L10R-01-BAC Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)

Cause Location: Blackwater River from the Rt. 122 Bridge Crossing on downstream into Smith Mountain Lake (Redwood Quad). Downstream ending at ~1.6 miles downstream of the Brooks Mill Bridge. And Foul Ground Creek from its headwaters (37°01'45" / 79°47'28") downstream to its inundation on the Blackwater River in Smith Mountain Lake (37°03'03" / 79°45'26").

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Bacteria Total Maximum Daily Load (TMDL) Studies are complete for the Upper, Middle and Lower Blackwater River drainages. These studies incorporate tributary streams that lie within the boundaries of VAW-L08R, L09R, L10R and L11R. This Fact sheet addresses the Lower Blackwater River drainage.

TMDL approvals from the U.S. EPA were obtained 3/9/01 for the Upper Blackwater River [Fed. ID 1887/9634], the Middle 12/4/01 [Fed. ID 1887(1889)/9633], & the Lower 4/27/01 [Fed. ID 1888]. Each TMDL was approved by the SWCB 6/17/04.

The Upper Blackwater River Bacteria Implementation Plan (IP) covering Upper and Middle Blackwater River TMDL Studies is complete (8/23/01) and SWCB approved 6/17/04. The Lower Blackwater River Bacteria IP is complete with SWCB approval 9/27/06. The Upper Blackwater River Bacteria IP encompasses the Upper Blackwater River (L08R), the North and South Forks, Little & Teels Creeks. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L12L), Maggodee (L09R) & Gills Creeks (L11R).

352.23 ac in Smith Mtn. Lake are delisted with the 2014 Integrated Report (IR). Escherichia coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion are 2/38 observations at 4ABWR017.42 (Smith Mtn. Lake- Franklin Co.). 114.22 ac remain impaired for Recreational Use.

Blackwater River: The Blackwater River Impairment is originally based on a 319 funded special study (SS 925102) & ambient fecal coliform (FC) bacteria sample collections. The impaired waters, initially 303(d) Listed in 1996, found abundant FC counts failed to support recreational use by exceedances of both the former geomean (200 cfu/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. The Blackwater River mainstem bacteria impaired miles total 39.48 (See L08R-04-BAC Fact Sheet). E.coli has replaced FC as the indicator per WQS [9 VAC 25-260-170. Bacteria; other waters].

Lower Blackwater River (11.21 miles): 4ABWR032.32- (Rt. 122 Bridge at the stream gaging station) No additional data beyond the 2006 Integrated Report (IR) where 6/21 samples ranging from 490 to >800 cfu/100 ml. 2008: 1/10 remaining sample in excess of the instantaneous criterion. This station will no longer be sampled due to safety concerns.

4ABWR019.75 (Rt. 834 Bridge or Brooks Mill Bridge) 2022: New E.coli WQS confirms impairment due to geomean exceedance in any 90-day period. 2020: 13/36; 2018: 11/36; 2016: 12/36 from 320-2613 cfu/100 ml. 2014: 9/36 from 280-2000 cfu/100 ml. 2012: 7/36 & 2010: 6/33 from 280 to >2000 cfu/100 ml. 2008: 4/21 from 420 to >2000 cfu/100 ml. 2006: 2/9 at 420 & 620 cfu/100 ml.

Foul Ground Creek (4.04 miles): A 2004 addition to the original bacteria impairment is a 4.04 mile section on Foul Ground Creek. [Fed. ID 1888]. The impairment begins at the Foul Ground Creek headwaters and extends downstream to its inundation on the Blackwater River in Smith Mountain Lake.

4AFGC002.52 (Rt. 834 Bridge) No additional data beyond the 2004 IR where 5/11 FC samples exceed the former 400 cfu/100 ml instantaneous criterion from 500 to >8000 cfu/100 ml. 2008: 0/2 FC samples.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR01A00 / Blackwater River / Blackwater River mainstem from the Rt. 122 Bridge downstream to the mouth of Maggodee Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	3.03
VAW-L10L_BWR03A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from ~1.6 miles downstream of the Brooks Mill Bridge on downstream to the 4H Camp (RU24).	4A	Escherichia coli (E. coli)	2022	L	351.98
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	4A	Escherichia coli (E. coli)	2006	L	114.22
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	4A	Escherichia coli (E. coli)	2006	L	0.40
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	4A	Escherichia coli (E. coli)	2006	L	5.21
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	4A	Escherichia coli (E. coli)	2006	L	2.62

Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	466.2	11.26

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10R_FGC01A00 / Foul Ground Creek / Foul Ground Creek mainstem from its inundation at Smith Mountain Lake on the Blackwater River upstream to its headwaters. The segment is within the WQS designated public water supply (PWS) section 6i (RU24).	4A	Fecal Coliform	2004	L	4.2

Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.2

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Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L10R-01-BEN Blackwater River

Cause Location: Blackwater River mainstem from the mouth of Maggodee Creek downstream to the backwaters of Smith Mountain Lake (L10R) at the 795 ft pool elevation.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: An upstream portion of the Blackwater River General Standard - Benthic impairment is delisted based on Virginia Stream Condition Index (VSCI) survey data from station 4ABWR029.51 for 5.99 miles. The waters downstream of Maggodee Creek (8.19 miles) remain impaired until sufficient benthic survey data can confirm support or non-support of the Aquatic Life Use in this downstream reach. Habitat impacts include excessive sediment deposition. Water quality in this reach is affected by NPS pollution.

4ABWR029.51- (Downstream of Rt. 122 Bridge) Both the 2010 and 2008 assessments find benthic impairment from two 2004 Virginia Stream Condition Index (VSCI) surveys scoring 60.7 spring and 50.1 fall. The average VSCI score is 55.4. Subsequent surveys in 2011 and 2012 find three non-impaired and one impaired score but averaging 69.4. The station is located upstream of Maggodee Creek with no additional benthic survey data downstream of Maggodee Creek. A partial delisting (5.99 miles) is a result of these additional surveys. 2011 scores are: spring 69.4; fall 73.6. And 2012 scores are: spring 58.6; fall 74.8. No additional data has been collected at this station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	0.40
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	5.21
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.62

Blackwater River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.23

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L11R-01-BAC** Gills Creek

Cause Location: Gills Creek mainstem from west of the Rt. 684 Bridge in Franklin County (Garden City Quad) on downstream into the inundated Gills Creek backwaters of Smith Mountain Lake near the end of Rt. 665. (Moneta S.W. Quad).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study received U.S. EPA approval on 5/31/2002 [Fed ID: 9472 / 18765] and SWCB approval on 6/17/04 (formerly VAW-L11R-01). The TMDL Study incorporates tributary streams that lie within the boundaries of watershed VAW-L11R. The Lower Blackwater River Bacteria Implementation Plan (IP) is approved by the SWCB on 9/27/06. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggoodee (L09R) and Gills (L11R) Creeks.

The bacteria impairment is a 1996 303(d) Listing based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform (FC) bacteria counts failed to support the recreational use by exceedances of both the former geometric mean (200 cfu/100 ml) and the former (2002) instantaneous criterion (1000 cfu/100 ml). The Recreational Use impairment remains for 20.46 miles and 197.42 acres in the backwaters of Smith Mountain Lake.

4AGIL023.22- (Rt. 657 Bridge) There are no additional data beyond the 2012 Integrated Report (IR) where 11 of 23 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion with exceedances ranging from 280 to greater than 2000 cfu/100 ml. Four of 11 E.coli observations exceed the instantaneous criterion in 2010. The 2006 Integrated Report (IR) reports 3 of 20 FC observations exceed the former 400 cfu/100 ml instantaneous criterion. The 2004 IR records 6 of 27 fecal coliform bacteria sample counts exceed the former instantaneous criterion.

4AGIL008.30- (Rt. 834 Bridge near Booker T. Washington National Park) There are no additional data beyond the 2012 (IR). The 2012 assessment finds escherichia coli (E.coli) exceed the WQS instantaneous criterion of 235 cfu/100 ml in 12 of 24 samples. Exceedances range from 300 cfu/100 ml to greater than 2000. 2010 data reveal E.coli bacteria exceed the WQS instantaneous criterion in 3 of 15 samples. The 2006 IR reports 8 of 18 E.coli samples exceed the instantaneous criterion. E.coli results within the 2008 data window find 1 of 6 samples in excess of the instantaneous criterion as there are no additional beyond the 2006 assessment.

4AGIL004.46 (Rt. 688 Bridge)- 2022 data window applies new E.coli WQS and confirms impairment due to 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. Seventeen of 30 and 15 of 30 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 and 2018 data windows, respectively. The 2016 IR finds 18 of 36 E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion. Excessive values range from 250 cfu/100 ml to 24,196. Sixteen of 36 E.coli observations exceed the instantaneous criterion within the 2014 data window. Eleven of 24 E.coli observations exceed the instantaneous criterion in 2012. 2010 assessment data find 3 of 12 E.coli observations exceed the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11L_GIL02A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from the end of Route 665 upstream to its backwaters (RU25).	4A	Escherichia coli (E. coli)	2004	L	197.42

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11R_GIL01A00 / Gills Creek / Gills Creek mainstem from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Smith Mountain Lake, eg. waters within 5 miles of the 795 ft. pool elevation of Smith Mtn. Lake (RU25).	4A	Escherichia coli (E. coli)	2004	L	4.85
VAW-L11R_GIL02A02 / Gills Creek / Gills Creek mainstem from an unnamed tributary just north of the Rt. 122 crossing downstream to the WQS designated public water supply (PWS) section 6i. These waters are not within 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU25).	4A	Escherichia coli (E. coli)	2004	L	4.39
VAW-L11R_GIL03A02 / Gills Creek / Gills Creek mainstem perennial headwaters downstream to an unnamed tributary just north of the Rt. 122 crossing of Gills Creek. These waters are not within 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU25).	4A	Escherichia coli (E. coli)	2010	L	11.22

Gills Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		197.42	20.46

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L11R-02-BAC** North Fork Gills Creek

Cause Location: North Fork Gills Creek and tributaries from its mouth on Gills Creek upstream to its headwaters (RU25).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study received U.S. EPA approval on 5/31/2002 [Fed ID: 9472 / 18765] and SWCB approval on 6/17/2004 (formerly VAW-L11R-01). The TMDL Study incorporates tributary streams that lie within the boundaries of watershed VAW-L11R. The Lower Blackwater River Bacteria Implementation Plan (IP) is approved by the SWCB on 9/27/2006. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study with allocations can be viewed at <http://www.deq.virginia.gov>.

4AGNF002.84 (Bellwood Ln. Bridge) - New E.coli WQS confirms impairment with 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples during the 2022 data window. Fifteen of 18 E.coli samples exceed during the 2020 data window. 2018 IR finds nine of 12 Escherichia coli (E.Coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 299 to 1956 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11R_GNF01A02 / North Fork Gills Creek & Tributaries / North Fork Gills Creek and tributaries from its mouth on Gills Creek upstream to its headwaters (RU25).	4A	Escherichia coli (E. coli)	2018	L	16.5

North Fork Gills Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.5

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L11R-03-PH Jack-O-Lantern Branch, UT (XON)

Cause Location: Unnamed tributary XON from it's headwaters downstream to it's confluence with Jack-O-Lantern Branch (RU25).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: This initial Aquatic Life Use impairment is based on Level III pH data collected by the U.S. Park Service during the 2020 data window.

4AXON-1-USPS - The 2020 data window finds six of 43 pH observations below pH 6.0 SU. Excursions are: 5.5 SU (2/8/16, 5/2/16, 11/7/16, 12/5/16), 5.6 SU (12/8/14), and 5.9 (10/6/14). The U.S. Park Service provides Level III Non-Agency data for use in Water Quality Assessments.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11R_XON01A12 / Jack-O-Lantern Branch, UT (XON) / Unnamed tributary XON from it's headwaters downstream to it's confluence with Jack-O-Lantern Branch (RU25).	5C	pH	2020	L	0.61

Jack-O-Lantern Branch, UT (XON)

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.61

Sources: Natural Sources

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Roanoke and Yadkin River Basins

Cause Group Code: L12L-01-HG Smith Mountain Lake

Cause Location: Smith Mtn. Lake from the backwaters of the Roanoke River (elevation 795 ft) downstream to a point 37°04'39" / 79°37'15"; downstream of the State Park.

Cause City/County: Bedford County; Franklin County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards (WQS) effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov/info/mercury.html> for more information about mercury contamination and <http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/> for VDH Advisories or Bans.

4AROA175.63 (Hales Ford Bridge)- Mercury (Hg) fish tissue exceedances of the DEQ WQS based 0.3 ppm TV are found in two species from 2006 collections; largemouth bass from four individual fish (49.2 cm) at 0.691, (47.3 cm) at 0.484, (44.5 cm) at 0.376 and (40.9 cm) at 0.305 ppm; and flathead catfish (83.4 cm) at 0.406 ppm.

2002 Data from station 4AROA196.05 (McVeigh Ford)- records one species, an individual flathead catfish (91.3 cm) at 0.34 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_BDA01A10 / Smith Mtn. Lake (Beaverdam Creek) / Beaverdam Creek from its mouth on the Roanoke River upstream to its backwaters (RU17).	5A	Mercury in Fish Tissue	2010	L	151.70
VAW-L07L_BKY01A10 / Smith Mtn. Lake (Beckys Creek) / Beckys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	5A	Mercury in Fish Tissue	2010	L	246.95
VAW-L07L_BTT01A10 / Smith Mtn. Lake (Bettys Creek) / Bettys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	5A	Mercury in Fish Tissue	2010	L	213.20
VAW-L07L_FIN02A10 / Smith Mtn. Lake (Falling Creek) / Falling Creek from its confluence with the Roanoke River upstream to its backwaters (795 Ft. pool elevation) (RU16).	5A	Mercury in Fish Tissue	2010	L	18.37
VAW-L07L_HFW01A10 / Smith Mtn. Lake (Hales Creek) / Hales Creek from its mouth on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	117.91
VAW-L07L_IND01A10 / Smith Mtn. Lake (Indian Creek) / Indian Creek from its mouth on the Roanoke River upstream to the 795 Ft. pool elevation of Smith Mountain Lake.	5A	Mercury in Fish Tissue	2010	L	161.67
VAW-L07L_JUM01A10 / Smith Mtn. Lake (Jumping Run) / Jumping Run from its confluence with the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	29.11
VAW-L07L_LVL01A10 / Smith Mtn. Lake (Lynville Creek) / Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	76.75

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_ROA02A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from 37°04'39" / 79°37'15" below the State Park upstream to approximately 1 mile downstream of the Hales Ford Bridge.	5A	Mercury in Fish Tissue	2010	L	2434.88
VAW-L07L_ROA03A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from approximately 1 mile downstream of the Hales Ford Bridge upstream to above Hales Creek confluence.	5A	Mercury in Fish Tissue	2010	L	431.99
VAW-L07L_ROA03B22 / Smith Mtn. Lake (Roanoke River) / Roanoke River from above Hales Creek Confluence upstream to above the confluence of Indian Creek Confluence	5A	Mercury in Fish Tissue	2010	L	583.52
VAW-L07L_ROA03C22 / Smith Mtn. Lake (Roanoke River) / Roanoke River above the Indian Creek Confluence upstream to above Beaverdam Creek Confluence	5A	Mercury in Fish Tissue	2010	L	578.10
VAW-L07L_ROA03D22 / Smith Mtn. Lake (Roanoke River) / Roanoke River from above Beaverdam Creek confluence upstream to the mouth of Falling Creek.	5A	Mercury in Fish Tissue	2010	L	602.39
VAW-L07L_ROA04A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.	5A	Mercury in Fish Tissue	2010	L	184.71
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	5A	Mercury in Fish Tissue	2010	L	165.30
VAW-L07L_SWC01A10 / Smith Mtn. Lake (Stony Creek) / Stony Creek from its mouth on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	48.62
VAW-L07L_XNK01A10 / Smith Mtn. Lake (Roanoke R., UT XNK) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	79.99
VAW-L07L_XNL01A10 / Smith Mtn. Lake (Roanoke R., UT XNL) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	109.33
VAW-L07L_XNM01A10 / Smith Mtn. Lake (Roanoke R., UT XNM) / An unnamed tributary (XNM) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	38.40
VAW-L07L_XNN01A10 / Smith Mtn. Lake (Roanoke R., UT XNN) / An Unnamed tributary (XNN) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	87.78

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_XOC01A10 / Smith Mtn. Lake (Roanoke R., UT XOC) / An unnamed tributary (XOC) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	119.56

Smith Mountain Lake

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		6480.23	

Sources: Atmospheric Deposition; Contaminated Sediments; Industrial Point Source Discharge; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L12L-01-PCB Roanoke River, Tinker Creek and Peters Creek.

Cause Location: Roanoke River from the confluence of the North and South Forks downstream to Niagara Dam. The impairment includes Peters Creek from the Rt. 460 Bridge downstream to its confluence on the Roanoke River; and Tinker Creek from the mouth of Deer Branch downstream to the Tinker Creek confluence on the Roanoke River.

Cause City/County: Montgomery County; Roanoke; Roanoke County; Salem

Use(s): Fish Consumption; Public Water Supply; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: The waters of the Roanoke River (28.61 miles), Peters Creek (2.52 miles) and Tinker Creek (5.37 miles) are under a Virginia Department of Health (VDH) Fish Consumption Advisory for Polychlorinated Biphenols (PCB) issued 7/27/05. An additional 3.16 miles on the Roanoke from Niagara Dam to Smith Mtn. Lake are under advisory and described in Fact Sheet L12L-02-PCB. The VDH Advisory is based on fish tissue found to originally contain greater than 50 parts per billion (ppb) of PCBs. The DEQ Water Quality Standard (WQS) based tissue value (TV) criterion is 20 ppb in fish tissue. The previous advisory (issued 10/20/03) recommended that no more than two eight-ounce meals per month of flathead catfish (less than 32 inches in size), striped bass, gizzard shad, redhorse sucker, largemouth bass and carp should be consumed. Per the previous advisory, flathead catfish (greater than 32 inches in size) should not be eaten. The advisory has been updated to also recommend that no more than two eight-ounce meals per month of channel catfish should be consumed.

The Roanoke (Staunton) River PCB TMDL Study is U.S. Environmental Protection Agency (EPA) approved on 4/9/2010 and State Water Control Board (SWCB) approved 12/9/2010. A 3.16 mile portion of the Roanoke River is not included in the PCB TMDL Study. The following Federal Identification Numbers by watershed are approved:

L03R Roanoke River: 38624, 38625, 38627, 38629, 38543, 38630 L04R Roanoke River: 24537, 38552, 38632, 38633, 38634, 38635, 38636 Peters Creek: 38468 L05R Tinker Creek: 38467

Fish tissue collections from locations on the Roanoke mainstem, Blackwater River, Mason Creek, Mudlick Creek, Paint Bank Branch, Peters Creek, Tinker Creek and the North and South Forks of the Roanoke River are reviewed by the VDH in making an advisory determination. The VDH Advisory information is also available via the web at <http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm>.

Thirty day deployment of Semi-Permeable Membrane Devices (SPMD) or virtual fish in 2008 find exceedances of the WQS PCB water column criterion of 0.00064 micrograms per liter or 640 picograms per liter (pg/L).

Exceedances are recorded for the Fish Consumption Use via WQS 'Other Waters' (12.09 miles) as well as the Wildlife Use (12.09 miles) and the 'Public Water Supply Use' (PWS 1.64 miles) for the human health criterion at the stations listed below. The 640 pg/L criterion applies to these Uses. The 'PCB in Water Column' impairment on the mainstem of the Roanoke River extends from the confluence of Mason Creek downstream to the mouth of Back Creek (15.23 miles). Fact Sheet L12L-02-PCB describes and the additional 3.14 miles for each of these uses. The 'PCB in Water Column' impairment overlays a total 15.23 mile portion of the overall VDH Fish Consumption Advisory area above Smith Mountain Lake.

4AROA207.08 (Near Memorial Bridge downstream of Peters Creek)- 2008 SPMD 'OE'. Exceeds PCB WQS 'Other Waters' 640 pg/L criterion from one of two deployments at 642. 4AROA204.76 (Downstream of Ore Br., near VA Scrap Iron Co. above American Visco)- Two 2008 SPMD deployments find exceedance of the WQS 'Other Waters' 640 pg/L criterion at 987 and 3,014 pg/L. 4AROA202.20 (13th Street Bridge - above STP)- Two 2008 SPMD deployments find exceedance of the WQS 'Other Waters' 640 pg/L criterion at 1,376 and 3,044 pg/L. 4AROA199.20 (Blue Ridge Parkway Bridge - Niagara)- Two 2008 SPMD deployments find exceedance of the WQS 'Other Waters'

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA01A00 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth upstream to the Rt. 419 Bridge (RU09).	4A	PCBs in Fish Tissue	2002	L	1.21
VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	2.68
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	4A	PCBs in Fish Tissue	2002	L	5.58
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	4A	PCBs in Fish Tissue	2002	L	1.44
VAW-L03R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Roanoke County Spring Hollow Reservoir intake upstream to the Montgomery/Roanoke County Line (RU09).	4A	PCBs in Fish Tissue	2002	L	0.95
VAW-L03R_ROA07A12 / Roanoke River / Roanoke River mainstem from the Montgomery/Roanoke County Line upstream to the confluence of the North & South Forks of the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	1.27
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	PCBs in Fish Tissue	2004	L	2.59
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	PCBs in Fish Tissue	2002	L	0.77
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	PCBs in Fish Tissue	2002	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	PCBs in Fish Tissue	2002	L	0.20

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	PCBs in Fish Tissue	2002	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	PCBs in Fish Tissue	2002	L	4.35
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	PCBs in Fish Tissue	2002	L	3.33
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	PCBs in Fish Tissue	2002	L	2.23
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	4A	PCBs in Fish Tissue	2006	L	5.37

Roanoke River, Tinker Creek and Peters Creek.

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		36.66

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.77
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.20

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	4.35
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	3.33
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	2.23

Roanoke River, Tinker Creek and Peters Creek.

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.15

Roanoke River, Tinker Creek and Peters Creek.

Public Water Supply

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.64

Roanoke River, Tinker Creek and Peters Creek.

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.15

Sources: Landfills; Source Unknown; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: L12L-02-PCB Roanoke River, Blackwater River and Smith Mountain Lake.

Cause Location: Roanoke River from Niagara Dam downstream to Smith Mtn. Dam and the Blackwater River from the Rt. 122 crossing downstream to its confluence with the Roanoke River in Smith Mtn. Lake.

Cause City/County: Bedford County; Franklin County; Pittsylvania County; Roanoke County

Use(s): Fish Consumption; Public Water Supply; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: The waters of the Roanoke River (3.16 miles), Blackwater River (11.29 miles) and Smith Mountain Lake (19,820.09 acres) are under a Virginia Department of Health (VDH) Fish Consumption Advisory for Polychlorinated Biphenols (PCB) issued 7/27/05. The VDH Advisory is based on fish tissue found to originally contain greater than 50 parts per billion (ppb) of PCBs. The DEQ Water Quality Standard (WQS) based tissue value (TV) criterion is 20 ppb in fish tissue. The previous advisory (issued 10/20/03) recommended that no more than two eight-ounce meals per month of flathead catfish (less than 32 inches in size), striped bass, gizzard shad, redhorse sucker, largemouth bass and carp should be consumed. Per the previous advisory, flathead catfish (greater than 32 inches in size) should not be eaten. The advisory has been updated to also recommend that no more than two eight-ounce meals per month of channel catfish should be consumed.

The Roanoke (Staunton) River PCB TMDL Study is U.S. Environmental Protection Agency (EPA) approved on 4/9/2010 and State Water Control Board (SWCB) approved 12/9/2010. The Roanoke River (3.14 miles), Blackwater River (11.29 miles) and the waters of Smith Mountain Lake (19,820.09 acres) are nested within the Roanoke (Staunton) River TMDL. EPA approved the nesting on 7/9/2012 for PCB in Fish Tissue and PCB in Water Column. The Roanoke River portion (VAW-L04R_ROA01A00) is assigned Federal ID 24537 and the remaining waters are assigned Federal ID 38618.

Fish tissue collections from locations on the Roanoke mainstem, Blackwater River are reviewed by the VDH in making an advisory determination. The VDH Advisory information is also available via the web at <http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm>.

Thirty day deployment of Semi-Permeable Membrane Devices (SPMD) or virtual fish in 2008 find exceedances of the WQS PCB water column criterion of 0.00064 micrograms per liter or 640 picograms per liter (pg/L). Exceedances are recorded for both the Fish Consumption Use via WQS 'Other Waters' (3.16 miles in the Roanoke) as well as the Wildlife Use (3.16 miles) and for the 'Public Water Supply Use' (PWS 3.16 miles) human health criterion at the station listed below. The 640 pg/L criterion applies to both Uses. The 'PCB in Water Column' impairment on the mainstem of the Roanoke River extends from the confluence of Mason Creek downstream to the mouth of Back Creek (15.23 miles). The 'PCB in Water Column' impairment overlays a total of 15.23 miles of the overall VDH Fish Consumption Advisory area above Smith Mountain Lake on the Roanoke River.

4AROA199.20 (Blue Ridge Parkway Bridge - Niagara)- There are no additional data. Two 2008 SPMD deployments find exceedance of the WQS 'Other Waters' and 'PWS' 640 pg/L criterion at 1,213 and 1,588 pg/L.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	PCBs in Fish Tissue	2002	L	3.17
VAW-L07L_BDA01A10 / Smith Mtn. Lake (Beaverdam Creek) / Beaverdam Creek from its mouth on the Roanoke River upstream to its backwaters (RU17).	4A	PCBs in Fish Tissue	2006	L	151.70

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_BKY01A10 / Smith Mtn. Lake (Beckys Creek) / Beckys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	4A	PCBs in Fish Tissue	2006	L	246.95
VAW-L07L_BTT01A10 / Smith Mtn. Lake (Bettys Creek) / Bettys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	4A	PCBs in Fish Tissue	2006	L	213.20
VAW-L07L_FIN02A10 / Smith Mtn. Lake (Falling Creek) / Falling Creek from its confluence with the Roanoke River upstream to its backwaters (795 Ft. pool elevation) (RU16).	4A	PCBs in Fish Tissue	2006	L	18.37
VAW-L07L_HFW01A10 / Smith Mtn. Lake (Hales Creek) / Hales Creek from its mouth on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	117.91
VAW-L07L_IND01A10 / Smith Mtn. Lake (Indian Creek) / Indian Creek from its mouth on the Roanoke River upstream to the 795 Ft. pool elevation of Smith Mountain Lake.	4A	PCBs in Fish Tissue	2002	L	161.67
VAW-L07L_JUM01A10 / Smith Mtn. Lake (Jumping Run) / Jumping Run from its confluence with the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	29.11
VAW-L07L_LVL01A10 / Smith Mtn. Lake (Lynville Creek) / Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	76.75
VAW-L07L_ROA01A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Blackwater River confluence upstream to 37°04'39" / 79°37'15" below State Park.	4A	PCBs in Fish Tissue	2006	L	1770.54
VAW-L07L_ROA02A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from 37°04'39" / 79°37'15" below the State Park upstream to approximately 1 mile downstream of the Hales Ford Bridge.	4A	PCBs in Fish Tissue	2006	L	2434.88
VAW-L07L_ROA03A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from approximately 1 mile downstream of the Hales Ford Bridge upstream to above Hales Creek confluence.	4A	PCBs in Fish Tissue	2002	L	431.99
VAW-L07L_ROA03B22 / Smith Mtn. Lake (Roanoke River) / Roanoke River from above Hales Creek Confluence upstream to above the confluence of Indian Creek Confluence	4A	PCBs in Fish Tissue	2002	L	583.52
VAW-L07L_ROA03C22 / Smith Mtn. Lake (Roanoke River) / Roanoke River above the Indian Creek Confluence upstream to above Beaverdam Creek Confluence	4A	PCBs in Fish Tissue	2002	L	578.10
VAW-L07L_ROA03D22 / Smith Mtn. Lake (Roanoke River) / Roanoke River from above Beaverdam Creek confluence upstream to the mouth of Falling Creek.	4A	PCBs in Fish Tissue	2002	L	602.39

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_ROA04A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.	4A	PCBs in Fish Tissue	2006	L	184.71
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	4A	PCBs in Fish Tissue	2006	L	165.30
VAW-L07L_SWC01A10 / Smith Mtn. Lake (Stony Creek) / Stony Creek from its mouth on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	48.62
VAW-L07L_XNK01A10 / Smith Mtn. Lake (Roanoke R., UT XNK) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	79.99
VAW-L07L_XNL01A10 / Smith Mtn. Lake (Roanoke R., UT XNL) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	109.33
VAW-L07L_XNM01A10 / Smith Mtn. Lake (Roanoke R., UT XNM) / An unnamed tributary (XNM) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	38.40
VAW-L07L_XNN01A10 / Smith Mtn. Lake (Roanoke R., UT XNN) / An Unnamed tributary (XNN) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	87.78
VAW-L07L_XNT01A10 / Smith Mtn. Lake (Roanoke R., UT XNT) / An unnamed tributary (XNT) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	68.39
VAW-L07L_XNU01A10 / Smith Mtn. Lake (Roanoke R., UT XNU) / An unnamed tributary (XNU) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	125.42
VAW-L07L_XOC01A10 / Smith Mtn. Lake (Roanoke R., UT XOC) / An unnamed tributary (XOC) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	119.56
VAW-L08R_BWR01A00 / Blackwater River / Blackwater River mainstem from the Rt. 122 Bridge downstream to the mouth of Maggodee Creek (RU22).	4A	PCBs in Fish Tissue	2006	L	3.03
VAW-L10L_BSA01A10 / Smith Mtn. Lake (Bull Run) / Bull Run from its mouth on the Blackwater River upstream to its backwaters (RU26).	4A	PCBs in Fish Tissue	2006	L	1156.52

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10L_BWR01A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its mouth on the Roanoke River upstream to the mouth of Gills Creek.	4A	PCBs in Fish Tissue	2006	L	2460.64
VAW-L10L_BWR02A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from the mouth of Gills Creek upstream to near the 4H Camp.	4A	PCBs in Fish Tissue	2006	L	1849.56
VAW-L10L_BWR03A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from ~1.6 miles downstream of the Brooks Mill Bridge on downstream to the 4H Camp (RU24).	4A	PCBs in Fish Tissue	2006	L	351.98
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	4A	PCBs in Fish Tissue	2006	L	114.22
VAW-L10L_COA01A10 / Smith Mtn. Lake (Cool Branch) / Cool Branch from its mouth on the Blackwater River upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	362.12
VAW-L10L_PCP01A10 / Smith Mtn. Lake (Poplar Camp Creek) / Poplar Camp Creek from its confluence with the Blackwater River upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	58.60
VAW-L10L_XNZ01A10 / Smith Mtn. Lake (Little Bull Run, UT XNZ) / Unnamed tributary (XNZ) from its backwaters downstream to its mouth on Little Bull Run.	4A	PCBs in Fish Tissue	2006	L	15.22
VAW-L10L_XUV01A10 / Smith Mtn. Lake - Crazy Horse Camp Ground and Marina / Off Route 601, Franklin County, on backwaters of an unnamed tributary (XUV) to Blackwater River in Smith Mountain Lake 37°04'04" / 79°38'54".	4A	PCBs in Fish Tissue	2006	L	30.27
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	4A	PCBs in Fish Tissue	2006	L	0.40
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	4A	PCBs in Fish Tissue	2006	L	5.21
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	4A	PCBs in Fish Tissue	2006	L	2.62

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11L_GIL01A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from its mouth on the Blackwater River upstream to near the end of Route 665 (RU25).	4A	PCBs in Fish Tissue	2006	L	527.22
VAW-L11L_GIL02A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from the end of Route 665 upstream to its backwaters (RU25).	4A	PCBs in Fish Tissue	2006	L	197.42
VAW-L12L_CCK01A02 / Smith Mtn. Lake (Craddock Creek) / Craddock Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	1547.12
VAW-L12L_LOS01A10 / Smith Mtn. Lake (Louse Creek) / Louse Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	152.10
VAW-L12L_ROA01A02 / Smith Mtn. Lake (Roanoke River) / Roanoke River from Smith Mountain Dam upstream to the confluence of the Blackwater River (RU27).	4A	PCBs in Fish Tissue	2006	L	2088.34
VAW-L12L_WTH01A10 / Smith Mtn. Lake (Witcher Creek) / Witcher Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	322.35
VAW-L12L_XNW01A10 / Smith Mtn. Lake (Witcher Creek, UT(XNW) / An unnamed tributary (XNW) to Witcher Creek (Roanoke River) from its mouth upstream to its headwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	136.23

Roanoke River, Blackwater River and Smith Mountain Lake.

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		19814.49	14.43

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	Polychlorinated biphenyls (PCBs)	2010	L	3.17

Roanoke River, Blackwater River and Smith Mountain Lake.

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:			3.17

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Roanoke River, Blackwater River and Smith Mountain Lake.

Public Water Supply

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.17

Roanoke River, Blackwater River and Smith Mountain Lake.

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.17

Sources: Atmospheric Deposition; Contaminated Sediments; Industrial Point Source Discharge; Landfills; Source Unknown; Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L12R-01-BAC** Craddock Creek (XME)

Cause Location: An unnamed tributary (XME) to Craddock Creek from it's headwaters downstream to it's inundation on Smith Mountain Lake.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Craddock Creek is newly 303(d) listed during the 2020 data window for the Recreational Use.

4ACCK004.26 (Surry Drive Bridge) The new E.coli WQS confirms impairment due to 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. The 2020 data window finds nine of 23 samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Five of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The exceedances range from 399 to 2,282 cfu/100 ml. Prior to the 2018 IR, there were no additional data beyond the 2012 IR where three of 11 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Exceedances range from 320 to 980 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L12R_XME01A02 / Craddock Creek, UT (XME) / An unnamed tributary to Craddock Creek and Smith Mountain Lake. These waters are within the WQS public water supply (PWS) designated section 6i eg. 5 miles of the 795 ft. pool elevation of Smith Mtn. Lake (RU27).	5A	Escherichia coli (E. coli)	2012	L	1.24

Craddock Creek (XME)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.24

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L13L-02-BAC** Leesville Lake (Pigg River)

Cause Location: Pigg River from its confluence with the Roanoke River in Leesville Lake upstream to its backwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River TMDL received U.S. EPA approval on 9/11/2006. Fed ID 30413 and SWCB approval on 6/27/2007.

4APGG003.29- (Rt. 605 Graves Bridge) 2022: E.coli- Impaired- 2 or more STV hits in the same 90-day period with < 10 samples. 2020: Eleven of 29 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion of 235 cfu/100 ml. 2018: Eleven of 35 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion of 235 cfu/100 ml. Excessive values range from 300 to 19863 cfu/100 ml. 2016: Seven of 24 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion of 235 cfu/100 ml. Excessive values range from 300 to greater than 2000 cfu/100 ml. 2014: Three of 12 E.coli samples exceeding the 235 cfu/10 ml instantaneous criterion. The range of exceeding values is from 300 cfu/100 ml to 1200. There are no additional data beyond the 2008 assessment where nine of 27 E.coli exceed the instantaneous criterion. The range of exceeding values is from 300 cfu/100 ml to 1200. The station is located in the immediate backwaters of Leesville Reservoir.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L13L_PGG01A02 / Leesville Lake (Pigg R.) / Pigg River from its confluence with the Roanoke River in Leesville Lake upstream to its backwaters (RU37).	4A	Escherichia coli (E. coli)	2006	L	158.37

Leesville Lake (Pigg River)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		158.37	

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L13L-03-DO** Leesville Lake

Cause Location: From the Leesville Dam upstream to the Smith Mountain Lake Dam.

Cause City/County: Bedford County; Campbell County; Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID: 4AROA140.66 DO exceeds the Dissolved Oxygen WQS 64 out of 217 samples. Station ID: 4AROA145.34 DO exceeds the Dissolved Oxygen WQS 37 out of 255 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L13L_ROA01A18 / Leesville Lake / Roanoke River from the mouth of Old Womans Creek downstream to Leesville Dam.	5A	Dissolved Oxygen	2022	L	403.54
VAW-L13L_ROA02A18 / Leesville Lake Middle (Roanoke R.) / Roanoke River from the Pigg River mouth downstream to the Old Womans Creek mouth.	5A	Dissolved Oxygen	2022	L	1586.64
VAW-L13L_ROA03A18 / Leesville Lake / Roanoke River from the Smith Mountain Dam downstream to the Pigg River confluence.	5A	Dissolved Oxygen	2022	L	336.90

Leesville Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	2327.08	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L13R-01-BAC** **Old Womans Creek**

Cause Location: Old Womans Creek mainstem perennial headwaters downstream to its inundation at Leesville Lake.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Old Womans Creek was originally 303(d) listed for the Recreational Use during the 2006 assessment cycle. These waters are included in the Bacteria TMDL for Pigg River, Snow Creek, Story Creek and Old Womans Creek which was EPA approved 9/11/06 and SWCB approved 6/27/07 [Fed ID 30411].

4AOWC002.35 (TMDL Monitoring)(Paisley Rd. (Rt. 756)) - 2022: E.coli - 3/10 Exceedance Rate. 2020: E.coli - 10/24 Exceedance Rate. 2018: E.coli - 7/18 Exceedance Rate. Previous cycle E. coli - 3/9 Exceedance Rate

4AOWC005.36 (Ambient)(Station #17 Route 760 Bridge) - E. coli - 5/12 Exceedance Rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L13R_OWC01A18 / Old Womans Creek / Old Womans Creek mainstem perennial headwaters downstream to its inundation at Leesville Lake (RU38).	4A	Escherichia coli (E. coli)	2006	L	4.9

Old Womans Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.9

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L14R-01-BAC Pigg River and Doe Run

Cause Location: Pigg River from near the Five Mile Mountain Road (~ 1 mile upstream of the South Prong Pigg River confluence with the Pigg River) on downstream of the Rocky Mount STP to an unnamed tributary to the Pigg River upstream of the community of Gladehill. Doe Run mainstem from its mouth on the Pigg River upstream to its headwaters. (Rocky Mount & Gladehill Quads).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 9/11/2006 and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Doe Run bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial study contractual design. The allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment.

The 2004 Integrated Report (IR) extended the 1996 Pigg R bacteria 303(d) Listing upstream from the confluence of Storey Cr on the Pigg R continuing upstream to the mouth of the South Prong Pigg R due to sample collections in support of the Bacteria TMDL Study. Additional upstream samples from station 4APGG077.15 within the 2016 data window extend the impairment further upstream adding 2.95 miles to the total impairment. Below describes the upper 37.76 mile impaired portion including the 2004 addition of 13.40 miles to the original 1996 impaired miles (21.41) and the 2016 addition of 2.95 miles on the Pigg R. Doe Run is a nested 2006 addition (5.68 miles). The Lower Pigg R portion is described in a separate fact sheet (L18R-01-BAC) and comprises 28.95 miles.

4AD0E002.47- (Rt. 720 Br) No additional data beyond the 2006 IR where 3/12 fecal coliform (FC) exceedances of the 400 cfu/100 ml inst. criterion. Escherichia coli (E.coli) has replaced FC as the indicator organism.
 4APGG077.15 2020: 22/29 samples exceed the 235 cfu/100 ml inst. 2018 & 2016: 12/17 E.coli exceedances adding an additional 2.95 miles during the 2016 assessment cycle. 4APGG074.87- (Rt. 908 Ford) No additional data beyond the 2010 IR. 2010: 12/24 E.coli exceedances. 2008: 5/12 exceedances. 2006: 4/9 obs. 4APGG068.49- (Rt. 756 Br) 2020: 27/42 exceedances. 2018 & 2016: 18/30 and 9/18. No additional data beyond the 2008 IR where 8/12 samples exceed. 2006: 4/6. 4APGG0057.85 (Bus. 220 Br - above Old STP) 2010: 5/12 samples exceed. No additional data beyond the 2010 IR. 4APGG055.72 (Rt. 220 Br - below Old STP) No additional data beyond the 2010 IR 4/12. 4APGG052.73- (Rt. 713 Br) 2020: 20/36. 2018: 17/36 exceed. 2016: 14/35 exceed 275 to >2000 cfu/100 ml. 2014: 13/35 exceed. 2012: 16/38 exceed. 2010: 19/38 exceed. 2008: 16/26 exceed. 2006: 8/11 exceed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_DOE01A06 / Doe Run / Doe Run mainstem from its mouth on the Pigg River upstream to its headwaters (RU30).	4A	Fecal Coliform	2006	L	5.68

Pigg River and Doe Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			5.68

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_PGG02A00 / Pigg River / Pigg River mainstem from the town of Rocky Mount STP downstream to an unnamed tributary confluence on the Pigg River (RU30).	4A	Escherichia coli (E. coli)	2008	L	10.92
VAW-L14R_PGG03A00 / Pigg River / Pigg River mainstem from just downstream of the Rt. 220 Business Bridge on downstream to the Town of Rocky Mount STP (RU30).	4A	Escherichia coli (E. coli)	2006	L	4.73
VAW-L14R_PGG04A00 / Pigg River / Pigg River mainstem from the Storey Creek mouth on down to just downstream of the Rt. 220 Business Bridge (RU30).	4A	Escherichia coli (E. coli)	2006	L	5.77
VAW-L14R_PGG05A02 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the mouth of Storey Creek (RU29).	4A	Escherichia coli (E. coli)	2006	L	11.93
VAW-L14R_PGG05B12 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the confluence of Turners Creek (RU29).	4A	Escherichia coli (E. coli)	2006	L	1.49
VAW-L14R_PGG06A02 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong of the Pigg River downstream to the South Prong Pigg River confluence on the Pigg River (RU29).	4A	Escherichia coli (E. coli)	2016	L	1.02
VAW-L14R_PGG06B12 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong Pigg upstream to near Five Mile Mountain Rd. (Rt. 748) (RU29).	4A	Escherichia coli (E. coli)	2016	L	1.95

Pigg River and Doe Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			37.81

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Residential Districts; Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L14R-01-BEN** **Pigg River**

Cause Location: Pigg River mainstem from near Five Mile Mountain Road (Rt. 748) on downstream to the confluence of Turners Creek.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired with this initial 2012 General Standard- Benthic Listing for 4.43 miles.

4APGG077.15 (Ferrum Mtn. Rd. (Rt. 602) Bridge) Bio 'IM' from six VSCI scores avg 55 (2015, 2017-19) during the 2022 data window. The immediate land use at this station is pasture or grain fields. Within the sampling reach there is a minimal riparian zone unless steep hill slopes exist. The 2020 data window adds two 2017 VSCI scores (54.8, 56.5) and one 2018 score of 46.9 bringing the VSCI average to 55.7. Bio 'IM' The 2018 data window finds four VSCI scores averaging 58.0. The 2018 window adds the spring VSCI score of 55.4 to the three scores within the 2016 IR window. Three Virginia Stream Condition Index (VSCI) surveys (fall 2013 and 2014 spring/fall) with an average 2016 score of 58.8. This station surveyed as a follow up to an initial 303(d) listing at 4APGG076.93. The average Stream Condition Index (SCI) score was 58.8 indicating a stressed benthic community. The two metrics that vary most are % Scrapers and %Chiro. The metric % 2Dom averaged 57% indicating that 2 taxa of benthic macroinvertebrates made up >50% of the samples. Total Habitat scores averaged 98, yielding a marginal score. Stream bank and riparian zone scores were poor and sediment deposition scores were all marginal

4APGG076.93 (~ 1 mile upstream of the South Prong Pigg River confluence) Bio 'IM' A 2009 Probabilistic site. Two 2009 VSCI surveys with an average score of 50.5. There are no additional data beyond the 2012 Integrated Report. A stressed benthic community. A high number of mayflies were in this sample; however, the family Ephemerellidae is tolerant of moderate sediment impacts. The stream substrate was impacted by sediment deposition and some benthic macroinvertebrates were covered with bacteria which may indicate nutrient enrichment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_PGG05B12 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the confluence of Turners Creek (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	H	1.49
VAW-L14R_PGG06A02 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong of the Pigg River downstream to the South Prong Pigg River confluence on the Pigg River (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	H	1.02
VAW-L14R_PGG06B12 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong Pigg upstream to near Five Mile Mountain Rd. (Rt. 748) (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	H	1.95

Pigg River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.46

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Sources: Crop Production (Crop Land or Dry Land); Dairies; Livestock (Grazing or Feeding Operations); Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L14R-02-BAC** **Storey Creek**

Cause Location: The Storey Creek upper limit is west of Ferrum near the intersection of Rt. 40 and Rt. 748, perennial headwaters (Ferrum Quad). The downstream limit is the mouth of Storey Creek on the Pigg River (RU29).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30412] and incorporates the Storey Creek drainage. The Pigg River bacteria study received approval from the State Water Control Board (SWCB) on 6/27/2007 incorporating the Storey Creek 11.86 mile impairment. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Additional stations were added along Storey Creek in support of the Bacteria TMDL Study. Stations on Storey Creek find the recreational use impaired due to exceedance of the former fecal coliform (FC) bacteria 400 cfu/100 ml instantaneous criterion and the current escherichia coli (E.coli) instantaneous criterion of 235 cfu/100 ml.

4ASDA009.79- (Rt. 623 above Ferrum STP) 2010 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in 10 of 23 collections ranging from 250 to greater than 2000 cfu/100 ml. E.coli exceeds the instantaneous criterion in five of 12 samples in 2008 ranging from 250 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the criterion in three of nine samples with the same range of exceedance.

4ASDA009.77- (off Rt. 864 below Ferrum STP) There are no additional data beyond the 2010 Integrated Report (IR) where E.coli exceed the 235 cfu/100 ml instantaneous criterion in three of 12 samples within the 2010 data window. Exceedances range from 300 to greater than 2000 cfu/100 ml. The 2004 IR reports fecal coliform (FC) exceeds the former instantaneous criterion of 400 cfu/100 ml in 13 of 37 samples. Exceeding values range from 500 cfu/100 ml to greater than 8000. There are no additional data reported in 2008 where no FC excursions are found from five samples.

4ASDA007.24- (Rt. 40 Bridge) There are no additional data beyond the 2010 IR where 10 of 18 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2010 data window ranging from 250 cfu/100 ml to greater than 2000. The 2008 assessment finds two of six E.coli samples exceed the instantaneous criterion at 250 cfu/100 ml and 1000. This station added in support of the Bacteria TMDL Study.

4ASDA004.19- (Pleasant Hill Rd. (Rt. 619) Bridge) There are no new data beyond the 2016 data window where E.coli exceeding values range from 250 to greater than 2000 cfu/100 ml in five of 12 samples.

4ASDA000.67- (Davis Mill Bridge - Rt. 754) Fourteen of 31 excursions of the 235 cfu/100 ml instantaneous criterion are reported during the 2020 data window. Eight of 19 and Five of 12 E.coli samples exceed the instantaneous criterion within the 2018 and 2016 data windows, respectively. Values in excess of the criterion range from 256 to 2,613 cfu/100 ml. There were no additional data within the 2010, 2012 or 2014 IRs. The 2008 IR reports seven of 12 E.coli samples exceed the instantaneous criterion. Excessive values range from 255 to 1000 cfu/100 ml. Four of six E.coli samples exceed the criterion ranging from 310 to 1000 cfu/100 ml in 2006. This station added in support of the Bacteria TMDL Study.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_SDA01A00 / Story Creek / Story Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).	4A	Escherichia coli (E. coli)	2006	L	9.83

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_SDA02A00 / Story Creek / Story Creek mainstem perennial headwaters downstream to the Ferrum Water and Sewerage Authority POTW (RU29).	4A	Escherichia coli (E. coli)	2006	L	2.04

Storey Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.87

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L14R-02-BEN** **Storey Creek**

Cause Location: Storey Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: These waters (9.82 miles) are initially 2016 listed for impairment of the Aquatic Life Use. Impairment is based on Virginia Stream Condition Index (VSCI) surveys conducted at station 4ASDA004.94.

4ASDA004.94 (Between Bridges on Waidsober Rd. (607) & Pleasant Hill Rd. (619)) Bio 'IM' There are no new VSCI scores beyond the 2016 data window where two 2013 VSCI surveys with an average score of 51.7 indicating a benthic community lacking in diversity and pollution-sensitive organisms. Some instream habitat scores are good; however, those related to sediment deposition were low. Bank erosion and bank vegetative cover were impacted by highly eroded stream banks in this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_SDA01A00 / Storey Creek / Storey Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	9.83

Storey Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.83

Sources: Crop Production (Crop Land or Dry Land); Dairies; Livestock (Grazing or Feeding Operations); Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L15R-01-BAC** **Big Chestnut Creek**

Cause Location: Big Chestnut Creek from the confluence of Muddy Fork downstream to its confluence with the Pigg River.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Big Chestnut Creek is a 2004 bacteria 303(d) Listing and is nested within the TMDL Watershed.

The Big Chestnut Creek 12.87 mile bacteria impairment is not specifically addressed by the TMDL due to the 303(d) Listing occurring after initial study contractual design. However allocation scenario development is for the entire Pigg River drainage and provides pollutant reductions for all watersheds contributing to the bacteria impairment including Big Chestnut Creek. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

The original 12.43 waters were de-listed with the 2014 Integrated Report (IR) where bacteria (escherichia coli (E.coli)) excursions of the 235 cfu/100 ml instantaneous criterion are one of 12 observations with an exceedance rate of 8.3% at station 4ACNT001.32 (Route 715 Bridge, Franklin County). These waters return and an additional 6.77 miles added as impaired with the 2016 IR (station 4ACNT017.37).

4ACNT001.32- (Chestnut Mtn. Road (Rt. 715) Bridge) There is no additional data beyond the 2016 IR where three of 24 E.coli observations in excess of the WQS instantaneous criterion. Excessive values range from 700 to 1575 cfu/100 ml. The 2014 assessment finds one of 12 samples exceeding and resulted in a de-listing of this station. There were no additional data within the 2010 or 2012 data windows. The 2008 assessment reports E.coli sample results are six exceeding values ranging from 250 to greater than 2000 cfu/100 ml from 12 samples. All in excess of the 235 cfu/100 ml instantaneous criterion. 2006 E.coli sample results report six exceeding values with the same range of exceedance as 2008. The original 2004 Listing is a result of fecal coliform samples exceeding the former WQS 400 cfu/100 ml instantaneous criterion in two of 17 observations. The exceedances are 600 and 2300 cfu/100 ml.

4ACNT017.37- (McNeil Mill Road (Rt. 718) Bridge) No new data exist for the 2020 or 2018 data windows. The 2016 data window finds four of 11 E.coli samples exceed the WQS instantaneous criterion. Excessive values range from 350 cfu/100 ml to 950.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L15R_CNT01A00 / Big Chestnut Creek / Big Chestnut Creek mainstem from its mouth on the Pigg River upstream to the confluence of Little Chestnut Creek (RU31).	4A	Escherichia coli (E. coli)	2006	L	12.43
VAW-L15R_CNT02A14 / Big Chestnut Creek / Big Chestnut mainstem waters from the Muddy Fork mouth downstream to the confluence of Little Chestnut Creek. (RU31).	4A	Escherichia coli (E. coli)	2016	L	6.78

Big Chestnut Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.21

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Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L15R-02-BAC** **Root Mill Creek**

Cause Location: Root Mill Creek mainstem from its confluence with Canton Creek upstream to its headwaters (RU31).

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The initial 2020 303(d) listing for the Root Mill Creek Recreational Use occurs based on Escherichia coli (E.coli) data collections and lists the entire 3.45 miles. These waters are nested in the Pigg R. Bacteria TMDL (U.S. EPA approved 9/11/2006 Fed ID: 30414; SWCB approved 6/27/2007).

4AROT000.08 - The 2020 data window finds five of twelve E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L15R_ROT01A10 / Root Mill Creek / Root Mill Creek mainstem from its confluence with Canton Creek upstream to its headwaters (RU31).	4A	Escherichia coli (E. coli)	2020	L	3.46

Root Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.46

Sources: Livestock (Grazing or Feeding Operations); Unspecified Urban Stormwater; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L15R-03-BEN** **Upper North Fork Little Chestnut Creek**

Cause Location: North Fork Little Chestnut Creek mainstem from a private pond at Rt. 434 Peaceful Valley Ln. upstream to its headwaters (RU31).

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 data window finds the initial 303(d) listing of the Aquatic Life Use on Upper North Fork Little Chestnut Creek based on benthic macroinvertebrate community collections in 2019.

4ALNF006.42 (Upstr of Fishburn Mt Rd, Rt. 756) - Bio 'IM' from two 2019 VSCI scores of 54 (Spring) and 47 (Fall). This station was sampled because it was a randomly chosen site in the Probabilistic Monitoring network. The average Stream Condition Index (SCI) score was 50.6 indicating a benthic community with low diversity and high abundance of pollution-tolerant taxa.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L15R_LNF02A22 / North Fork Little Chestnut Creek, Upper / North Fork Little Chestnut Creek mainstem from a private pond at Rt. 434 Peaceful Valley Ln. upstream to its headwaters (RU31).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.85

Upper North Fork Little Chestnut Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.85

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L17R-01-BAC Snow Creek and Turkeycock Creek

Cause Location: Snow Creek from the Crab Creek confluence downstream to its mouth on the Pigg River (Penhook & Sandy Level Quads). Turkeycock Creek from its mouth on Snow Creek upstream to the confluence of Sailor Creek.

Cause City/County: Franklin County; Henry County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Snow Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30410] and SWCB approved 6/27/2007. The Pigg River Implementation Plan received SWCB approval on 12/13/2010. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment.

The 1999 Federal Consent Decree includes 4ASNW000.60 as an Attachment B station (10.95 miles). The initial 303(d) fecal coliform (FC) bacteria Listing in 2002 of Snow Creek is in response to the 1999 Consent Decree resulting in a 2010 TMDL Schedule. The 2002 assessment reports five of 22 samples in excess of the former (2002) 1000 cfu/100 ml instantaneous criterion. An exceedance rate of 22 percent. The 10.95 mile bacteria impairment remains- Category 4A. The 2012 Integrated Report (IR) extends the impairment 6.49 miles upstream from Ditto Branch to the confluence of Crab Creek from data collected at 4ASNW016.24. Turkeycock Creek adds an additional 6.46 miles and is Category 4A as the data collected for TMDL development includes Turkeycock Creek data and is nested within the TMDL Watershed and allocations.

4ASNW016.24 (Snow Cr. Rd Bridge at Parkers Store) The 2020 data window reports 6 of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Prior to 2020, there were no additional data beyond the 2012 IR where E.coli exceeds the 235 cfu/100 ml WQS instantaneous criterion in 6 of 11 samples. The range of exceeding values is from 350 to greater than 2000 cfu/10 ml. The impairment is extended upstream 8.19 miles on Snow Creek with the 2012 assessment.

4ASNW000.60- (Kirby Ford Bridge) The new Ecoli WQS confirms impairment based on 2 or more STV hits in the same 90-day period with < 10 samples during the 2022 data window. The 2020 data window reports 13 of 36 excursions. Twelve of 35 and 9 of 35 E.coli samples exceed the WQS instantaneous criterion within the 2018 and 2016 data windows, respectively. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml. 2014 E.coli data find 8 of 35 samples in excess of the instantaneous criterion ranging from 250 to greater than 2000 cfu/100 ml. Seven of 30 E.coli samples exceed the instantaneous criterion in 2012. Exceedances range from 290 to greater than 2000 cfu/10 ml. 2010 data reveal E.coli exceed the instantaneous criterion in 10 of 30 samples ranging from 290 to 1600 cfu/100 ml. 2008 results find E.coli exceed the instantaneous criterion in 8 of 18 samples ranging from 290 to 1600 cfu/100 ml. The 2006 Integrated Report (IR) range of exceedance is from 480 to 880 cfu/100 ml from 5 of 12 samples.

4ATCC003.71-(Danville Turnpike near Sago, Rt. 969) Six of 12 E.coli samples exceed during the 2018 IR. Excursions range from 256 to 3,255 cfu/100 ml. There are no additional data beyond the 2012 IR where E.coli results produce 2 samples exceeding the 235 cfu/100 ml instantaneous criterion from 12 sample collections. The exceeding values are 620 and 1600 cfu/100 ml. There were no additional data beyond the 2008 assessment where 2 of 6 E.coli samples exceed the instantaneous criterion at 250 and 680 cfu/100 ml. Turkeycock Creek is a 6.35 mile 2008 addition to the original 2002 Snow Creek 303(d) Listing.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_SNW01A00 / Snow Creek / Snow Creek mainstem from the mouth of Ditto Branch downstream to the mouth of Snow Creek on the Pigg River (RU35).	4A	Escherichia coli (E. coli)	2006	L	10.95

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_SNW02A12 / Snow Creek / Snow Creek from the Grassy Fork confluence with Snow Creek downstream to the mouth of Ditto Branch (RU35).	4A	Escherichia coli (E. coli)	2012	L	2.55
VAW-L17R_SNW03A14 / Snow Creek / Snow Creek from the Crab Creek confluence with Snow Creek downstream to the mouth of Grassy Fork (RU33).	4A	Escherichia coli (E. coli)	2012	L	3.95
VAW-L17R_TCC01A06 / Turkeycock Creek / Turkeycock Creek from its mouth on Snow Creek upstream to the confluence of Sailor Creek (RU34).	4A	Escherichia coli (E. coli)	2008	L	6.50

Snow Creek and Turkeycock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.95

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L17R-01-BEN** **Poplar Branch**

Cause Location: Poplar Branch headwaters downstream to its confluence with Snow Creek.

Cause City/County: Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired for 2.53 miles with the 2008 303(d) Listing of these waters from data at station 4APAA000.24.

4APAA000.71- Bio 'IM' from eight VSCI scores (2013-14, 2017-18) averaging 53.5. Bio 'IM' Four VSCI (2013-2014) surveys with an average score of 58.2. Fall samples had higher percentages of pollution sensitive taxa and less chironomidae. The habitat available for sampling at this bridge crossing is dominated by bedrock and may be better than the available habitat upstream yielding a VSCI score that is not indicative of all segments. Habitat survey scores for sediment were low in this reach due to landuse impacts to the watershed.

4APAA000.24 (Below Rt. 629)- Bio 'IM' There are no additional data beyond the 2008 assessment where two Virginia Stream Condition Index (VSCI) surveys score spring 54.0 and fall 55.5. The immediate land use at this station is forested with a closed canopy and excellent riparian vegetation. However, the watershed upstream from this station has pasture land with many small ponds that appear to reduce stream flow and subsequently allows fine sediment to accumulate in the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_PAA01A04 / Poplar Branch / Poplar Branch headwaters downstream to its confluence with Snow Creek (RU35).	5A	Benthic Macroinvertebrates Bioassessments	2008	H	2.57

Poplar Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.57

Sources: Sediment Resuspension (Clean Sediment); Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L17R-02-BAC** **Poplar Branch**

Cause Location: Poplar Branch headwaters downstream to its confluence with Snow Creek.

Cause City/County: Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2.53 mile Recreational Use impairment is based on data collection within the 2016 data window.

4APAA000.71 (Hatchett Rd. (Rt. 629) Crossing) Three of 22 and two of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/10 ml instantaneous criterion during the 2020 and 2018 data windows, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_PAA01A04 / Poplar Branch / Poplar Branch headwaters downstream to its confluence with Snow Creek (RU35).	4A	Escherichia coli (E. coli)	2016	L	2.57

Poplar Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.57

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L18R-01-BAC Pigg River

Cause Location: Pigg River from the mouth of Big Chestnut Creek (RM 32.99) downstream to the backwaters of Leesville Lake (RM 3.29) (Penhook & Sandy Level Quads). Note: These impaired waters now incorporate the former State TMDL ID of VAW-L16R-01 (15.54 miles) initially listed in 2002. The former VAW-L13L-02 (Bacteria 157.24 acres) impairment is described in the Cause Group Code L13L-02-BAC Leesville Lake Fact Sheet.

Cause City/County: Franklin County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/07. The Bacteria Implementation Plan received SWCB approval on 12/13/10. This Fact Sheet addresses the lower riverine portion of the Pigg River 28.95 mile bacteria impairment. The Pigg River bacteria 2002 15.53 mile impairment extension from the original 1998 13.36 mile 303(d) Listing is the result of additional ambient and TMDL support sampling. A separate fact sheet (L14R-01-BAC) describes the Upper Pigg River 34.81 mile bacteria impairment.

4APGG030.62- (Rt. 646, Fralin Bridge) Nine of 34 and five of 23 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 and 2018 data windows, respectively. Excursions range from 288 to 645 cfu/100 ml. The 2016 data window produces two of 12 escherichia coli (E.coli) exceedances of the WQS 235 cfu/100 ml instantaneous criterion. The two excessive values are 301 and 325 cfu/100 ml. There are no additional data within the 2012 or 2014 data windows. The 2010 IR finds E.coli samples exceed the instantaneous criterion in 13 of 33 samples. Values in excess of the criterion range from 250 to 930 cfu/100 ml. Nine of 21 E.coli samples exceed the instantaneous criterion in 2008. Values in excess of the criterion range from 260 to 930 cfu/100 ml. Four of six E.coli samples exceed the criterion in 2006 with the same range of exceedance.

4APGG016.06- (Rt. 626 Bridge) There are no additional data within the 2012, 2014 or 2016 data windows. 2010 and 2008 E.coli exceedances of the instantaneous criterion range from 300 to greater than 2000 cfu/100 ml in nine of 21 samples as there are no additional data beyond the 2008 assessment. 2006 reports E.coli exceeds the instantaneous criterion in five of nine samples ranging from 400 to greater than 2000 cfu/100 ml.

4APGG008.87- (Off Rt. 40 at USGS Gage) The 2020 data window finds fourteen of 33 excursions. Escherichia coli (E.coli) exceed the 235 cfu/10 ml instantaneous criterion in eleven of 33 and nine of 34 observations within the 2018 and 2016 data windows, respectively. Exceedances range from 262 to greater than 2000 cfu/100 ml. 2014 E.coli exceed the 235 cfu/100 ml instantaneous criterion in seven of 24 samples. 400 to greater than 2000 cfu/100 ml is the exceedance range. The 2012 assessment finds E.coli exceeds the instantaneous criterion in eight of 24 samples ranging from 280 to greater than 2000 cfu/100 ml. Both the 2008 and 2010 assessments find E.coli exceeds the instantaneous criterion in nine of 21 samples ranging from 280 to 1900 cfu/100 ml. 2006 E.coli exceedances range from 500 to greater than 800 cfu/100 ml in five of nine samples.

4APGG003.29- (Rt. 605 Bridge) 2022 data window finds impairment with 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. E.coli exceedances occur in seven of 24 observations. Excessive values range from 350 cfu/100 ml to greater than 2000 within the 2016 data window. Three of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in 2014. There are no additional data within the 2012 data window. 2008 data reveal E.coli exceed the instantaneous criterion in nine of 27 samples ranging from 300 to 1200 cfu/100 ml with no additional data beyond the 2008 assessment. Five of 12 E.coli samples exceed in 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L16R_PGG01A00 / Pigg River / Pigg River mainstem from the mouth of Dinner Creek downstream to the mouth of Snow Creek on the Pigg River (RU32).	4A	Escherichia coli (E. coli)	2006	L	6.67

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L16R_PGG02A00 / Pigg River / Pigg River mainstem from the Big Chestnut Creek mouth downstream to the mouth of Dinner Creek on the Pigg River (RU32).	4A	Escherichia coli (E. coli)	2006	L	8.93
VAW-L18R_PGG01A00 / Pigg River / Pigg River mainstem from the Harpen Creek mouth downstream to backwaters of Leesville Lake (RU36).	4A	Escherichia coli (E. coli)	2006	L	5.58
VAW-L18R_PGG02A00 / Pigg River / Pigg River mainstem from the mouth of Snow Creek downstream to the mouth of Harpen Creek on the Pigg River (RU36).	4A	Escherichia coli (E. coli)	2006	L	7.79

Pigg River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.97

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L18R-01-BEN** **Fryingpan Creek**

Cause Location: Headwaters of Fryingpan Creek downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54").

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The waters of Fryingpan Creek are impaired for the Aquatic Life Use due to contravention of the WQS General Standard (Benthic). The 2006 303(d) 2.56 mile 303(d) Listing is a result of benthic impairments found at station 4AFRY006.08 (Rt. 40 Bridge) where two 2003 Virginia Stream Condition Index (VSCI) scores are spring 42.4 and fall 32.8. Four additional 2011 and 2013 VSCI surveys find continued impairment with an average score of 44.4. There are no additional data beyond the 2016 303(d)/305(b) Integrated Report data window until the 2020 IR which reports on eight VSCI scores averaging 56.4 (2013-14, 2017-18).

The stream has a small watershed (5.2 square miles) which is approximately 46% agricultural land. The stream channel is impacted by deposits of fine sediment and some areas of eroded stream bank. Both sides of the stream are protected by a good riparian buffer. The benthic community has low diversity of pollution sensitive families and is dominated by those tolerant of excessive sediment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_FRY01A06 / Fryingpan Creek / Headwaters of Fryingpan Creek on downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54") (RU37).	5A	Benthic Macroinvertebrates Bioassessments	2006	H	2.56

Fryingpan Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.56

Sources: Livestock (Grazing or Feeding Operations); Sediment Resuspension (Clean Sediment)

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Roanoke and Yadkin River Basins

Cause Group Code: **L18R-02-BAC** **Harpen Creek**

Cause Location: Harpen Creek from its mouth on the Pigg River upstream to near Climax (36°53'28" / 79°30'30").

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Harpen Creek is a 2006 bacteria 303(d) Listing and nested within the Pigg River TMDL in 2008.

The Harpen Creek 5.35 mile bacteria impairment is not specifically addressed by the TMDL due to the 303(d) Listing occurring after initial study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Harpen Creek. Harpen Creek is nested within the Pigg River TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AHPN001.62- (Rt. 785 Bridge) Twenty of 35 and 17 of 24 E.coli samples exceed the 235 cfu/100 ml E.coli water quality criterion in the 2020 and 2018 data windows, respectively. Excursions range from 317 to 2,613 cfu/100 ml. 2016 exceeding values range from 1100 to greater than 2000 cfu/100 ml in seven of 12 escherichia coli (E.coli) observations. There are no additional data beyond the 2008 assessment where E.coli exceed in 13 of 21 samples in excess of the 235 cfu/100 ml instantaneous criterion both 2008 and 2010. The range of exceedance is 450 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) results find E.coli exceeds in four of nine samples with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_HPNO1A06 / Harpen Creek / Harpen Creek from its mouth on the Pigg River upstream to near Climax (36°53'28" / 79°30'30") (RU36).	4A	Escherichia coli (E. coli)	2006	L	5.36

Harpen Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.36

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L18R-03-BAC Tomahawk Creek

Cause Location: Tomahawk Creek from its mouth on the Pigg River upstream to above Andersons Mill (36°52'28" / 79°32'15").

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Study encompasses the Pigg River drainage, Old Womans Creek, Snow Creek, Storey Creek and Leesville Lake. Tomahawk Creek is a 2006 bacteria 303(d) Listing.

The Tomahawk Creek bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial TMDL Study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Tomahawk Creek. Tomahawk Creek is nested within the Pigg River Bacteria TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ATMA001.46 (Rt. 644 Bridge)- The 2020 data window finds fifteen of 34 E.coli excursions. Twelve of 24 and four of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 and 2016 data windows, respectively. Values exceeding the criterion range from 288 to greater than 10,000 cfu/100 ml. There are no additional data beyond the 2008 assessment where escherichia coli (E.coli) exceed in five of 21 samples in excess of the 235 cfu/100 ml criterion in 2008 and 2010. The range of exceedance is 350 to greater than 800 cfu/100 ml. 2006 assessment data reveal E.coli exceed in two of nine samples in excess of the 235 cfu/100 ml criterion. The range of exceedance is 680 to greater than 800 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_TMA01A06 / Tomahawk Creek / Tomahawk Creek from its mouth on the Pigg River upstream to above Andersons Mill (36°52'28" / 79°32'15") (RU36).	4A	Escherichia coli (E. coli)	2006	L	4.58

Tomahawk Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.58

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L18R-04-BAC** **Fryingpan Creek**

Cause Location: Headwaters of Fryingpan Creek downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54").

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Study encompasses the Pigg River drainage, Old Womans Creek, Snow Creek, Storey Creek and Leesville Lake. Fryingpan Creek is a 2016 bacteria 303(d) Listing.

The Fryingpan Creek bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial TMDL Study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Fryingpan Creek. Fryingpan Creek is nested within the Pigg River Bacteria TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AFRY006.08- (Rt. 40 Bridge) Six of 14 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 data window. The 2016 Integrated Report (IR) finds six of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion. Excessive values range from 300 to 1,153 cfu/100 ml. There are no additional data collected during the 2018 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_FRY01A06 / Fryingpan Creek / Headwaters of Fryingpan Creek on downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54") (RU37).	4A	Escherichia coli (E. coli)	2016	L	2.56

Fryingpan Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.56

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L18R-05-BEN** **Jonnikin Creek**

Cause Location: Jonnikin Creek mainstem from its mouth on Pigg R. to its headwaters (RU36).

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Jonnikin Creek is impaired for the Aquatic Life Use due to contravention of the WQS General Standard (Benthic). The 2020 303(d) 4.52 mile 303(d) Listing is a result of benthic impairments found at station 4AJKN003.18 (Upstream of Rt. 40) where two 2018 Virginia Stream Condition Index (VSCI) scores are 50.2 (spring) and 57.6 (fall).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_JKN01A20 / Jonnikin Creek / Jonnikin Creek mainstem from its mouth on Pigg R. to its headwaters (RU36).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.53

Jonnikin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.53

Sources: Agriculture; Clean Sediments; Loss of Riparian Habitat

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L19R-01-BAC Roanoke (Staunton) River

Cause Location: Roanoke (Staunton) River mainstem from the Buffalo Creek confluence downstream to the backwaters of Kerr Reservoir.

Cause City/County: Campbell County; Charlotte County; Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This impairment is addressed by the Staunton (Roanoke) River Bacteria TMDL (EPA Approved: 6/22/2006, SWCB Approved: 6/27/2007). A 5.05 mile nested segment extends the current impairment during the 2020 data window.

4AROA097.46 - 2022: E. coli - 9/45 Exceedance Rate of the Statistical Threshold Value and 4/4 exceedances of the Geomean. 2020: E. coli - 11/36 Exceedance Rate

4AROA067.91 (Ambient)(Route 746 Bridge (WATKINS BRIDGE) - 7/12 E.coli exceedance rate.

2020: E. coli - 11/36 Exceedance Rate. 2022: E.coli - 10/51 exceed the Statistical Threshold Value and 4/4 exceedances of the Geomean. 4AROA059.12 (Ambient)(Route 360 Bridge, East of Clover)

2022: E. coli - 7/45 Exceedance Rate of the Statistical Threshold Value and 4/4 Geomean exceedances. 2020: E. coli - 10/36 Exceedance Rate. 2018: E. coli - 10/36 Exceedance Rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	Escherichia coli (E. coli)	2006	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	Escherichia coli (E. coli)	2008	L	2.24
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	Escherichia coli (E. coli)	2008	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc. (RU63, RU64).	4A	Escherichia coli (E. coli)	2020	L	5.06
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	Escherichia coli (E. coli)	2006	L	12.79
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	Escherichia coli (E. coli)	2006	L	12.50
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	Escherichia coli (E. coli)	2006	L	10.20

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Appendix 4 - Fact Sheets for
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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	Escherichia coli (E. coli)	2006	L	3.82

Roanoke (Staunton) River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			51.42

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L19R-01-HG Roanoke (Staunton) River, Cub Creek, Kerr Reservoir

Cause Location: Roanoke (Staunton) River from Leesville Dam to the John H. Kerr Dam including Kerr Reservoir, its tributaries Eastland Creek and Nutbush Creek (within the state of Virginia) and Cub Creek from its mouth to the crossing of Rough Creek Road near Rough Creek.

Cause City/County: Campbell County; Charlotte County; Halifax County; Mecklenburg County; Pittsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: VDH Fish Advisory - PCBs: Issued 7/24/98 , revised 8/31/07 & Mercury: Issued 8/31/07 Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (State Route 695) near Rough Creek.

Mercury Fish Tissue Sampling Results

4AROA129.55(Near Route 29 - Altavista) (2019) one species exceeds WQS TV 0.3ppm; Smallmouth bass (4 fish) at .48ppm. (2006 FT/Sediment) - 2 species exceed Mercury VDH level of concern

4AROA097.07 (Near Brookneal) (2018 FT) - 2 species exceed WQS TV 0.3 ppm; Walleye (2 fish) at .48ppm and Blue Catfish (1 fish) at .90ppm. (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern

4AROA067.91 (Near Route 746 - Randolph) (2018 FT) - 1 species exceeds WQS TV 0.3ppm; Walleye. (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern

4AROA059.12 (Near Route 360 - Clover) (2018 FT) 2018; one species exceeds WQS TV 0.3 ppm; Blue Catfish (3 fish) at .64 ppm; (2017): three species exceed WQS TV of 0.3 ppm; Striped Bass (2 Fish) at 0.62ppm, (2 Fish) at 0.58 ppm, (2 fish) at 0.37 ppm, (2 fish) at 0.38 ppm, (2 fish) at 0.33 ppm, Walleye (1 fish) at 0.31 ppm; and Golden Redhorse Sucker (3 Fish) at 0.30 ppm); (2016) three species exceed WQS TV of 0.3ppm; largemouth bass (1 fish) at 0.45 ppm; Walleye (1 fish) at 0.90 ppm, (1 fish) at 0.36 ppm, and (1 fish) at 0.54 ppm; flathead catfish (1 fish) at 0.59 ppm and (1 fish) at 0.32 ppm:(2015): one species exceeds WQS TV of 0.3ppm; spotted bass (1 fish) at 0.70 ppm and (1 fish) at 0.42 ppm.

4AROA036.59 (Sta #18 Buoy Kerr Reservoir) (2020): one species exceeds the WQS (TV) of 0.3 ppm; Largemouth bass (4 fish) at .34 ppm; (2019) Three species exceed WQS (TV) of 0.3ppm; Largemouth bass (2 fish) at .74ppm, Freshwater Drum (1 fish) at .57ppm, and Flathead Catfish (1 fish) at .68ppm. (2018) One species exceeds the WQS (TV) 0.3ppm; Largemouth Bass (4 fish) at .40ppm. (2017 FT) - 2 species exceeded WQS based Tissue Value (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern

4AROA028.04 (Kerr Reservoir near Ivy Hill) (2006 FT/Sediment) - 2 species exceed Mercury VDH level of concern

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River (RU48).	5A	Mercury in Fish Tissue	2008	L	3.76
VAW-L19R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Goose Creek mouth on downstream to the Town of Altavista POTW (RU48).	5A	Mercury in Fish Tissue	2008	L	6.78
VAW-L19R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Leesville Dam downstream to the mouth of Goose Creek.	5A	Mercury in Fish Tissue	2008	L	3.46

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	5A	Mercury in Fish Tissue	2008	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	5A	Mercury in Fish Tissue	2008	L	2.24
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	5A	Mercury in Fish Tissue	2008	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc. (RU63, RU64).	5A	Mercury in Fish Tissue	2008	L	5.06
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	5A	Mercury in Fish Tissue	2008	L	17.65
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RU60).	5A	Mercury in Fish Tissue	2018	L	4.71
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	5A	Mercury in Fish Tissue	2008	L	12.79
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek (RU78).	5A	Mercury in Fish Tissue	2008	L	5.59
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River (RU79).	5A	Mercury in Fish Tissue	2008	L	8.80
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	5A	Mercury in Fish Tissue	2008	L	12.50
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	5A	Mercury in Fish Tissue	2008	L	10.20
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	5A	Mercury in Fish Tissue	2008	L	3.82
VAW-L57R_DAN02A00 / Dan River / Dan River mainstem from the Schoolfield Dam upstream to the backwaters of the impoundment (RD33).	5A	Mercury in Fish Tissue	2018	L	2.52

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN04A00 / Dan River / Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia) (RD32)	5A	Mercury in Fish Tissue	2018	L	7.37
VAW-L75L_BHB01A22 / Butcher Creek / Butcher Creek and Tribs included in the boundaries of Kerr Reservoir.	5A	Mercury in Fish Tissue	2008	L	2196.07
VAW-L75L_ROA05L98 / Kerr Reservoir / Kerr Reservoir from the John H. Kerr dam to ~ Long Grass Branch confluence.	5A	Mercury in Fish Tissue	2008	L	7018.24
VAW-L75L_ROA05M22 / Kerr Reservoir / Kerr Reservoir from ~Long Grass Branch confluence to about 2 miles upstream of the confluence with Grassy Creek..	5A	Mercury in Fish Tissue	2008	L	14828.39
VAW-L75L_ROA05N22 / Kerr Reservoir / Kerr Reservoir from about 2 miles upstream of the confluence of Grassy Creek tot about 1 mile upstream of the confluence with Bluestone Creek.	5A	Mercury in Fish Tissue	2008	L	4182.41
VAW-L75L_ROA05O22 / Kerr Reservoir / Kerr Reservoir from about 1 mile upstream of the confluence of Bluestone Creek to the backwaters, excluding the Dan River, Bluestone Creek, Buffalo Creek, and Butcher Creek.	5A	Mercury in Fish Tissue	2008	L	2440.31
VAW-L76L_BMA01A06 / Buffalo Creek / Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Mercury in Fish Tissue	2008	L	358.96
VAW-L77L_BST01A06 / Bluestone Creek / Bluestone Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Mercury in Fish Tissue	2008	L	860.22

Roanoke (Staunton) River, Cub Creek, Kerr Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	31884.6	112.06

Sources: Contaminated Sediments; Municipal Point Source Discharges; Non-Point Source; Source Unknown; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-01-PCB** **Roanoke (Staunton) River, Cub Creek**

Cause Location: Roanoke (Staunton) River from Leesville Dam to the backwaters of Kerr Reservoir, and Cub Creek from its mouth to the crossing of Rough Creek Road near Rough Creek.

Cause City/County: Campbell County; Charlotte County; Halifax County; Pittsylvania County

Use(s): Fish Consumption; Public Water Supply

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: VDH Fish Advisory - PCBs: Issued 7/24/98, revised 8/31/07 & Mercury: Issued 8/31/07

Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (Rt. 695) near Rough Creek.

The Roanoke (Staunton) River is impaired for the Public Water Supply Use due to violations of the PCB in Water human health criteria. The PWS impairment extends from the confluence of the Big Otter River to the backwaters of Kerr Reservoir. Violation information is provided below.

4AROA137.00 (upstream of Goose Creek) 2013 one sp exceeded VDH upper level of concern (LOC) (500 ppb); Flathead catfish. Four sp exceeded VDH lower LOC (50 ppb); Carp, Flathead catfish, Channel catfish, and shorthead redhorse sucker.

4AROA129.95 (near Bus Rt. 29 Bridge near Altavista Gage) 2013 three sp exceeded VDH lower LOC (50 ppb); Flathead catfish, channel catfish, and Carp. 2006 one sp exceeded VDH upper LOC (500 ppb); carp. 2006 six sp exceeded VDH lower LOC (50 ppb); Smouth bass, Rock bass, Redbreast sunfish, Channel catfish, Carp, Redhorse sucker.

4AROA108.09 (near Long Island) 2013 one sp exceeded VDH upper LOC (500 ppb); Flathead catfish. Four sp exceeded VDH lower LOC (50 ppb); Channel catfish, Carp, Shorthead redhorse sucker, and gizzard shad. 2006 one sp exceeded VDH upper LOC (500 ppb); carp. Three sp exceeded VDH lower LOC (50 ppb); Smouth bass, Channel catfish, Carp, Redhorse sucker.

4AROA097.07 (Rt. 501 at Brookneal) 2013 two sp exceeded VDH upper LOC (500 ppb); Blue catfish and Flathead catfish. Four sp exceeded VDH lower LOC (50 ppb); striped bass, Blue catfish, carp, and Channel catfish. 2006 one sp exceeded VDH upper LOC (500 ppb); Striped bass. Five sp exceeded VDH lower LOC (50 ppb); Striped bass, Black crappie, Channel catfish, Carp, and Redhorse sucker.

4AROA067.91 (Rt. 746 Bridge) 2006 two sp exceeded VDH upper LOC (500 ppb); Walleye, and Carp. Five sp exceeded VDH lower LOC (50 ppb); Blue catfish, Channel catfish, carp, Golden redhorse sucker, and Gizzard shad.

4AROA059.12 (Rt. 360 Bridge, east of Clover) 2006 two sp exceeded VDH upper LOC (500 ppb); Striped bass and Carp. Seven sp exceeded VDH lower LOC (50 ppb); Striped bass, White bass, Lmouth bass, walleye, Channel catfish, carp, and Redhorse sucker.

4AROA036.59 (Station #B Buoy 18 Kerr Reservoir) 2006 two sp exceeded VDH lower LOC (50 ppb); Carp and golden redhorse sucker.

4AROA028.04 (Station #B-9 Kerr Reservoir - Buoy 9) 2006 two sp exceeded VDH lower LOC (50 ppb); Lmouth bass and Longnose gar.

4AROA004.54 (Lake Gaston near state line) 2006 one sp exceeded: VDH lower LOC (50 ppb); carp

4ACUB010.96 (near Rt. 40 Gaging Station) ° 2006 one sp exceeded VDH upper LOC (500 ppb); carp. Three sp exceeded VDH lower LOC (50 ppb); channel catfish, carp, and Redhorse sucker

Station IDs:

2007-2008 PCB TMDL Monitoring

4AROA124.59

tPCB in Water Violations - 2909 pg/L & 4466 pg/L

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4AROA097.76

tPCB in Water Violations - 1115 pg/L & 4304 pg/L

4AROA090.50

tPCB in Water Violations - 1192 pg/L & 1625 pg/L

4AROA067.91

tPCB in Water Violations - 1336 pg/L & 1307 pg/L

4AROA059.12

tPCB in Water Violations - 1627 pg/L & 1359 pg/L

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River (RU48).	4A	PCBs in Fish Tissue	1998	L	3.76
VAW-L19R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Goose Creek mouth on downstream to the Town of Altavista POTW (RU48).	4A	PCBs in Fish Tissue	1998	L	6.78
VAW-L19R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Leesville Dam downstream to the mouth of Goose Creek.	4A	PCBs in Fish Tissue	2002	L	3.46
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	PCBs in Fish Tissue	2002	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	PCBs in Fish Tissue	2002	L	2.24
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	PCBs in Fish Tissue	2002	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc. (RU63, RU64).	4A	PCBs in Fish Tissue	2002	L	5.06
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	4A	PCBs in Fish Tissue	2002	L	17.65
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RU60).	4A	PCBs in Fish Tissue	2002	L	4.71

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	PCBs in Fish Tissue	2002	L	12.79
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek (RU78).	4A	PCBs in Fish Tissue	2008	L	5.59
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River (RU79).	4A	PCBs in Fish Tissue	2008	L	8.80
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	PCBs in Fish Tissue	2002	L	12.50
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	PCBs in Fish Tissue	1998	L	10.20
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	PCBs in Fish Tissue	1998	L	3.82

Roanoke (Staunton) River, Cub Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		102.17

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	Polychlorinated biphenyls (PCBs)	2010	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	Polychlorinated biphenyls (PCBs)	2010	L	2.24
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	Polychlorinated biphenyls (PCBs)	2010	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc. (RU63, RU64).	4A	Polychlorinated biphenyls (PCBs)	2010	L	5.06
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	4A	Polychlorinated biphenyls (PCBs)	2010	L	17.65

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RU60).	4A	Polychlorinated biphenyls (PCBs)	2010	L	4.71
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	Polychlorinated biphenyls (PCBs)	2010	L	12.79
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	Polychlorinated biphenyls (PCBs)	2010	L	12.50
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	Polychlorinated biphenyls (PCBs)	2010	L	10.20
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	Polychlorinated biphenyls (PCBs)	2010	L	3.82

Roanoke (Staunton) River, Cub Creek

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		73.78

Roanoke (Staunton) River, Cub Creek

Public Water Supply

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		73.78

Sources: Contaminated Sediments; Municipal Point Source Discharges; Non-Point Source; Source Unknown; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-02-BAC** **Lynch Creek**

Cause Location: Lynch Creek from its headwaters to the mouth on the Roanoke (Staunton) River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24386, 06/20/2006(2018)

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study received U.S. EPA approval on 6/20/2006 [Fed. ID.24386] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24386, 6/20/2006

One station is located within the 3.90 miles of impaired waters. 4ALYH000.50 (Ambient)(Lynch Cr @ Foot Bridge - City Park)

4ALYH000.50 (Ambient) (Lynch Cr @ Foot Bridge - City Park) 2022: Nine of 12 samples in excess of the Statistical Threshold value. 2020: 10 of 11 samples in excess of the instantaneous criterion. 2018: Nine of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_LYH01A02 / Lynch Creek / Lynch Creek from its mouth on the Roanoke (Staunton) River upstream to Bus. 29 (RU48).	4A	Escherichia coli (E. coli)	2010	L	0.37
VAW-L19R_LYH02A02 / Lynch Creek / Lynch Creek from Bus. Rte. 29 upstream to its headwaters (RU48).	4A	Escherichia coli (E. coli)	2008	L	3.53

Lynch Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.9

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-02-BEN** Lynch Creek

Cause Location: Lynch Creek from its headwaters to the mouth on the Roanoke (Staunton) River.

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4ALYH000.50 (Ambient, Bio) (Lynch Cr @ Foot Bridge - City Park) 2022: Bio 'IM' from four VSCI surveys (2017, 2015) with an average score of 45 (Spring avg 33, Fall avg 57). The 2018 data window finds Bio 'IM' from four VSCI surveys (2012, 2015) with an average score of 31.1.

2008 Bio: IM - Located in a City Park with significant impervious surface coverage in the riparian zone.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_LYH01A02 / Lynch Creek / Lynch Creek from its mouth on the Roanoke (Staunton) River upstream to Bus. 29 (RU48).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.37
VAW-L19R_LYH02A02 / Lynch Creek / Lynch Creek from Bus. Rte. 29 upstream to its headwaters (RU48).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.53

Lynch Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.9

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-03-BAC** **Reed Creek**

Cause Location: Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window 303(d) lists 8.9 miles of Reed Creek for the Recreational Use.

4ARAB003.64 - 2022: Five of 12 samples exceed the Statistical Threshold Value of 410 cfu/100ml. 2020: Six of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion.

4ARAB000.52 - 2022: Six of 12 E.coli samples exceed the Statistical Threshold Value. 2020:Seven of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_RAB01A00 / Reed Creek / Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters (RU48).	4A	Escherichia coli (E. coli)	2020	L	8.91

Reed Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.91

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-03-BEN** Reed Creek

Cause Location: Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ARAB000.52 (Bio)(Reed Cr @ Grit Road (Rt 668)) - The 2020 data window finds two spring VSCI scores impaired at 57.6 (2015) and 59.1 (2017). The two fall VSCI scores are 75 and 65.3 (2015 and 2017, respectively). 2008 & 2012 Bio 'IM' exhibited high seasonal variability, with one score approaching the impairment cutoff of 60. Sedimentation and elevated nutrients may be negatively affecting the stream community. Further sampling is needed to accurately assess the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_RAB01A00 / Reed Creek / Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters (RU48).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	8.91

Reed Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			8.91

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L19R-04-BAC** **Roanoke (Staunton) River, Unnamed tributary**

Cause Location: An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window is the initial Recreational Use 303(d) listing of 4.1 miles of Unnamed Tributary (XCN) to the Roanoke (Staunton) River.

4AXCN000.61 (UT to Staunton River @ Rt. 711) - 2022: Three of 11 E.coli samples exceed the Statistical Threshold Value of 410 cfu/100 ml. The 2020 data window finds four of 10 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_XCN01A02 / Roanoke (Staunton) River, Unnamed Tributary / An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2020	L	4.1

Roanoke (Staunton) River, Unnamed tributary

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L19R-04-BEN Roanoke (Staunton) River, Unnamed tributary

Cause Location: An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4AXCN000.31 (2008 Bio)(UT to Staunton R @ Bus29 & rt 714)

IM - appears to be negatively affected by high nutrient levels and suburban storm flows. VSCI scores from 2014-15 and 2017 find impaired conditions with an average of 63.8.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_XCN01A02 / Roanoke (Staunton) River, Unnamed Tributary / An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	4.1

Roanoke (Staunton) River, Unnamed tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.1

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L19R-05-BAC Roanoke (Staunton) River and Sycamore Creek

Cause Location: Roanoke (Staunton) River mainstem from the confluence with Goose Creek downstream to the confluence of Buffalo Creek. Sycamore Creek from its mouth on Roanoke (Staunton) River upstream to the confluence with Little Sycamore Creek.

Cause City/County: Campbell County; Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2018: 24386, 06/20/2006 (2018)

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study received U.S. EPA approval on 6/20/2006 [Fed. ID.24386] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24386, 6/20/2006. The 2022 data window extends the impairment upstream by 6.77 miles to the Goose Creek confluence.

4AROA129.55 (Business Rt. 29 Bridge, at gage) The 2022 data window finds 2 or more STV hits in the same 90-day period with < 10 samples. The 2018 IR reports seven of 35 E.coli exceedances of the 235 cfu/100 ml instantaneous water quality standard. Excursions range from 325 cfu/100 ml to greater than 2,000 cfu/100 ml.

4AROA124.59 (Rt. 640 Bridge, Pitts. Line Old Mansion) - Three of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 281 to 4884 cfu/100 ml.

4AROA107.97 (Long Island Boat Ramp) - This station led to the impairment extension with 2022 data window E.coli samples exceeding the Statistical Threshold Value (STV) of 410 CFU / 100 mL in 3 of 10 samples which is exceeds the >10% exceedance rate in the same 90-day window. An exceedance of the 126 cfu/100 ml water geometric mean in a 90-day period was also recorded.

4ASYC000.26 (Rt. 929 Bridge) The 2018 data window finds three of 11 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Excursions range from 457 cfu/100 ml to greater than 6,000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River (RU48).	4A	Escherichia coli (E. coli)	2018	L	3.76
VAW-L19R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Goose Creek mouth on downstream to the Town of Altavista POTW (RU48).	4A	Escherichia coli (E. coli)	2022	L	6.78
VAW-L19R_SCE01A00 / Sycamore Creek / Lower Sycamore Creek mainstem from its mouth to the confluence with Little Sycamore Creek (RU47).	4A	Escherichia coli (E. coli)	2018	L	8.29
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	4A	Escherichia coli (E. coli)	2022	L	17.65

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RU60).	4A	Escherichia coli (E. coli)	2018	L	4.71

Roanoke (Staunton) River and Sycamore Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			41.19

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L20R-01-BAC Goose Creek

Cause Location: The impairment begins at the confluence of the North and South Forks of Goose Creek extending downstream to the mouth of Bore Auger Creek.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Escherichia coli (E.coli) replaces the 2004 6.78 mile fecal coliform (FC) bacteria 2006 303(d) Listing as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AGSE037.78- (Rt. 755 Bridge) Two of 11 E.coli samples exceed the instantaneous criterion during the 2020 data window. There are no additional data beyond the 2014 Integrated Report (IR). The 2014 IR results find escherichia coli (E.coli) exceedances of the 235 cfu/100 ml instantaneous criterion occur in six of 12 samples. Exceeding values range from 250 to 1500 cfu/100 ml. There are no additional data within the 2012 data window. Both the 2008 and 2010 assessments reveal escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in eight of 12 samples. Exceeding values range from 280 to 930 cfu/100 ml. The 2006 Integrated Report (IR) records E.coli exceedances of the instantaneous criterion in seven of nine samples with the same range of exceedance as in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L20R_GSE01A00 / Goose Creek / Goose Creek mainstem from the North and South Fork confluence downstream to the Bore Auger Creek mouth (RU39).	4A	Escherichia coli (E. coli)	2006	L	6.94

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.94

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Residential Districts; Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L21R-01-BAC Goose Creek

Cause Location: Goose Creek from the mouth of Rocky Branch downstream to the confluence of Stony Fork Creek.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Bore Auger Creek nested Listing extends the Recreational Use impairment for 7.24 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

The 1999 Federal Consent Decree includes station 4AGSE022.55 as an Attachment B station for fecal coliform bacteria. The station was not 2002 303(d) listed as the 2002 exceedance rate is 8 percent where two of 23 analyses exceed the former 1000 cfu/100 ml instantaneous criterion (2002). The 2004 fecal coliform (FC) bacteria assessment results in 303(d) Listing finding nonsupport based on the former 400 cfu/100 ml instantaneous criterion in 2004.

4AGSE025.64- There are no additional data beyond the 2008 assessment. Escherichia coli (E.coli) exceed the 235 cfu/100 ml criterion in three of nine samples ranging from 250 to 700 cfu/100 ml in both 2008 and 2010.

4AGSE022.55- Seven of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. Excursions range from 249 - 7701 cfu/100 ml. There are no additional data beyond the 2004 IR. The 2004 Integrated Report (IR) records FC exceeds the 400 cfu/100 ml instantaneous criterion in two of 18 samples. The exceeding values are 800 and 3100 cfu/100 ml. 2008 IR finds one of three FC samples exceeding the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_GSE01A00 / Goose Creek / Goose Creek mainstem from the Rocky Branch mouth on downstream to the confluence of Stony Fork Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	7.24

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.24

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-01-BEN** **Wolf Creek**

Cause Location: Wolf Creek from its headwaters downstream to the Wolf Creek confluence on Goose Creek.

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired with this 2012 303(d) Listing for contravention of the General Standard (Benthic). There are no additional data within the 2016 data window.

4AWLF001.20- (Upstream of Joppa Mill) Bio 'IM' There are no additional data beyond the 2012 Integrated Report (IR). Two 2010 VSCI surveys with an average score of 51.5. The benthic macroinvertebrate community is dominated by filter-feeding taxa indicating an environment high in organic matter. The station had relatively good habitat scores except for moderate sedimentation. Land cover upstream of this site is approximately 43% agriculture which could be a source of sediment and nutrients. Impairment remains due to additional data collection and further evaluation by Regional Biologists. Note that downstream station (4AWLF000.09) finds Bio 'FS' from four 2015 and 2016 VSCI scores averaging 63.0 and two 2020 VSCI scores of 50.3 (Spring) and 77.3 (Fall).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_WLF01A08 / Wolf Creek / Wolf Creek from the Fiddler Creek mouth downstream to the Wolf Creek confluence with Goose Creek (RU41).	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.16
VAW-L21R_WLF02A08 / Wolf Creek / Wolf Creek headwaters downstream to the Fiddler Creek confluence on Wolf Creek (RU41).	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.97

Wolf Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.13

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-02-BAC** **Wolf Creek**

Cause Location: Wolf Creek from its headwaters downstream to the Wolf Creek confluence on Goose Creek

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired for 7.13 miles in this 2008 initial 303(d) Listing due to exceedances for Escherichia coli (E.coli) bacteria. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387]. SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries including Wolf Creek are nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AWLF000.09- (Rt. 691 Bridge at Joppa Mill) The 2020 and 2018 data windows find five of 18 and four of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion, respectively. Excursions range from 243 to 12,997 cfu/100 ml. Both 2008 and 2010 data reveal E.coli exceeds the 235 cfu/100 ml criterion in three of nine samples. E.coli exceedances range from 320 to 1400 cfu/100 ml. There are no additional data beyond the 2008 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_WLF01A08 / Wolf Creek / Wolf Creek from the Fiddler Creek mouth downstream to the Wolf Creek confluence with Goose Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	4.16
VAW-L21R_WLF02A08 / Wolf Creek / Wolf Creek headwaters downstream to the Fiddler Creek confluence on Wolf Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	2.97

Wolf Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.13

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-02-BEN** **Bore Auger Creek**

Cause Location: Bore Auger Creek from just upstream of the Rt. 619 crossing at an unnamed tributary downstream to its mouth on Goose Creek (RU40).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: These waters are initially listed with the 2014 Integrated Report (IR). These waters are partially delisted (3.83 miles) with the 2018 IR based on data from 4ABOE004.86. Additional data is needed to evaluate delist of the lower Aquatic Life Use impairment.

4ABOE005.27 (Rt. 806 Bridge) Bio 'IM' Two 2012 VSCI surveys scoring spring 48.7 and fall 59.6. These surveys indicate a community dominated by pollution-tolerant taxa in the spring including midges and blackflies. There are a higher percentage of mayflies in the fall but both seasons had relatively low taxa richness, low numbers of stoneflies and low numbers of organisms in the scraper feeding category which require clean rock surfaces to feed upon. The instream habitat is affected by sediment deposition (low Sed score) with more than 50% of the stream bottom covered by fine particles. The sediment load in the stream also results in the low Embeddedness score meaning that the interstitial spaces between rocks is clogged by fine material thus limiting available habitat for sensitive macroinvertebrates. The watershed has a mix of forested and agricultural land cover.

The waters are partially delisted for Aquatic Life Use based on Virginia Stream Condition (VSCI) surveys collected at station 4ABOE004.86 (Saunders Rd./Rt. 616 Bridge, Bedford Co.) which represents Probabilistic Monitoring station 4ABOE005.27 for present and future monitoring. 4ABOE004.86 VSCI scores collected in 2015 and 2016 average 67.8. Spring 2015 and 2016 VSCI scores are 66.3 and 76.2, respectively; Fall 2015 and 2016 scores are 60.6 and 68.1, respectively. The VSCI surveys collected during the 2018 data window show full support of the Aquatic Life Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_BOE01A08 / Bore Auger Creek / Bore Auger Creek from just upstream of the Rt. 619 crossing at an unnamed tributary downstream to its mouth on Goose Creek (RU40).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.73

Bore Auger Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.73

Sources: Loss of Riparian Habitat; Non-Point Source; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-03-BAC** **Bore Auger Creek**

Cause Location: Bore Auger Creek from near it's headwaters downstream to it's confluence with Goose Creek.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Bore Auger Creek nested Listing is due to excessive escherichia coli (E.coli) bacteria. The Recreational Use impairment extends 9.56 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ABOE004.86 (Saunders Road Bridge (Rt. 616)) - Six of 18 E.coli samples exceed during the 2020 data window. The 2018 data window finds five of 12 E.coli samples exceed the 235 cfu/100 ml criterion. Excursions range from 389 to 556 cfu/100 ml.

4ABOE001.34 (Rt. 754 Bridge N. of Chamblissburg) The 2012 assessment initially 303(d) Lists this portion of Bore Auger Creek based on Escherichia coli (E.coli) exceedances of the 235 cfu/100 ml WQS instantaneous criterion in four of 12 samples. The range of exceeding values is from 350 cfu/100 ml to 2000. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_BOE01A08 / Bore Auger Creek / Bore Auger Creek from just upstream of the Rt. 619 crossing at an unnamed tributary downstream to its mouth on Goose Creek (RU40).	4A	Escherichia coli (E. coli)	2012	L	5.73
VAW-L21R_BOE02A08 / Bore Auger Creek / Bore Auger Creek from near it's headwaters downstream to an unnamed tributary just upstream of the Rt. 619 crossing (RU40).	4A	Escherichia coli (E. coli)	2012	L	3.84

Bore Auger Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.57

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-04-BAC** **Stony Fork**

Cause Location: Stony Fork from it's headwaters downstream to it's confluence with Goose Creek.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Stony Fork nested Listing is due to excessive Escherichia coli (E.coli) bacteria. The Recreational Use impairment extends 13.17 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ASBA004.54 (Rucker Road, Rt. 806 Bridge) Nine of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml WQS instantaneous criterion within the 2018 data window. The range of exceeding values is from 452 cfu/100 ml to 5172. The 2012 assessment initially Lists this portion of Stony Fork based on escherichia coli (E.coli) exceedances of the 235 cfu/100 ml WQS instantaneous criterion in six of 11 samples. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_SBA01A08 / Stony Fork / Stony Fork from the Shoulder Run confluence downstream to the Stony Fork mouth on Goose Creek (RU42).	4A	Escherichia coli (E. coli)	2012	L	4.75
VAW-L21R_SBA02A08 / Stony Fork / Stony Fork from its headwaters downstream to the Shoulder Run confluence on Stony Fork (RU42).	4A	Escherichia coli (E. coli)	2012	L	8.43

Stony Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.18

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L21R-05-BEN** **Stony Fork**

Cause Location: Stony Fork from its headwaters downstream to the Shoulder Run confluence on Stony Fork (RU42).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 Stony Fork 303(d) listing is due to impaired benthic macroinvertebrate community collections from samples taken during the 2022 data window.

4ASBA008.39 (Rt. 749, Meadors Spur Rd.) Bio 'IM' from two 2019 VSCI Scores: Spring 29.3 and Fall 38.8. This station was surveyed as a regional biological monitoring site. The average VSCI was 34.1 indicating a benthic community that is impaired and dominated by Chironomid midges in the spring and net-spinning caddisflies in the fall. This station was surveyed as a regional biological monitoring site. The average VSCI was 34.1 indicating a benthic community that is impaired and dominated by Chironomid midges in the spring and net-spinning caddisflies in the fall.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_SBA02A08 / Stony Fork / Stony Fork from its headwaters downstream to the Shoulder Run confluence on Stony Fork (RU42).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	8.43

Stony Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.43

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L22R-01-BAC** **Goose Creek**

Cause Location: The upstream limit is at the Stony Fork mouth on Goose Creek extending downstream to the Carter Mill Creek confluence with Goose Creek.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The waters remain impaired for failure to support the Recreational Use. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Escherichia coli data from station 4AGSE013.78 extends the bacteria impairment upstream 8.93 miles from the original 10.03 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Note: 4AGSE013.45 replaces 4AGSE013.78 and represents the actual sampling location for the data previously assigned to 4AGSE013.78.

Goose Creek from the Carter Mill Creek confluence downstream to the Goose Creek mouth on the Roanoke (Staunton) River (RU45) is de-listed for 7.89 miles from the 2002 original 10.03 miles. The waters remain impaired for 11.11 miles. There are no additional data beyond the 2014 Integrated Report where no exceeding values are observed from 23 samples at 4AGSE000.20 (Rt. 630 Bridge).

4AGSE013.78 / 4AGSE013.45 replaces 4AGSE013.78 and represents the actual sampling location for the data previously assigned to 4AGSE013.78. The 2022 data window applies the new Ecoli and confirms the impairment based on 2 or more STV hits in the same 90-day period with < 10 samples. Nine of 35 E.coli samples exceed during the 2020 data window. The 2018 Integrated Reporting window finds seven of 24 E.Coli samples exceed 235 cfu/100 ml WQS instantaneous criteria at 249 to 24,196 cfu/100 ml. Four escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion from 23 observations within the 2016 data window. Excessive values range from 350 to greater than 2000 cfu/100 ml. There are no additional data beyond the 2012 Integrated Report (IR) where two of 11 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion at 580 and greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_GSE01A14 / Goose Creek / Goose Creek from the Crab Orchard Creek confluence downstream to the Carter Mill Creek mouth on Goose Creek (RU43).	4A	Escherichia coli (E. coli)	2012	L	2.19
VAW-L22R_GSE02A02 / Goose Creek / Goose Creek mainstem from the Stony Fork mouth on Goose Creek (watershed boundary) on downstream to the Crab Orchard Creek mouth on Goose Creek (RU43).	4A	Escherichia coli (E. coli)	2012	L	8.94

Goose Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.13

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Unspecified Domestic Waste; Wet

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Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L22R-02-BAC** Mill Creek

Cause Location: Mill Creek upstream to the mouth of Hunting Creek

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2010 assessment finds the Recreational Use impaired for this initial 303(d) Listing. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Mill Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMWW004.53 (Rt. 654 Bridge - Felspar Rd.) The 2020 data window reports four of 12 excursions. The 2016 Integrated Report (IR) finds four of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Values in excess of the criterion range from 300 to 600 cfu/100 ml. There are no additional data beyond the 2010 IR where three of 12 E.coli samples exceed the instantaneous criterion within the 2010 and 2012 data windows. Exceeding values range from 280 cfu/100 ml to 1900.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_MWW01A10 / Mill Creek / Mill Creek from its confluence with Goose Creek upstream to the mouth of Hunting Creek (RU43).	4A	Escherichia coli (E. coli)	2010	L	5.26

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.26

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L22R-03-BAC** **Hunting Creek**

Cause Location: Hunting Creek from its confluence with Mill Creek upstream to its headwaters.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This initial 2010 303(d) Listing is based on escherichia coli (E.coli) exceedances of the WQS 235 cfu/100 ml instantaneous criterion. Hunting Creek is tributary to Mill Creek and thence to Goose Creek. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Hunting Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AHNT001.29 (Rt.608 Bridge - White House Rd.) - There are no additional data beyond the 2010 Integrated Report. 2012 and 2010 escherichia coli (E.coli) data exceed the 235 cfu/100 ml instantaneous criterion in eleven of 12 samples. Values in excess of the criterion range from 300 cfu/100 ml to greater than 2000. There are six samples greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_HNT01A10 / Hunting Creek / Hunting Creek from its confluence with Mill Creek upstream to its headwaters (RU43).	4A	Escherichia coli (E. coli)	2010	L	2.64

Hunting Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.64

Sources: Landfills; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L22R-04-BAC** Carter Mill Creek

Cause Location: Carter Mill Creek from the mouth of Fitzpatrick Branch downstream to the confluence of Carter Mill Creek with Goose Creek

Cause City/County: Bedford County; Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Carter Mill Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

This initial 2012 bacteria Listing is due to escherichia coli (E.coli) exceedances causing non-support of the Recreational Use.

4ACMC001.58- Escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion in four of 12 samples at 256 cfu/100 ml to greater than 2000 within the 2018 data window. 2012 Escherichia coli (E.coli) data finds exceedances of the 235 cfu/100 ml WQS instantaneous criterion in two of 12 samples at 550 cfu/100 ml and greater than 2000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_CMC01A12 / Carter Mill Creek / Carter Mill Creek from the mouth of Fitzpatrick Branch downstream to the confluence of Carter Mill Creek with Goose Creek (RU44).	4A	Escherichia coli (E. coli)	2012	L	7.27

Carter Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.27

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L23R-01-BAC** **Big Otter River and Sheeps Creek**

Cause Location: The impairment begins on Sheeps Creek form just north of Reba, Va on Campbells Mountain off Rt. 614 (Montvale Quad) downstream to the confluence of Stony Creek forming the Big Otter River (Peaks of Otter Quad 37°23'25" /79°33'21"). The impairment continues downstream on the Big Otter River from the mouth of Sheeps Creek to the confluence of North Otter Creek. Note: The original downstream end was ~0.25 miles west of the Rt. 43 Bridge where Sheeps Creek and Stony Creek join to form the Big Otter River, 1996 (Peaks of Otter Quad 37°23'25" /79°33'21"). The 2004 ending of the impairment is at the mouth of North Otter Creek on the Big Otter River.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Big Otter River / Sheeps Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed ID 1650 / 7798 / 23400]. The SWCB approved the TMDL 6/17/2004 (formerly VAW-L23R-01) and the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are therefore Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26) including Machine Creek (L26), Big Otter drainage (L23, L24, L27, L28- delisted 2008 13.98 mi.) including Sheeps (L23), North Otter (L24) and Elk (L25) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

The original Sheeps Creek 303(d) Listing for fecal coliform (FC) bacteria in 1996 and again in 1998 (8.13 miles) is based on ambient data collections showing contravention of the former 1000 cfu/100 ml fecal coliform bacteria standard in greater than 25 percent of the samples collected. The waters remain impaired for the recreational use and is expanded to include the Big Otter River. The 2004 expansion adds an additional 9.62 miles to the impaired waters listing to include the Big Otter River from river mile 41.48 downstream to 32.01. Escherichia coli (E.coli) replaces fecal coliform bacteria 303(d) Listing as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Sheeps Creek (8.13 miles)

4ASEE003.16- (Rt. 680 Bridge) During the 2018 data window, eleven of 30 samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions ranged from 300 to 5,172 cfu/100 ml. The 2016 data window reveals escherichia coli (E.coli) exceeds the 235 WQS cfu/100 ml instantaneous criterion in 10 of 36 samples. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. E.coli exceeds the instantaneous criterion in five of 35 samples in 2014 with excessive values ranging from 250 cfu/100 ml to 1300. The 2012 assessment reports five of 23 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion. The exceeding values also range from 250 cfu/10 ml to 1300. 2010 E.coli data find two of eleven samples exceeding the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 250 and 380 cfu/100 ml. The 2008 assessment found four of 14 fecal coliform (FC) samples exceeding the former 400 cfu/100 ml instantaneous criterion as there were no E.coli data to assess. The range of exceeding values is from 500 to 900 cfu/100 ml. FC exceeds the instantaneous criterion in eight of 24 samples within the 2006 data window with the range of exceedance from 450 cfu/100 ml to 1500. The 2004 Integrated Report (IR) finds 10 of 27 observations exceed the instantaneous criterion. The 2004 exceedance range is from 500 cfu/100 ml to greater than 8000.

Big Otter River (9.62 miles)

4ABOR034.32- (Rt. 644 Bridge) There are no additional data beyond the 2010 Integrated Report (IR) where four of 23 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceedance is from 280 cfu/100 ml to 1000. E.coli exceed the 235 cfu/100 ml criterion in four of 11 samples ranging from 280 to 1000 cfu/100 ml in 2008. E.coli exceed the criterion in four of eight samples in 2006 with the same range of exceedance as 2008.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L23R_BOR01A02 / Big Otter River / Big Otter River mainstem from the mouth of North Otter Creek (Watershed Boundary) upstream to an unnamed tributary located at 37°23'24" / 79°30'19" (RU49).	4A	Escherichia coli (E. coli)	2006	L	6.00
VAW-L23R_BOR02A02 / Big Otter River / Big Otter River mainstem from an unnamed tributary located at 37°23'24" / 79°30'19" upstream to the Bedford City raw water intake on the Big Otter River (RU49).	4A	Escherichia coli (E. coli)	2006	L	3.58
VAW-L23R_BOR03A02 / Big Otter River / Big Otter River mainstem from the Bedford City raw water intake upstream to the confluence of Sheeps Creek and Stony Creek forming the Big Otter River (RU49).	4A	Escherichia coli (E. coli)	2006	L	0.05
VAW-L23R_SEE01A00 / Sheeps Creek / Sheeps Creek mainstem from the upstream end of WQS public water supply (PWS) section just downstream of Reba Creek on downstream to Sheeps Creek's confluence with Stony Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	4.90
VAW-L23R_SEE02A00 / Sheeps Creek / Headwaters north of Reba, VA on Campbells Mountain downstream to an unnamed tributary just downstream of Reba Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	3.24

Big Otter River and Sheeps Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.77

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L23R-02-BAC** **Stony Creek**

Cause Location: Stony Creek from its confluence with Sheeps Creek upstream to the mouth of Little Stony Creek

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This 2010 303(d) Listing is based on data within the 2010 data window showing a Recreational Use impairment. The Big Otter River / Sheeps Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed ID 1650 / 7798 / 23400]. The SWCB approved the TMDL 6/17/2004 (formerly VAW-L23R-01) and the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26) including Machine Creek (L26), Big Otter drainage (L23, L24, L27, L28- delisted 2008 13.98 mi.) including Sheeps (L23), North Otter (L24) and Elk (L25) Creeks. Stony Creek is nested within the TMDL Watershed and not specifically addressed by the Bacteria TMDL. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ASCB000.16 (Rt. 43 Bridge at intersection of 43 & 682)- There are no additional data beyond the 2010 assessment. 2014, 2012 and 2010 assessments results find two of eleven escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 250 and 320 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L23R_SCB01A00 / Stony Creek / Stony Creek mainstem within the WQS designated public water supply (PWS) section from the Bedford Reservoir downstream to its confluence with Sheep Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	4.37

Stony Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.37

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L24R-01-BAC** **Oslin Creek, U.T. (XOJ)**

Cause Location: Unnamed tributary (XOJ) from its confluence with Oslin Creek upstream to its headwaters.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The initial 303(d) listing of U.T. Oslin Creek (XOJ) extends the entire 7.13 mile length and occurs in the 2018 data window. The Big Otter River / Elk Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed. ID 1498/9595/18708/23401/36497] and SWCB approved on 6/17/2004 (formerly VAW-L25R-01). The Bacteria Implementation Plan (IP) received SWCB approval on 3/27/2007. The waters are NESTED and therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Ultimately escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AXOJ000.60 (Oslin Cr. Rd. [Rt. 637] Bridge) - The 2018 data window finds all twelve E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Exceedances range from 256 - 12,997 cfu/100 ml.

4AXOJ001.34 (Off Charlemont Rd. [Rt. 638] Bridge) - This 2015 Probabilistic station reports one E.coli sample in exceedance of the 235 cfu/100 ml instantaneous criterion at 4,352 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_XOJ01A18 / Oslin Creek, UT, Lower (XOJ) / Unnamed tributary (XOJ) from its confluence with Oslin Creek upstream to its confluence with unnamed tributary (37°27'39" / 79°24'08") (RU50).	4A	Escherichia coli (E. coli)	2018	L	1.38
VAW-L24R_XOJ02A18 / Oslin Creek, U.T. (XOJ) / Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).	4A	Escherichia coli (E. coli)	2018	L	5.75

Oslin Creek, U.T. (XOJ)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.13

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L24R-02-BEN** Oslin Creek, U.T. (XOJ)

Cause Location: Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2018 303(d) list represents the initial impairment of this 5.77 mile segment for the Aquatic Life Use (benthic macroinvertebrate community).

4AXOJ001.34 - The 2018 data window finds Bio 'IM' from two 2015 VSCI scores: Spring 46.4 and Fall 33.4. This station was surveyed as part of the Probabilistic monitoring program in 2015. The average Stream Condition Index (SCI) score was 39.91 indicating a benthic community which has low diversity and is dominated by pollution-tolerant taxa.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_XOJ02A18 / Oslin Creek, U.T. (XOJ) / Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	5.75

Oslin Creek, U.T. (XOJ)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.75

Sources: Agriculture; Loss of Riparian Habitat; Non-Point Source

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Roanoke and Yadkin River Basins

Cause Group Code: L25R-01-BAC Big Otter River, Elk Creek and North Otter Creek

Cause Location: Big Otter River from the mouth of North Otter Creek downstream to the confluence of the Little Otter River. Elk Creek from the Rt. 644 crossing at Perrowville downstream to the Elk Creek confluence on the Big Otter River. North Otter Creek from near the Rt. 122 crossing downstream to the its mouth on the Big Otter River. Note: The original 1998 bacteria 7.28 mile impairment on Elk Creek is extended with the 2004 IR to include the lower portion of North Otter Creek and the Big Otter River.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Big Otter River/Elk Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 2/2/2001 [Fed. ID 1498/9595/18708/23401/36497] and SWCB approved 6/17/04 (formerly VAW-L25R-01). The Bacteria Implementation Plan (IP) received SWCB approval 3/27/07. The waters are therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator per WQS [9 VAC 25-260-170. Bacteria; other waters].

The 2004 extension is the result of additional data collections made conducting the TMDL Study. The bacteria impairment encompasses the original Elk Creek 7.52 mi and the total 2004 extension of 32.17 mi. The original 1998 and 2004 extensions totaling 38.97 mi are described below: The 1998 Elk Creek (L25R) original 7.52 mi bacteria upper limit is at Rt. 622 west of Forest ending at its mouth on the Big Otter River. The 2004 extension runs from near Perrowville downstream to the Rt. 622 crossing adding 12.83 mi. The original 1998 and 2002 303(d) Listing basis is for FC bacteria exceedances at 4AECR003.02. These data show contravention of the former 1000 cfu/100 ml FC criterion in greater than 25% of samples collected.

Elk Creek (20.35 miles): 4AECR016.66- (Below Rt. 664 near Norwood) There are no additional data beyond the 2008 IR where 6/9 E.coli samples exceed in the 2008 and 2010 IRs. 4AECR007.42- (intersection of Rts 643 & 705) No additional data beyond the 2008 IR where E.coli exceeded 6/9 samples. 4AECR003.02- (Rt. 668 Br) 2022: New E.coli WQS finds impairment from 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. 2016: 14/23. 2014: No additional data in window. 2012: 17/32. 2010: 11/21. 2008: 6/9.

The 2004 North Otter Creek (L24R) extension is 6.80 mi. The extension includes the lower portion of North Otter Creek from near the Rt. 122 crossing extending downstream to its mouth on the Big Otter River. 4ANOT001.06- (Rt. 644 Br - Langford Mill Rd.) 2022: 2 or more STV hits in the same 90-day period with < 10 samples. 2016 and 2018: 16/35 and 16/30, respectively. 2014: 11/35. 2012: 7/23. 2010: 2/12. No additional data beyond the 2006 IR. 2008: 4/13. 2006: 7/20 FC. 2004: 10/28 samples exceed FC bacteria criterion.

Big Otter River (L25R; 2004 extension of 11.82 mi): The Big Otter River (L25R) from the confluence of North Otter Creek rm 32.01 downstream to the confluence of Little Otter River on the Big Otter River rm 20.27. 4ABOR029.74- (Rt.221 Br intersection Rts 221 & 670) No additional data beyond the 2004 assessment where 2/2 FC samples exceed the former 400 cfu/100 ml criterion. 4ABOR024.46- (Rt. 460 Br near intersection Rts 460 & 706) 2020: 6/12 excursions. 2014, 2016 and 2018: 2/12. 2008 and 2010: 3/9. The 2006 and 2004 assessments find two of two FC samples exceed the former 400 cfu/100 ml instantaneous criterion.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_NOT01A02 / North Otter Creek / North Otter Creek from the Rt. 122 crossing at Coltons Mill downstream to the North Otter Creek mouth on the Big Otter River (RU50).	4A	Escherichia coli (E. coli)	2010	L	6.81
VAW-L25R_BOR01A02 / Big Otter River / Big Otter River mainstem from the mouth of the Little Otter River upstream to the Elk Creek confluence on the Big Otter River (RU52).	4A	Escherichia coli (E. coli)	2008	L	4.50
VAW-L25R_ECR01A00 / Elk Creek / Elk Creek mainstem from its mouth on the Big Otter River upstream to the Rt. 622 crossing west of Forest, VA (RU51).	4A	Escherichia coli (E. coli)	2008	L	7.52
VAW-L25R_ECR02A02 / Elk Creek / Elk Creek mainstem from and unnamed tributary near Norwood (37°20'25" / 79°21'32") Rt. 622 crossing, upstream to near Perrowville (37°24'58" / 79°21'07") at another unnamed tributary (RU51).	4A	Escherichia coli (E. coli)	2008	L	12.84

Big Otter River, Elk Creek and North Otter Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		31.67

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L25R_BOR02A02 / Big Otter River / Big Otter River mainstem from the confluence of Elk Creek upstream to the mouth of Roaring Run (RU52).	4A	Fecal Coliform	2004	L	5.98
VAW-L25R_BOR03A04 / Big Otter River / Confluence of North Otter Creek downstream to the mouth of Roaring Run (RU52).	4A	Fecal Coliform	2004	L	1.36

Big Otter River, Elk Creek and North Otter Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.34

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L26R-01-BAC Little Otter River and Machine Creek

Cause Location: Little Otter River from its perennial headwaters west of Rt. 680 at Cobbs Mountain on the Peaks of Otter Quad on downstream to the mouth of the Little Otter River on the Big Otter River. Machine Creek from its perennial headwaters downstream to its confluence with the Little Otter River.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 2/2/01 [Fed ID 1547/9486/19639/24557] (VAW-L26R-01) and Machine Cr [Fed ID 1547/9467/20210] (VAW-L26R-02). SWCB approval on 6/17/04. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Machine Cr (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator per WQS [9 VAC 25-260-170. Bacteria; other waters]. The 1996/1998/2002 303(d) Listing basis for FC bacteria are ambient collections showing contravention of the former 1000 cfu/100 ml criterion in > 10 and 25% of samples as well as the former 400 cfu/100 ml instantaneous (inst) criterion.

The Little Otter River waters remain impaired for recreational use for 27.63 mi. Little Otter River [Fed ID 1547/9486/19639/24557] 27.63 miles:

4ALOR021.92- (Rt. 838 Bridge) There are no additional data beyond the 2010 Integrated Report (IR) where E.coli exceed the inst criterion in 10/12 samples. The 2002 IR finds FC bacteria exceeds the former 400 cfu/100 ml inst criterion in 2/2 samples.

4ALOR018.96- (Rt. 122 Bridge north of the intersection of Rts 122 & 211) There are no additional data beyond the 2002 IR where 2/2 FC exceed the former inst criterion. 4ALOR014.75- (Rt. 718 Bridge above Bedford STP) 2022: 2 or more Statistical Threshold Value (STV) hits in the same 90-day period with < 10 samples. 2020 IR: 24/36 E.coli excursions. 2018 and 2016 IRs: 20/36 and 16/36, respectively. 2014: 10/36. 2012: 11/36. 2010: 10/33. 2008: 8/21. 2006: 4/9. 2006: 16/52 FC samples exceed former FC 400 cfu/100 ml inst criterion.

4ALOR014.33- 2014: 2/3. No additional data beyond the 2016 or 2018 data windows.

4ALOR010.78- (Rt. 460 Br) No additional data beyond the 2002 IR where 2/2 FC samples exceed the former inst criterion. 4ALOR008.64- (Rt. 784 Br) 2016 and 2018 IR: 4/18. 2014: 7/24. No new data within the 2012 IR. 2010: 5/12 E.coli samples exceed. No new E.coli data to assess in 2008. 2008: 3/17 FC exceedances of the former 400 cfu/100 ml inst criterion. 2006: 13/31 FC exceedances of the former criterion.

Machine Creek [Fed ID 1547/9467/20210/24780] 11.59 miles:

4AMCR004.60- (Rt. 804 Bridge) 2022: 2 or more STV hits in the same 90-day period with < 10 samples. 2018: 20/36. 2016: 17/36. 2014: 13/36. 2012: 10/24. 2010: 3/12. 2008: 3/14 FC samples exceed. 2006: 7/18 FC samples exceed the former instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	4A	Escherichia coli (E. coli)	2010	L	4.48
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	Escherichia coli (E. coli)	2010	L	4.24

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	Escherichia coli (E. coli)	2010	L	5.90
VAW-L26R_LOR04A00 / Little Otter River / Little Otter River mainstem from the Bedford City boundary at the Rt. 43 crossing downstream to Bedford City POTW (RU54).	4A	Escherichia coli (E. coli)	2008	L	7.44
VAW-L26R_LOR05A00 / Little Otter River / Little Otter River mainstem from its perennial headwaters downstream to the Bedford City boundary at the Rt. 43 crossing (RU54).	4A	Escherichia coli (E. coli)	2010	L	5.58
VAW-L26R_MCR01A00 / Machine Creek / Machine Creek mainstem from it perennial headwaters downstream to its mouth on the Little Otter River (RU53).	4A	Escherichia coli (E. coli)	2010	L	11.60

Little Otter River and Machine Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			39.24

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L26R-01-BEN** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to mouth to its confluence with the Big Otter River.

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: TMDLs for Benthic Impairments in Little Otter R. (Sediment and Total Phosphorus), Johns Cr, Wells Cr, and Buffalo Cr (Sediment) were EPA approved on 2/3/15 [Fed IDs 65480 / 63924]. The original 2002 303(d) Listed 5.90 mile General Standard (Benthic) impairment is extended upstream in 2008 with an additional 7.44 miles due to impairment at station 4ALOR014.75 for an additional impaired length of 13.34 miles. The 2010 assessment extends the impairment downstream 8.71 mi based on impaired benthic conditions at stations 4ALOR012.20, 4ALOR008.64 and 4ALOR007.20. Total impaired miles are 22.05.

4ALOR014.75 (Rt. 718 Bridge above Bedford STP) Bio 'IM' 4 Virginia Stream Condition Index (VSCI) surveys (2011-2012) report an average score of 57.9 within the 2016 and 2018 data windows. The 2014 IR reports 6 VSCI surveys (2008, 2011-2012) with an average score of 59.9. The 2010 and 2012 assessments record 3 VSCI surveys (2006 and 2008) scoring fall 2006 58.7; and spring 56.7 and fall 67.8 in 2008. The 2008 IR reports the fall 2006 VSCI survey as noted previously. Habitat impacts include stream substrates that are embedded by fine sediment, eroded stream banks and riparian zone vegetation removal. Application of the VSCI to previous RBP II surveys (1994-2006 outside the 2008 data window) reveals an average VSCI score of 54.0. As a result the benthic community is assessed as impaired and is a 2008 7.30 mile extension upstream from the 2002 303(d) Benthic Listing.

4ALOR014.33 (Below Bedford STP) Bio 'IM'. The 2014, 2016 and 2018 Integrated Reports (IR) find 4 (2011-2012) VSCI surveys with an average score of 49.2. The preliminary stressor identification determined sediment and nutrients to be the cause of the impairment. There are no additional data between the 2004 and 2014 IRs where 3 2004 RBP II surveys Fall 1999 score 45; Spring '99 and '00 average score 53.95. This station is located below the City of Bedford's STP discharge at 4ALOR014.36 (excluding the mixing zone). Best Professional Judgment was used in spring 1999 because the sample had a high number of pollution tolerant organisms. The aquatic life use General Standard (Benthic) impairment is a 2002 original 303(d) Listing.

4ALOR012.20 (Pass the end of Dowdy Rock Rd.) Bio 'IM' 2 2008 VSCI surveys with an average score of 58.2. Habitat impacts include stream substrates that are embedded by fine sediment and eroded stream banks. This site replaces the historical downstream impact station (4ALOR014.33) that has become inaccessible.

4ALOR008.93 (Off Nicopolis Dr., Rt. 784) Bio 'IM' The 2014, 2016, and 2018 IRs report 2 2012 VSCI surveys scoring spring 48.9 and fall 27.2. Habitat surveys indicated a stream section with marginal bank stability, sediment impacts and lack of instream habitat. Preliminary stressor identification determined sediment and nutrients to be the cause of the impairment.

4ALOR008.64 (Nicopolis Dr., Rt. 784 Bridge) Bio 'IM' No new data since the 2010 data window where 1 2008 VSCI survey scored 56.5. This station was sampled as part of the Nutrient Criteria Special Study in 2008. Stations were selected based on historical nutrient levels and data on benthic macroinvertebrates, algae, periphyton and habitat were collected to be compared with nutrients. The VSCI score indicates a stressed community with low taxonomic diversity and low abundance of pollution-sensitive organisms. Habitat surveys indicated a stream section with substrates that were impacted by excessive fine sediments. Chemical analyses indicate high phosphorus levels.

4ALOR007.20 (Downstream of Nicopolis Dr., Rt. 784) Bio 'IM' A 2007 probabilistic site reports 2 VSCI surveys with an average score of 52.7. Both spring and fall samples had relatively low taxonomic diversity and low abundance of pollution-sensitive organisms. Habitat surveys indicated a stream section with substrates that were impaired

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	4.48
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	5.90
VAW-L26R_LOR04A00 / Little Otter River / Little Otter River mainstem from the Bedford City boundary at the Rt. 43 crossing downstream to Bedford City POTW (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.44

Little Otter River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			22.06

Sources: Crop Production (Crop Land or Dry Land); Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L26R-01-HG** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to the Little Otter River confluence with the Big Otter River.

Cause City/County: Bedford County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2006 fish tissue collections and Water Quality Standards (WQS) effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov> for more information about mercury contamination and <http://www.vdh.virginia.gov/> for VDH Advisories or Bans.

4ALOR007.94 (Below Bedford)- There are no additional data beyond the 2008 data window. Mercury (Hg) is found in 2006 fish tissue results for one smallmouth bass (0.489 ppm) and one rock bass (0.450 ppm) each greater than the water quality based mercury tissue value (TV) of 0.3 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	5A	Mercury in Fish Tissue	2010	L	4.48
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	5A	Mercury in Fish Tissue	2010	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	5A	Mercury in Fish Tissue	2010	L	5.90

Little Otter River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			14.62

Sources: Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L26R-01-PCB** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to the Little Otter River confluence with the Big Otter River.

Cause City/County: Bedford County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: The Roanoke R. PCB TMDL Study is US EPA approved 4/9/2010. Fed ID: 38522 and received SWCB approval on 12/9/2010. The Little Otter River is incorporated within the Roanoke River PCB TMDL with Fed IDs: 38461 / 38638 / 38639.

1999 Fish tissue collections at 4ALOR007.94 (below Bedford) find polychlorinated biphenyls (PCBs) in excess of the current 20 parts per billion (ppb) tissue value (TV) and former human health-risk carcinogenic WQS TV of 54 ppb from three species; Carp at 68.30; Smallmouth Bass at 54.8; and 1999 addition Redhorse Sucker at 28.50 ppb. Application of the new PCB WQS TV of 20 ppb to 2002 collections adds an additional species, Bluehead Chub at 21.28 ppb. The 14.33 mile fish consumption impairment is a 2002 addition to the initial Listing and the impairment remains in the 2014, 2016, and 2018 assessments with no additional data. A Virginia Department of Health fish consumption advisory has not been issued for these waters. The 2008 assessment found 2006 and 2002 fish tissue collections had no exceedances of the former WQS PCB TV of 54 ppb from species collected. However neither of these collections contained tissue results for carp or smallmouth bass, the original Listing basis.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	4A	PCBs in Fish Tissue	2002	L	4.48
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	PCBs in Fish Tissue	2002	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	PCBs in Fish Tissue	2002	L	5.90

Little Otter River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			14.62

Sources: Urban Runoff/Storm Sewers; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L26R-02-BAC** Johns Creek

Cause Location: Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (Bedford & Goode Quads).

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 02/02/2001 [Fed ID 1547 / 9486 / 19639 / 24557] (VAW-L26R-01) and Machine Creek [Fed ID 1547 / 9467 / 20210] (VAW-L26R-02). SWCB approval achieved on 6/17/2004. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Johns Creek (L26R Nested 2014 IR), Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at <http://www.deq.virginia.gov>. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator organism as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AJHN000.01- (near the Johns Creek confluence with the Little Otter River) There are no additional data beyond the 2014 IR. The 2014 assessment finds the Recreational Use impaired from two of three escherichia coli samples. Values in excess of the 235 cfu/100 ml instantaneous criterion are 350 and 900 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_JHN01A00 / Johns Creek / Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (RU54).	4A	Escherichia coli (E. coli)	2014	L	2.24

Johns Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.24

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L26R-02-BEN Johns Creek

Cause Location: Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (Bedford & Goode Quads).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The TMDLs for Benthic Impairments in Little Otter River, Johns Creek, Wells Creek, and Buffalo Creek was EPA approved [Fed IDs 65480 / 63924] on 2/3/2015. Historical surveys of Johns Creek from the 1990s and 2000 also indicate an impaired benthic community. The original 2002 Benthic results show moderate impact to the benthic community from a total of three Rapid Bioassessment Protocol II (RBP II) surveys. BPJ used in spring 1999 because the number of total taxa and total individuals were low, and pollution tolerant taxa were dominant.

4AJHN000.01- (near the Johns Creek confluence with the Little Otter River) Bio 'IM' Four Virginia Stream Condition Index (VSCI) surveys (2011-2012) with an average score of 49.4 show an impaired condition within the 2016 data window. The 2014 data window contains six VSCI (2008-2012). The 2014 average score is 48.5 indicating continued impairment of the biota. The benthic community was dominated by midges (Chironomidae) and net-spinning caddisflies (Hydropsychidae). These organisms typically dominate streams that have high amounts of organic matter. Two surveys had low taxa richness and diversity and all had low numbers of pollution-sensitive taxa such as mayflies and stoneflies. There were no additional data within the 2012 data window. The 2010 assessment finds the benthic community impaired from three VSCI surveys (2006-2008) with an average score of 44.20. This stream is affected by urban and agricultural NPS pollution. Flashy flows appear to cause severe erosion of stream banks. The original 2002 2.13 mile General Standard (Benthic) 303(d) Listing remains. The 2008 assessment reports one 2006 fall Virginia Stream Condition Index (VSCI) survey scoring 40.7.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_JHN01A00 / Johns Creek / Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	2.24

Johns Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.24

Sources: Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment)

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Roanoke and Yadkin River Basins

Cause Group Code: **L26R-03-BAC** Wells Creek

Cause Location: Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters.

Cause City/County: Bedford County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 02/02/2001 [Fed ID 1547 / 9486 / 19639 / 24557] (VAW-L26R-01) and Machine Creek [Fed ID 1547 / 9467 / 20210] (VAW-L26R-02). SWCB approval achieved on 6/17/2004. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at <http://www.deq.virginia.gov>.

The 2014 initial 303(d) Listing finds the Recreational Use impaired for 3.93 miles based on escherichia coli (E.coli) results at station 4AWEL001.14. The bacteria impairment is nested within the Little Otter River Bacteria TMDL.

4AWEL001.14- (Rt. 722 Bridge, Old Country Rd.) No data within the current cycle. The 2014, 2016, and 2018 assessments find eleven of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceeding values is from 300 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_WEL01A02 / Wells Creek / Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters (RU53).	4A	Escherichia coli (E. coli)	2014	L	3.94

Wells Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.94

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L26R-03-BEN** Wells Creek

Cause Location: Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters.

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 2008 initial 303(d) Listing finds the Aquatic Life Use impaired for 3.93 miles based on results from benthic surveys at station 4AWEL000.59. These waters are included in the Little Otter River (Sediment and Total Phosphorus), Johns Creek, Wells Creek, and Buffalo Creek Benthic TMDL (Sediment) approved on 2/3/15 (EPA) and 12/11/14 (SWCB) [Fed IDs 65480 / 63924]. 4AWEL001.14- (Rt. 722 Bridge, Old Country Rd.) Bio 'IM' Four Virginia Stream Condition Index (VSCI) surveys (2011-2012) with an average score of 50.2. The habitat at this station is moderately impacted by hay fields and pastures. The riparian zone buffers are narrow and there is obvious stream bank erosion. The instream habitat is affected by deposition of fine sediment. The benthic community is dominated by organisms tolerant of nutrient and organic matter impacts.

4AWEL000.59- (Downstream of Rt. 747 Crossing) Bio 'IM' Both the 2010 and 2008 assessments find two 2005 VSCI surveys scoring spring 45.6 and fall 59.6. There are no additional data within the 2012, 2014, 2016, or 2018 data windows. The habitat is moderately impacted by hay fields and pastures. The riparian zone buffers are narrow and there is substantial stream bank erosion. The in stream habitat is affected by deposition of fine sediment. The benthic community is dominated by organisms tolerant of nutrient and organic matter impacts.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_WEL01A02 / Wells Creek / Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters (RU53).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	3.94

Wells Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.94

Sources: Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L27R-01-BAC Big Otter River and Falling Creek

Cause Location: Big Otter River from the mouth of the Little Otter River on the Big Otter River extending downstream to the confluence of Buffalo Creek with the Big Otter River (Goode, Forest & Lynch Station Quads). Falling Creek from its headwaters downstream to the Falling Creek mouth on the Big Otter River.

Cause City/County: Bedford County; Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Big Otter River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 02/02/01 [FED ID 1547 / 9486 / 36497] and SWCB approval on 6/17/04 (former VAW-L27R-01). The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/07. The waters are Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Falling Creek is nested within the TMDL Watershed and not specifically addressed by the Bacteria TMDL. However allocation scenario development is for the entire TMDL Watershed to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

No recreational use impairments are noted in the 1998 303(d) List for the Big Otter River in watershed L27R. The 2002 5.37 mile fecal coliform portion is added to the original former downstream (L28R- 2008 delisted 13.98 miles) 1998 303(d) Listing. Big Otter bacteria impaired waters span from the mouth of Little Otter River on the Big Otter on downstream to the Buffalo Creek confluence. A 2004 IR Falling Creek addition with 5.92 miles brings the total bacteria impaired length to 11.29 miles. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

Big Otter River (5.37 miles): 4ABOR016.26- (Rt. 24 Bridge) - The 2022 data window finds six of 11 E.coli samples in exceedance of the 410 cfu/100ml Statistical Threshold Value. The 2018 data window finds twelve of 23 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion with a range of 275 cfu/100 ml to greater than 11,000 cfu/100 ml. Eight of 23 E.coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2016 data window. There are no additional data beyond the 2012 Integrated Report (IR) where E.coli exceed the 235 cfu/100 ml WQS instantaneous criterion in four of 23 samples. The 2010 assessment finds E.coli exceed in one of 12 samples with the single exceedance at 280 cfu/100 ml. The 2004 IR reports FC exceeds the former 400 cfu/100 ml instantaneous criterion in three of 17 samples. The range of excursions is from 500 cfu/100 ml to greater than 160,000. Three FC samples within the 2008 data window find no exceedances of the instantaneous criterion. 2006 IR finds one of eight FC samples exceeds at 160,000 cfu/100 ml.

Falling Creek (5.92 miles): 4AFNG001.06- There are no additional data beyond the 2004 IR where two of two FC samples exceed the 400 cfu/100 ml instantaneous criterion at 2,400 and greater than 160,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BOR01A00 / Big Otter River / Big Otter River mainstem from the upstream WQS designated public water supply (PWS) Sec. 5j end downstream to the Buffalo Creek mouth on the Big Otter River (RU55).	4A	Escherichia coli (E. coli)	2010	L	2.67
VAW-L27R_BOR02A00 / Big Otter River / Big Otter River mainstem from the mouth of Little Otter R. on Big Otter R. downstream to the upstream end of the WQS designated public water supply (PWS) section 5j (RU55).	4A	Escherichia coli (E. coli)	2010	L	2.72

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Big Otter River and Falling Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.39

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_FNG01A02 / Falling Creek / Falling Creek mainstem from its mouth on the Big Otter River upstream to it headwaters (RU55).	4A	Fecal Coliform	2004	L	2.83
VAW-L27R_FNG02A18 / Falling Creek / Falling Creek mainstem from its confluence with Bold Branch upstream to its headwaters (RU55).	4A	Fecal Coliform	2004	L	3.09

Big Otter River and Falling Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.92

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L27R-01-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at the Route 811 crossing in Campbell County to its mouth on the Big Otter River.

Cause City/County: Bedford County; Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Little Otter River (Sediment and Total Phosphorus), Johns Creek, Wells Creek, and Buffalo Creek (Sediment) TMDL Benthic Impairments received U.S. EPA approval on 2/3/15 [Fed ID: 65480 / 63924] and SWCB approval on 12/11/14.

4ABWA008.53 (2003 Probmon/2009/2012 Bio)(Along Rt. 623 near New London) - Bio 'IM'; flow regime and nutrients seem to negatively affect the stream community. Abundant periphyton and the presence of filamentous algae indicate elevated nutrients are the probable cause of the impairment. Five VSCI surveys (2009 & 2012).

Anecdotal information from 4ABWA002.00 finds Bio 'IM' from five VSCI scores averaging 57.3 (2012, 2014, 2016). 4ABWA002.00 exhibits significant seasonal variation. Follow-up monitoring continues the trend of good VSCI scores in the fall. The high number of taxa within the scraper functional feeding group may be an indication of nutrient enrichment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BWA01A18 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Big Otter River upstream to the end of the WQS designated public water supply (PWS) Sec. 5j end (RU56).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.11
VAW-L27R_BWA02A18 / Buffalo Creek / Buffalo Creek from the end of the WQS designated public water supply (PWS) section 5j upstream to an unnamed tributary at the Rt. 811 crossing in Campbell County (37° 14' 56"/79° 18' 20") (RU56).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	6.43

Buffalo Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.54

Sources: Clean Sediments

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L27R-02-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at the Route 811 crossing in Campbell County to its mouth on the Big Otter River.

Cause City/County: Bedford County; Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These Recreational Use impaired waters on Buffalo Creek are Nested (2014 assessment) in The Big Otter River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 02/02/01 [Fed. IDs: 1547 / 9486 / 36497] and SWCB approval on 6/17/04 (former VAW-L27R-01). The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/07.

4ABWA002.00 (Below Rt. 24 Bridge) No new data since 2014 where E. coli showed 8/24 Exceedance Rate of the 235 cfu/100 ml instantaneous E.coli criteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BWA01A18 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Big Otter River upstream to the end of the WQS designated public water supply (PWS) Sec. 5j end (RU56).	4A	Escherichia coli (E. coli)	2006	L	2.11
VAW-L27R_BWA02A18 / Buffalo Creek / Buffalo Creek from the end of the WQS designated public water supply (PWS) section 5j upstream to an unnamed tributary at the Rt. 811 crossing in Campbell County (37° 14' 56"/79° 18' 20") (RU56).	4A	Escherichia coli (E. coli)	2006	L	6.43

Buffalo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.54

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L27R-03-BEN** **Falling Creek**

Cause Location: Falling Creek mainstem from its mouth on the Big Otter River upstream to its headwaters (RU55).

Cause City/County: Bedford County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2018 data window finds the initial Aquatic Life Use impairment for Falling Creek.

4AFNG003.54 (Rt. 707 Bridge) - The 2018 data window finds impairment from one 2016 VSCI score of 37.1 (Spring; stream was inaccessible in the fall). This station was surveyed as part of the Probabilistic Monitoring Program. Midges (Chironomidae) dominated the benthic community; however, the diversity and specific mayfly (Ephemeroptera) taxa collected at this station indicate potential for improvement.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_FNG02A18 / Falling Creek / Falling Creek mainstem from its confluence with Bold Branch upstream to its headwaters (RU55).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.09

Falling Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.09

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L28R-01-BAC** **Big Otter River**

Cause Location: Big Otter River mainstem from the mouth of Flat Creek downstream to Big Otter River confluence with the Roanoke (Staunton) River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These Recreational Use impairments on Big Otter River are Nested in the Big Otter River Watershed TMDL (EPA Approved - 2/2/01, SWCB Approved - 6/17/04). Exceedance rates presented below are compared to the 235 cfu/100 ml Escherichia coli (E.coli) instantaneous Water Quality Standard.

4ABOR000.62 (Bernards Creek 30 m above mouth) 2022: E. coli - 10/35 Exceedance Rate. 2020: E. coli - 14/36 Exceedance Rate 2018: E. coli - 10/35 Exceedance Rate 4ABOR012.18 (Station #8, Route 644 Bridge) - 2020: E. coli - 2/12 Exceedance Rate. 2018: E. coli - 2/12 Exceedance Rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L28R_BOR01A00 / Big Otter River / Big Otter River mainstem from the mouth of Flat Creek downstream to Big Otter River confluence with the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2010	L	9.45
VAW-L28R_BOR02A00 / Big Otter River / Big Otter River mainstem from the Campbell County USA Otter River WTP downstream to mouth of Flat Creek.	4A	Escherichia coli (E. coli)	2016	L	2.22
VAW-L28R_BOR03A00 / Big Otter River / Big Otter River mainstem from the Buffalo Creek mouth on Big Otter River downstream to the Campbell County USA Otter River WTP (RU57).	4A	Escherichia coli (E. coli)	2016	L	2.35

Big Otter River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.02

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L29R-01-BEN** Flat Creek

Cause Location: Flat Creek from the confluence of Yellow Branch to its headwaters.

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

2007/2012/2014 Bio

IM - 4AFCA010.95 (Flat Cr @ RT 622 bridge) was listed as impaired in the 2008 IR. Sediment and scour are listed as probable stressors. It exhibits slight seasonal variability and moderate variability near the assessment threshold of 60. Recent sampling has indicated an improvement in VSCI scores, although sediment and scour are still affecting the community. Additional monitoring is required to accurately assess the waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L29R_FCA02A10 / Flat Creek / Flat Creek from the confluence of Yellow Branch to its headwaters (RU58).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	8.21

Flat Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.21

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L29R-02-BAC** Flat Creek

Cause Location: Flat Creek mainstem from Yellow Branch's mouth downstream to the Flat Creek mouth on the Big Otter River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This 2018 initial bacteria listing for Flat Creek is nested within the Big Otter River Bacteria Total Maximum Daily Load (TMDL) which received U.S. EPA approval on 02/02/2001 [FED ID 1547 / 9486 / 36497] and SWCB approval on 6/17/2004 (former VAW-L27R-01). The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Flat Creek is included within this area.

4AFCA001.40 (Rt. 696 Bridge) - Two of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Excursions are 291 and 565 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L29R_FCA01A00 / Flat Creek / Flat Creek mainstem from Yellow Branch's mouth downstream to the Flat Creek mouth on the Big Otter River (RU58).	4A	Escherichia coli (E. coli)	2018	L	7.67

Flat Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.67

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L30R-01-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 10.23 miles of impaired waters. 4ABHA002.47 (Ambient)(Buffalo Cr @RTE 639 (Rockbarn Road))

4ABHA002.47 (Ambient)(Buffalo Cr @RTE 639 (Rockbarn Road)) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_BHA01A02 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	10.23

Buffalo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.23

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L30R-02-BAC** Childrey Creek

Cause Location: Childrey Creek mainstem from its headwaters downstream to the Childrey Creek mouth on the Roanoke (Staunton) River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

Two stations are located within the 14.54 miles of impaired waters. 4ACRE002.52 (Ambient)(2018)(Childrey Creek at Route 632 Bridge) and 4ACRE008.75 (Ambient)(Childrey Cr @ State Shed Rd (rt 645)

4ACRE002.52 (Ambient)(2018)(Childrey Creek at Route 632 Bridge) 0/0 samples in excess of the instantaneous criterion.

4ACRE008.75 (Ambient)(Childrey Cr @ State Shed Rd (rt 645)) 2022:Two of 12 samples in excess of the statistical Threshold Value of 410 cfu/100ml. 2018:Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_CRE01A00 / Childrey Creek / Childrey Creek mainstem from its headwaters downstream to the Childrey Creek mouth on the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2006	L	14.54

Childrey Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.54

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L30R-03-BAC** Straightstone Creek

Cause Location: Straightstone Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to Little Straightstone Creek

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 8.75 miles of impaired waters. 4ASSC002.98 (TMDL Monitoring)(2018)(Route 761 (Straightstone Rd))

4ASSC002.98 (TMDL Monitoring)(Route 761 (Straightstone Rd) 2022: Five of 12 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. instantaneous criterion. 2020: Eight of 12 samples in excess of the instantaneous criterion. 2018: Seven of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_SSC01A02 / Straightstone Creek / Straightstone Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to Little Straightstone Creek (RU62).	4A	Escherichia coli (E. coli)	2006	L	8.75

Straightstone Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.75

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L30R-04-BAC** Whipping Creek

Cause Location: Whipping Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 13.9 miles of impaired waters. 4AWPP002.53 (TMDL, Ambient)(Whipping Creek at Route 633)

4AWPP002.53 (TMDL, Ambient) (Whipping Creek at Route 633) Three of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_WPP01A02 / Whipping Creek / Whipping Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	13.91

Whipping Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.91

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L30R-05-BAC** **Little Straightstone Creek**

Cause Location: Little Straightstone Creek from its headwaters to the mouth

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 7.55 miles of impaired waters. 4ALHT000.70 (TMDL Monitoring) (Route 668 (Level Run Road))

4ALHT000.70 (TMDL Monitoring) (Route 668 (Level Run Road)) Five of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_LHT01A06 / Little Straightstone Creek / Little Straightstone Creek from its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	7.57

Little Straightstone Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.57

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L31R-01-BEN** **East Little Seneca Creek, Unnamed Tributary**

Cause Location: East Little Seneca Creek, Unnamed Tributary from the headwaters to the mouth

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AXUP000.06 (2004 FPM) (Upstream of route 698) No additional data beyond the 2016 data window:

IM - seems to be negatively affected by flow regime and sedimentation.

2011/2013 Bio - IM - Sediment and nutrients are primary stressors to this reach. VSCI scores exhibit seasonal variability over several years.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L31R_XUP01A06 / East Little Seneca Creek, Unnamed Tributary / From the headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.5

East Little Seneca Creek, Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.5

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L32R-01-BAC** **Falling River**

Cause Location: Falling River from its headwaters to its confluence with South Fork Falling River

Cause City/County: Appomattox County; Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Two stations are located within the 18.16 miles of impaired waters. 4AFRV025.34 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 650 bridge) and 4AFRV029.24 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 647 bridge)

4AFRV025.34 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 650 bridge) Four of 12 samples in excess of the instantaneous criterion.

4AFRV029.24 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 647 bridge) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L32R_FRV01A06 / Falling River / Falling River from its headwaters to its confluence with South Fork Falling River	4A	Escherichia coli (E. coli)	2006	L	18.17

Falling River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.17

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L33R-01-BAC** **Button Creek**

Cause Location: Button Creek from the headwaters to the mouth.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 7.86 miles of impaired waters. 4ABTF002.16 (TMDL Monitoring)(Button Creek at Rt. 651)

4ABTF002.16 (TMDL Monitoring)(Button Creek at Rt. 651) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L33R_BTf01A06 / Button Creek / From the headwaters to its mouth	4A	Escherichia coli (E. coli)	2006	L	7.86

Button Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.86

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L33R-02-BAC** **South Fork Falling River**

Cause Location: South Fork Falling River from its headwaters to the mouth.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Three stations are located within the 16.79 miles of impaired waters. 4AFSF000.66 (TMDL Monitoring)(2018)(South Fork Falling River, Rt. 648 bridge), 4AFSF004.56 (Ambient)(Route 604), and 4AFSF011.11 (TMDL Monitoring)(South Fork Falling River, Rt. 663 bridge)

4AFSF000.66 (TMDL Monitoring)((South Fork Falling River, Rt. 648 bridge) 2022: Seven of 18 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. 2020: 10/18 samples in excess of the instantaneous criterion. 2018: Six of Six samples in excess of the instantaneous criterion.

4AFSF004.56 (Ambient)(Route 604) Four of 12 samples in excess of the instantaneous criterion.

4AFSF011.11 (TMDL Monitoring)(South Fork Falling River, Rt. 663 bridge) Five of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L33R_FSF01A06 / South Fork Falling River / From its headwaters to the mouth (RU67).	4A	Escherichia coli (E. coli)	2006	L	16.79

South Fork Falling River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.79

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L34R-01-BAC Falling River

Cause Location: Falling River mainstem from the Falling River North and South Fork confluence to its mouth on the Roanoke (Staunton) River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 17.88 miles of impaired waters. 4AFRV002.78 (Ambient, TMDL)(Off Rt. 600 Below Brookneal STP) , 4AFRV003.07 (TMDL IP Monitoring)(2018) (Falling River @ Rt 40) , 4AFRV010.99 (Ambient, TMDL Monitoring)(2018) (Naruna Gage Route 643) , and 4AFRV017.71 (Ambient & 2004 Falling River TMDL)(2018)(Route 615 Bridge)

4AFRV002.78 (Ambient, TMDL) (Off Rt. 600 Below Brookneal STP) 2022: Seven of 12 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. 2020: Seven of 12 samples in excess of the instantaneous criterion. 2016: Six of 10 samples in excess of the instantaneous criterion.

4AFRV003.07 (TMDL IP Monitoring)(2018)(Falling River @ Rt 40) Two of 12 samples in excess of the instantaneous criterion.

4AFRV010.99 (Ambient, TMDL Monitoring)(2018) (Naruna Gage Route 643) 2022: 14 of 35 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. 2020: 21 of 36 samples in excess of the instantaneous criterion. 2018: 17 of 36 samples in excess of the instantaneous criterion.

4AFRV017.71 (Ambient & 2004 Falling River TMDL)(2018)(Route 615 Bridge) 2020: Three of 12 samples in excess of the instantaneous criterion. 2018: Nine of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_FRV01A00 / Falling River / Falling River mainstem from the Brookneal Lagoon outfall downstream to the Falling River mouth on the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2006	L	2.96
VAW-L34R_FRV02A00 / Falling River / Dan River Inc. water intake on Falling River downstream to the Brookneal Lagoon outfall.	4A	Escherichia coli (E. coli)	2006	L	0.32
VAW-L34R_FRV03A00 / Falling River / Little Falling River mouth downstream to Dan River, Inc. intake on Falling River.	4A	Escherichia coli (E. coli)	2006	L	4.38
VAW-L34R_FRV04A00 / Falling River / WQS public water supply (PWS) section 5c end downstream to mouth of Little Falling River.	4A	Escherichia coli (E. coli)	2006	L	0.86
VAW-L34R_FRV05A02 / Falling River / Falling River from the Mollys Creek mouth downstream to the WQS section 5c public water supply (PWS) end.	4A	Escherichia coli (E. coli)	2006	L	6.51

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VAW-L34R_FRV06A02 / Falling River / Falling River mainstem from the Falling River North and South Fork confluence downstream to the mouth of Mollys Creek.	4A	Escherichia coli (E. coli)	2006	L	2.85
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Falling River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.88

Sources: Livestock (Grazing or Feeding Operations); Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L34R-02-BAC** **Little Falling River**

Cause Location: Little Falling River from its headwaters at the confluence of to its mouth on Falling River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 15.94 miles of impaired waters. 4ALRV005.17 (TMDL Monitoring),4ALRV007.84 (Ambient), 4ALRV009.74 (Ambient)(2018), and 4ALRV013.53 (Ambient)(2018)

4ALRV005.17 (TMDL Monitoring)(Little Falling River at Rt. 618 bridge) 2022: Three of 12 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. instantaneous criterion. 2020: Six of 12 samples in excess of the instantaneous criterion. 2016: Five of 11 samples in excess of the instantaneous criterion.

4ALRV007.84 (Ambient) (L. Falling River @ Rt. 646) Three of 12 samples in excess of the instantaneous criterion.

4ALRV009.74 (Ambient)(2018) (Little Falling River at Route 615) Three of 12 samples in excess of the instantaneous criterion.

4ALRV013.53 (Ambient)(2018)(L. Falling River @ Rt 649) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_LRV01A00 / Little Falling River / Little Falling River mainstem from the WQS designated public water supply (PWS) upstream end downstream to its mouth on Falling River.	4A	Escherichia coli (E. coli)	2006	L	0.81
VAW-L34R_LRV02A06 / Little Falling River / From the PWS WQS Section 5c to its confluence with Jacobs Creek	4A	Escherichia coli (E. coli)	2006	L	8.90
VAW-L34R_LRV03A06 / Little Falling River / From its confluence with Jacobs Creek to the Campbell/Appomattox Co line	4A	Escherichia coli (E. coli)	2012	L	4.41
VAW-L34R_LRV04A12 / Little Falling River / From the Campbell/Appomattox Co line to its headwaters at the confluence of Jonnican Branch, Steele Fork, and Marrowbone Creek	4A	Escherichia coli (E. coli)	2014	L	1.82

Little Falling River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.94

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L34R-03-BAC** Suck Creek

Cause Location: Suck Creek from its headwaters to the mouth.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 8.49 miles of impaired waters. 4ASUC001.31 (Ambient)

4ASUC001.31 (Ambient)(Suck Creek at Route 648) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_SUC01A06 / Suck Creek / From its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	8.49

Suck Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.49

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L34R-04-BAC** **Entry Creek**

Cause Location: Entry Creek from its headwaters to its mouth on Little Falling River

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 4.74 miles of impaired waters. 4AENT001.64 (Ambient)(2018)

4AENT001.64 (Ambient)(2018)(Entry Cr @ rt 601) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_ENT01A08 / Entry Creek / Entry Creek from its headwaters to its mouth on Little Falling River (RU70)	4A	Escherichia coli (E. coli)	2008	L	4.74

Entry Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.74

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L34R-05-BAC** **Hickory Creek**

Cause Location: Hickory Creek from its headwaters to the mouth.

Cause City/County: Appomattox County; Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 2.77 miles of impaired waters. 4AHCK000.51 (Ambient)(2018)

4AHCK000.51 (Ambient)(2018) (Hickory Creek @ Rt. 641) Zero of 2 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_HCK01A10 / Hickory Creek / Hickory Creek from its headwaters to the mouth (RU69).	4A	Escherichia coli (E. coli)	2010	L	2.77

Hickory Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.77

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L34R-06-BAC Dog Creek

Cause Location: Dog Creek from its headwaters to its mouth

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 2.55 miles of impaired waters. 4ADOG000.80 (Ambient)

4ADOG000.80 (Ambient)(Route 600) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_DOG01A10 / Dog Creek / Dog Creek from its headwaters to its mouth	4A	Escherichia coli (E. coli)	2010	L	2.66

Dog Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.66

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L34R-07-BEN** **Entry Creek, Unnamed Tributary**

Cause Location: From its headwaters to the mouth on Entry Creek

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AXVK001.44 (2009-2010 FPM)(UT Entry Cr w of Route 600 s of Route 639)

IM - very small intermittent stream within the PROBMON program. Sampling in the fall of 2010 was halted due to lack of flow. The site is within an agricultural watershed and cattle do have direct access to the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_XVK01A12 / Entry Creek, Unnamed Tributary / From its headwaters to the mouth on Entry Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.69

Entry Creek, Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.69

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L35R-01-BAC** Mollys Creek

Cause Location: Mollys Creek from its headwaters to its mouth on Falling River.

Cause City/County: Campbell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID.24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 17.59 miles of impaired waters. 4AMEY016.00 (Ambient, TMDL Monitoring)(2018)(Private Road off Route 655, below Rustburg) , 4AMEY010.46 (Ambient, TMDL)(2018)(Mollys Creek at Rt. 654 bridge), 4AMEY007.76 (Prob Ambient)(2018)(Route 650),and 4AMEY000.40 (TMDL Monitoring)(Mollys Creek at Rt. 648)

4AMEY016.00 (Ambient, TMDL Monitoring)(Private Road off Route 655, below Rustburg) 2020: Three of 6 samples in excess of the instantaneous criterion. 2018: Three of 6 samples in excess of the instantaneous criterion.

4AMEY010.46 (Ambient, TMDL)(Mollys Creek at Rt. 654 bridge) 2022: six of 18 samples in excess of the statistical threshold value of 410 cfu/100ml. 2020: ten of 18 samples in excess of the instantaneous criterion. 2018: three of 6 samples in excess of the instantaneous criterion.

4AMEY007.76 (Prob Ambient)(Route 650) 2022: Three of 12 samples in excess of the statistical threshold value of 410 cfu/100ml. 2020: Nine of 24 samples in excess of the instantaneous criterion. 2018: Five of 12 samples in excess of the instantaneous criterion.

4AMEY000.40 (TMDL Monitoring)(Mollys Creek at Rt. 648) Eight of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L35R_MEY01A00 / Mollys Creek / Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters (RU68).	4A	Escherichia coli (E. coli)	2006	L	2.0
VAW-L35R_MEY02A06 / Mollys Creek / Mollys Creek mainstem from the reservoir dam to its mouth at Falling River (RU68).	4A	Escherichia coli (E. coli)	2006	L	15.6

Mollys Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			17.6

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L35R-01-BEN** Mollys Creek

Cause Location: Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters.

Cause City/County: Campbell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4AMEY016.00 (2007-2008 Bio) (Private Road off Route 655, below Rustburg) The 2018 data window finds Aquatic Life Use impairment from three Virginia Stream Condition Index (VSCI) surveys with an average score of 41.5. Initial listing was based on benthic macroinvertebrate community data from 2007-2008. Agriculture watershed influences in addition to a small POTW several miles upstream. Bio 'IM' from four VSCI scores averaging 48.6 (2013: 37.9 S and 70.2 F; 2016: 32.9 S and 53.5 F)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L35R_MEY01A00 / Mollys Creek / Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters (RU68).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2

Mollys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L36R-01-BAC** Turnip Creek

Cause Location: Turnip Creek from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station IDs:

4ATIP002.55 (Ambient, TMDL)(2018)(Turnip Creek, Route 619 Bridge)

E. coli - 4/12 Exceedance Rate

4ATIP008.76 (TMDL Monitoring)(Route 40)

E. coli - 6/12 Exceedance Rate

4ATIP013.21 (TMDL Monitoring)(Route 756)

E. coli - 4/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_TIP01A00 / Turnip Creek / Buck Branch mainstem to its mouth on Roanoke River (RU74).	4A	Escherichia coli (E. coli)	2006	L	2.61
VAW-L36R_TIP02A06 / Turnip Creek, Middle / From the confluence with Buck Branch upstream to its confluence with an unnamed tributary at 35.049, -78.873 (RU74).	4A	Escherichia coli (E. coli)	2006	L	3.93
VAW-L36R_TIP02B22 / Turnip Creek, Upper / From its headwaters downstream to the confluence with an unnamed tributary at 35.049, -78.873 (RU74).	4A	Escherichia coli (E. coli)	2006	L	13.21

Turnip Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 19.75

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L36R-03-BAC Buckskin Creek

Cause Location: Buckskin Creek from its headwaters to its mouth on the Roanoke (Staunton) River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 7.64 miles of impaired waters.4ABCD001.70 (Ambient)(2018)(Buckskin Cr @ Rt. 624)

4ABCD001.70 (Ambient)(2018)(Buckskin Cr @ Rt. 624) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_BCD01A08 / Buckskin Creek / Buckskin Creek from its headwaters to its mouth on the Roanoke (Staunton) River (RU75).	4A	Escherichia coli (E. coli)	2008	L	7.65

Buckskin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.65

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L36R-04-BAC Armistead Branch

Cause Location: Armistead Branch from its headwaters to its mouth on Catawba Creek.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 5.12 miles of impaired waters. 4AATD002.66 (Ambient)(2018)(Armistead Br @ Rt. 627)

4AATD002.66 (Ambient)(2018)(Armistead Br @ Rt. 627) 0/0 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_ATD01A08 / Armistead Branch / Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek	4A	Escherichia coli (E. coli)	2010	L	3.20
VAW-L36R_ATD02A14 / Armistead Branch / Armistead Branch from its headwaters to the second unnamed tributary upstream of Route 627.	4A	Escherichia coli (E. coli)	2014	L	1.92

Armistead Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.12

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L36R-04-BEN** **Armistead Branch**

Cause Location: Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AATD002.66 (Ambient/2012 Bio)(Armistead Br @ Rt. 627)

IM - Lack of riparian vegetation and poor bank condition may be limiting the ability of 4AATD002.66 to support a diverse community. This station was sampled in an effort to follow up on seasonal variability of the upstream Probmon station (4AATD003.36). The probmon station is not accessible. Satellite imagery shows changes in land use upstream of 4AATD002.66 and this portion of the watershed should not be excluded in any future TMDL study.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_ATD01A08 / Armistead Branch / Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.2

Armistead Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.2

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L36R-05-BEN** Turnip Creek

Cause Location: Turnip Creek mainstem from its mouth on Roanoke River upstream to the confluence with an unnamed tributary at a point (35.049, -78.873).

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 data window finds the initial 6.53 mile Aquatic Life Use 303(d) listing on Turnip Creek based on benthic macroinvertebrate community collections.

4ATIP002.55 (RT. 619 Bridge) - Bio 'IM' from two 2019 VSCI scores of 58 (spring) and 57 (fall). Heavy sedimentation and unstable banks are likely stressors to the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_TIP01A00 / Turnip Creek / Buck Branch mainstem to its mouth on Roanoke River (RU74).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	2.61
VAW-L36R_TIP02A06 / Turnip Creek, Middle / From the confluence with Buck Branch upstream to its confluence with an unnamed tributary at 35.049, -78.873 (RU74).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.93

Turnip Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.54

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L37R-01-BAC** **Cub Creek**

Cause Location: From the Rough Creek Road crossing to the mouth at the Roanoke (Staunton) River

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Cub Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID.24391] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24391, 6/20/2006

Three stations are located within the 14.4 miles of impaired waters. 4ACUB002.21 (2006 Roanoke Bacteria TMDL)(2018)(RTE 649 (Coles Ferry Road)), 4ACUB005.46 (2006 Roanoke Bacteria TMDL)(RTE 619 (Cub Creek Church Rd)), and 4ACUB010.96 (Trend)(2018)(Route 40 Bridge)

4ACUB002.21 (2006 Roanoke Bacteria TMDL)(2018)(RTE 649 (Coles Ferry Road)) Three of 11 samples in excess of the instantaneous criterion.

4ACUB005.46 (2006 Roanoke Bacteria TMDL)(RTE 619 (Cub Creek Church Rd)) Three of 12 samples in excess of the instantaneous criterion.

4ACUB010.96 (Trend)(2018)(Route 40 Bridge) Seven of 35 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek (RU78).	4A	Escherichia coli (E. coli)	2008	L	5.59
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River (RU79).	4A	Escherichia coli (E. coli)	2006	L	8.80

Cub Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.39

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L37R-02-BAC** **Louse Creek**

Cause Location: Louse Creek from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 8.7 miles of impaired waters. 4ALOU001.16 (TMDL Monitoring)(Route 619) 4ALOU001.16 (TMDL Monitoring)(Route 619) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_LOU01A06 / Louse Creek / From its headwaters to the mouth on Cub Creek	4A	Escherichia coli (E. coli)	2006	L	8.71

Louse Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.71

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L37R-03-BAC** **Big Cub Creek**

Cause Location: Big Cub Creek from the confluence with Cub Creek upstream to its headwaters to include Left Hand Fork and tribs.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24391, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Cub Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID.24391] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24391, 6/20/2006

Two stations are located within the 33.66 miles of impaired waters. 4ABUB000.06 (Ambient, TMDL)(2018)(Route 701) and 4ABUB006.50 (TMDL Monitoring)

4ABUB000.06 (Ambient, TMDL)(2018)(Route 701) Six of 12 samples in excess of the instantaneous criterion.

4ABUB006.50 (TMDL Monitoring) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_BUB01A06 / Big Cub Creek / From the confluence with Cub Creek upstream to its headwaters to include Left Hand Fork and tribs (RU76).	4A	Escherichia coli (E. coli)	2006	L	33.69

Big Cub Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			33.69

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L37R-05-BAC** Terrys Creek

Cause Location: Terrys Creek from its headwaters to its mouth on Cub Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23315,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 7.14 miles of impaired waters. 4ATYS001.25 (Ambient)(2018)(Terrys Creek at Stockdale Road)

4ATYS001.25 (Ambient)(2018)(Terry Creek at Stockdale Road) Eight of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_TYS01A08 / Terrys Creek / Terrys Creek from its headwaters to its mouth on Cub Creek (RU78).	4A	Escherichia coli (E. coli)	2008	L	7.14

Terrys Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.14

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L37R-05-BEN** Terrys Creek

Cause Location: Terrys Creek from its headwaters to its mouth on Cub Creek.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 data window finds the initial Aquatic Life Use impairment on Terrys Creek based on benthic macroinvertebrate community collections. 4ATYS002.51 (Route 667 (Hillcroft Road)) - The 2022 data window finds Bio 'IM' from 3 VSCI scores: 38 and 41.6 (spring 2018 and 2019, respectively); 48.8 (fall 2019). Heavy sediment deposition in this stream is stressing the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_TYS01A08 / Terrys Creek / Terrys Creek from its headwaters to its mouth on Cub Creek (RU78).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	7.14

Terrys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.14

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L38L-01-DO Conner Lake

Cause Location: Conner Lake

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID: 4AHTA003.26 (Station 1 - Conner Lake) 2022: Dissolved Oxygen - 2/19 Exceedance Rate
 2020: Dissolved Oxygen - 6/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38L_HTA01L00 / Conner Lake / On Hunting Creek.	5A	Dissolved Oxygen	2018	L	101.93

Conner Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	101.93	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L38R-02-BAC** **Black Walnut Creek**

Cause Location: Black Walnut Creek from its headwaters to the mouth.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 6.39 miles of impaired waters. 4ABWC001.00 (Ambient)(Route 600)

4ABWC001.00 (Ambient) (Route 600)Four of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38R_BWC01A06 / Black Walnut Creek / From the headwaters to the mouth	4A	Escherichia coli (E. coli)	2014	L	6.39

Black Walnut Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.39

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L38R-03-BAC** **Hunting Creek**

Cause Location: Hunting Creek from the mouth of Conner Lake downstream to the Roanoke River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 3.24 miles of impaired waters. 4AHTA000.77 (Ambient)(Route 617)

4AHTA000.77 (Ambient)(Route 617) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38R_HTA01A06 / Hunting Creek / From the mouth of Conner Lake downstream to the Roanoke River	4A	Escherichia coli (E. coli)	2014	L	3.24

Hunting Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.24

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L39R-01-BAC** Ash Camp Creek

Cause Location: Ash Camp Creek from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 8.17 miles of impaired waters. 4AACC002.60 (TMDL Monitoring)(Station 1 -Route 654 Bridge) and 4AACC004.87 (TMDL Monitoring)(Ash Camp Cr @Private Rd 0.6 mi from Rt40)

4AACC002.60 (TMDL Monitoring)(Station 1 - Route 654 Bridge) Four of 7 samples in excess of the instantaneous criterion.

4AACC004.87 (TMDL Monitoring)(Ash Camp Cr @Private Rd 0.6 mi from Rt40)Two of 6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ACC01A98 / Ash Camp Creek / Headwaters to Roanoke Creek.	4A	Fecal Coliform	2004	L	8.19

Ash Camp Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			8.19

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L39R-01-BEN** Ash Camp Creek

Cause Location: Ash Camp Creek from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Ash Camp Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 4/26/2004. [Fed. ID.24393] and SWCB approval on 8/31/2004 for this 2004 303(d) Listed impairment to the benthic community.

Station IDs:

4AACC001.75 (2002 Probabilistic Monitoring)(0.85 mi downstream of rt 654 bridge)

IM - Heavy rains occurred within a week of the fall 2002 sampling event.

The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.

4AACC002.60 (Benthic, Ash Camp Creek Source Assessment SS)

IM - A slight improvement has been noted at this site during recent sampling. Sediment continues to affect the stream community negatively.

4AACC004.87 (Benthic, Ash Camp Creek Source Assessment SS)

IM - A slight improvement has been noted at this site during recent sampling. Sediment and nutrients continue to affect the stream community negatively.

4AACC007.62 (Benthic)

J - 50 yds below Keysville STP discharge, may not be appropriate for benthic assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ACC01A98 / Ash Camp Creek / Headwaters to Roanoke Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	8.19

Ash Camp Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.19

Sources: Crop Production (Crop Land or Dry Land); Erosion from Derelict Land (Barren Land); Managed Pasture Grazing; Municipal Point Source Discharges

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Roanoke and Yadkin River Basins

Cause Group Code: **L39R-02-BAC** Twittys Creek

Cause Location: Twittys Creek from its headwaters to the mouth on Roanoke Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 14.79 miles of impaired waters.4ATWT000.32 (Ambient)(Twittys Creek @ Sylvan Hill Rd.)

4ATWT000.32 (Ambient)(Twittys Creek @ Sylvan Hill Rd.) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_TWT01A98 / Twittys Creek / Headwaters to Roanoke Creek	4A	Escherichia coli (E. coli)	2012	L	14.79

Twittys Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.79

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L39R-02-BEN** Twittys Creek

Cause Location: Twittys Creek from its headwaters to the mouth on Roanoke Creek.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Twittys Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 9/30/2004. [Fed. ID.24392] and SWCB approval on 3/15/2005 for this 2004 303(d) Listed impairment to the benthic community.

Station IDs: 4ATWT003.36 (Station 2 - Route 642 Bridge) - The 2018 data window finds Aquatic Life Use impairment from four Virginia Stream Condition Index (VSCI) surveys (2011, 2016) averaging 48.7. The Implementation Plan is complete. A modest improvement in VSCI scores was observed over previous sampling events.

4ATWT006.40 (2008 Bio)(Station 1 - Route 47 Bridge)

IM - two 2011 VSCI surveys: Spring 30.7, Fall 44.5. The Implementation Plan is complete. An improvement in VSCI scores was observed over previous sampling events. A major VPDES discharger ceased operation in early 2005 and may be the cause of the improvement.

4ATWT008.59 (new REF dwnstrm of Town Lk @ power lines) IM - Reference Station - 2004 Twittys Creek TMDL

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_TWT01A98 / Twittys Creek / Headwaters to Roanoke Creek	4A	Benthic Macroinvertebrates Bioassessments	1998	L	14.79

Twittys Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			14.79

Sources: Clean Sediments; Non-Point Source; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: L39R-03-BAC Horsepen Creek

Cause Location: Horsepen Creek from Rt. 47 to Reynolds Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The 2022 data window extends the Recreation Use impairment based on additional E.coli data collection at an upstream station.

4AHEN002.16 (Route 637 Bridge) Four of 12 samples in excess of the instantaneous criterion. 4AHEN004.27 (Horsepen Cr @ Rt. 612) - E.coli exceeds the two or more Statistical Threshold Value (STV) hits in the same 90-day period with fewer than 10 samples criterion during the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_HEN01A00 / Horsepen Creek / Little Horsepen Creek to Reynolds Creek.	4A	Escherichia coli (E. coli)	2012	L	1.87
VAW-L39R_HEN02A04 / Horsepen Creek / Horsepen Creek from Route 47 downstream to Little Horsepen Creek	4A	Escherichia coli (E. coli)	2022	L	5.32

Horsepen Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.19

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-03-BEN** **Horsepen Creek**

Cause Location: Horsepen Creek from Route 47 downstream to Little Horsepen Creek

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station IDs: 4AHEN004.74 (2001 FPM)(above Route 612 in Charlotte County) IM - Potential sediment impacts and lack of instream habitat.

4AHEN004.27 (2009/2012/2015/2018-2020 Bio)(Above Route 612 in Charlotte County) The 2022 data window finds Aquatic Life Use impairment from seven Virginia Stream Condition Index (VSCI) surveys (2015, 2018-2020) with an average score of 50 (Spring) and Av 58 (Fall). The 2018 data window finds Aquatic Life Use impairment from four Virginia Stream Condition Index (VSCI) surveys (2012, 2015) with an average score of 59.6. Stream reach exhibits significant seasonal variation. Additional data were collected in 2012 and 2015 and characterize the stream community as unbalanced. Sediment and bank scour seem to be likely stressors within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_HEN02A04 / Horsepen Creek / Horsepen Creek from Route 47 downstream to Little Horsepen Creek	5A	Benthic Macroinvertebrates Bioassessments	2008	H	5.32

Horsepen Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.32

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L39R-04-BAC Wards Fork Creek

Cause Location: Wards Fork Creek from an unnamed tributary at Rivermile 5.73 to its mouth on Roanoke Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 5.31 miles of impaired waters.4AWFC002.12 (Ambient)(Route 645 Bridge)

4AWFC002.12 (Ambient)(Route 645 Bridge) 2022: Nine of 35 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. 2020: 14 of 36 samples in excess of the instantaneous criterion. 2018: 12 of 36 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_WFC01A00 / Wards Fork Creek / Wards Fork Creek from an unnamed tributary at rivermile 5.73 downstream to its confluence with Roanoke Creek (RU83).	4A	Escherichia coli (E. coli)	2008	L	5.31

Wards Fork Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.31

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L39R-05-BAC Roanoke Creek

Cause Location: Roanoke Creek from Wards Fork Creek to its mouth on the Roanoke (Staunton) River.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 10.51 miles of impaired waters. 4AROC001.00 (TMDL Monitoring)(Roanoke Cr. @ Roanoke Station Rd.) and 4AROC005.35 (Ambient)(Roanoke Creek at the confluence with TWI)

4AROC001.00 (TMDL Monitoring)(Roanoke Cr. @ Roanoke Station Rd.) 2022: Two of 12 samples in excess of the Statistical Threshold Value of 410 cfu/100ml. 2020: Two of 12 samples in excess of the instantaneous criterion. Three of 12 samples in excess of the instantaneous criterion.

4AROC005.35 (Ambient) (Roanoke Creek at the confluence with TWI) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ROC01A98 / Roanoke Creek / Wards Fork Creek to Horsepen Creek.	4A	Escherichia coli (E. coli)	2010	L	7.86
VAW-L39R_ROC02A06 / Roanoke Creek / From Horsepen Creek to the mouth at the Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2006	L	2.65

Roanoke Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 10.51

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-05-HG** **Roanoke Creek**

Cause Location: Roanoke Creek from Wards Fork Creek to its mouth on the Roanoke (Staunton) River.

Cause City/County: Charlotte County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Station ID:

4AROC005.35 (2006 FT/Sed)[Roanoke Creek at the confluence with TWI]

Hg 2 Species

largemouth bass 0.313

spotted bass 0.345

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov/> for more information about mercury contamination and <http://www.vdh.virginia.gov> for VDH Advisories or Bans.

4AROC005.35 (2006 FT/Sed)[Roanoke Creek at the confluence with TWI] - The initial 2010 303(d) Listing is based on 2006 fish tissue analysis where mercury (Hg) is found in two species; largemouth bass at 0.313ppm and spotted bass at 0.345ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ROC01A98 / Roanoke Creek / Wards Fork Creek to Horsepen Creek.	5A	Mercury in Fish Tissue	2010	L	7.86
VAW-L39R_ROC02A06 / Roanoke Creek / From Horsepen Creek to the mouth at the Roanoke (Staunton) River	5A	Mercury in Fish Tissue	2010	L	2.65

Roanoke Creek

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.51

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-06-BAC** Middle Branch Wards Fork Creek

Cause Location: Middle Branch Wards Fork Creek from its headwaters to its mouth on Wards Fork Creek

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 7.4 miles of impaired waters. 4AWMB001.07 (Ambient)(2018)(Middle Br. Wards Fork @ Virginian)

4AWMB001.07 (Ambient)(2018)(Middle Br. Wards Fork @ Virginian)

Seven of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_WMB01A08 / Middle Branch Wards Fork Creek / Middle Branch Wards Fork Creek from its headwaters to its mouth on Wards Fork Creek	4A	Escherichia coli (E. coli)	2008	L	7.4

Middle Branch Wards Fork Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.4

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-07-BAC** **Little Roanoke Creek**

Cause Location: Roanoke Creek from the confluence with Wards Fork Cr. upstream to its confluence with Ash Camp Creek (RU82).

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 4.46 miles of impaired waters.

4ALRO003.34 (Rt. 47 Bridge) The 2018 data window finds the initial Recreational listing based on data from this station. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml criterion in three of 24 samples. Excursions range from 399 to greater than 24,000 cfu/100 ml. Three of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_LRO01A00 / Little Roanoke Creek / Roanoke Creek from the confluence with Wards Fork Cr. upstream to its confluence with Ash Camp Creek (RU82).	4A	Escherichia coli (E. coli)	2018	L	4.47

Little Roanoke Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.47

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-07-BEN** **Little Roanoke Creek**

Cause Location: Little Roanoke Creek from its headwaters to its confluence with Dunnivant Creek.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ALRO010.68 (2007 FPM)(L. Roanoke Cr upst of 604 dwnstr of dam)

IM - exhibited high seasonal variation. The spring sample half the taxa of the fall sample and both samples were dominated by tolerant taxa (Hydropsychidae in the spring and Chironomidae in the fall).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_LRO02A10 / Little Roanoke Creek / Little Roanoke Creek from its headwaters to its confluence with Dunnivant Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	10.16

Little Roanoke Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.16

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-08-BEN** **Bush Ford Branch**

Cause Location: Bush Ford Branch from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABWB000.32 (2008 FPM)(Bush Ford Br - SW of Rt 47)

IM Benthic Assessment

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_BWB01A10 / Bush Ford Branch / Bush Ford Branch from its headwaters to the mouth.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.1

Bush Ford Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.1

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L39R-09-BAC Spencer Creek, UT

Cause Location: Unnamed tributary to Spencer Creek from its headwaters to its confluence with Spencer Creek (RU81).

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED: 2022 23316, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The Recreation Use impairment on Unnamed Tributary to Spencer Creek is nested in the aforementioned TMDL.

4AXVO000.60 (UT Spencer Creek at Rt.653 Maple Ln.) - E.coli exceeds the two or more Statistical Threshold Value (STV) hits in the same 90-day period with fewer than 10 samples criterion during the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_XVO01A14 / Spencer Creek, UT / Unnamed tributary to Spencer Creek from its headwaters to its confluence with Spencer Creek (RU81).	4A	Escherichia coli (E. coli)	2022	L	2.9

Spencer Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.9

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L39R-09-BEN Spencer Creek, UT

Cause Location: Unnamed tributary to Spencer Creek from its headwaters to its confluence with Spencer Creek (RU81).

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AXVO000.50 (2012 FPM)(UT Spencer just west of Rt. 653). The Aquatic Life Use is impaired based on two 2012 Virginia Stream Condition Index (VSCI) surveys: Spring 40.8 and Fall 36.1. This stream was incised and had a sedimentation problem. The habitat was marginal and the banks were unstable. 2022: Bio 'IM' from six VSCI Scores avg 48 (spring) and 49 (fall) in 2018-20. Sedimentation is a likely stressor to the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_XVO01A14 / Spencer Creek, UT / Unnamed tributary to Spencer Creek from its headwaters to its confluence with Spencer Creek (RU81).	5A	Benthic Macroinvertebrates Bioassessments	2014	H	2.9

Spencer Creek, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.9

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-10-BAC** **Little Roanoke Creek**

Cause Location: Little Roanoke Creek from its headwaters to its confluence with Dunnivant Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

4ALRO010.18 - E.coli exceeds the 235 cfu/100 ml instantaneous criterion in five out of 12 samples during the 2020 data window. 2 or more STV hits in the same 90-day period with < 10 samples during the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_LRO02A10 / Little Roanoke Creek / Little Roanoke Creek from its headwaters to its confluence with Dunnivant Creek.	4A	Escherichia coli (E. coli)	2020	L	10.16

Little Roanoke Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.16

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-01-BAC** Berles Creek

Cause Location: Berles Creek from its headwaters to Sandy Creek.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 2.28 miles of impaired waters. 4ABLE001.21 (2018)(Berles Cr. @ Rt. 631, DSS Vaughan Farm)

4ABLE001.21 (2018)(Berles Cr. @ Rt. 631, DSS Vaughan Farm) 0/0 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BLE01A06 / Berles Creek / Headwaters to Sandy Creek	4A	Escherichia coli (E. coli)	2006	L	2.28

Berles Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.28

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-01-BEN** **Berles Creek**

Cause Location: Berles Creek from its headwaters to Sandy Creek.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: NESTED 2014: 23316, 06/20/2006 Station ID: 4ABLE001.21 (Ambient, 2010/2014 Bio)(Berles Cr. @ Rt. 631, DSS Vaughan Farm) E. coli - 3/6 Violation Rate IM - Heavy to moderate embeddedness observed in 2014 samples. Sedimentation is a likely stressor One 2018 VSCI (47.7, spring) and two 2014 VSCI scores (29.5 spring and 48.5 fall).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BLE01A06 / Berles Creek / Headwaters to Sandy Creek	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.28

Berles Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.28

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-04-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its headwaters to mouth on Roanoke (Staunton) River

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 5.4 miles of impaired waters. 4ASLA001.52 (Ambient)(Route 608)

4ASLA001.52 (Ambient)(Route 608) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_SLA01A06 / Sandy Creek / Headwaters to mouth on Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2012	L	5.41

Sandy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.41

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L40R-05-BAC **Unnamed Tributary to Buffalo Creek**

Cause Location: Unnamed Tributary to Buffalo Creek from its headwaters to the mouth.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.24394 and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24394, 6/20/2006

One station is located within the 1.5 miles of impaired waters.

4AXMC000.54(Route 605)

4AXMC000.54(Route 605) Two of 5 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_XMC01A06 / Buffalo Creek, Unnamed Tributary / From its headwaters to the mouth (RU87).	4A	Escherichia coli (E. coli)	2002	L	1.5

Unnamed Tributary to Buffalo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.5

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-06-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at river mile 2.3 to the Roanoke (Staunton) River.

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Buffalo Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID.24395] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24395, 6/20/2006

One station is located within the 2.34 miles of impaired waters. 4ABNN001.85 (Route 608)

4ABNN001.85(Route 608) -13 of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BNN01A06 / Buffalo Creek / Unnamed tributary at river mile 2.3 to the Roanoke River.	4A	Escherichia coli (E. coli)	2006	L	2.36

Buffalo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.36

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L40R-06-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at river mile 2.3 to the Roanoke (Staunton) River.

Cause City/County: Charlotte County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 4ABNN002.17 (2012 Bio)(Upstream of Route 608) Five VSCI scores show Bio 'IM' (2014, 2016, 2018) with an average of 59.1. Station shows seasonal variability below the impairment threshold. Habitat scores and Taxa lists indicate bank scour and sedimentation to be likely stressors within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BNN01A06 / Buffalo Creek / Unnamed tributary at river mile 2.3 to the Roanoke River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.36

Buffalo Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.36

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L40R-07-BAC** Cargills Creek

Cause Location: Cargills Creek from its headwaters to its mouth on Kerr Reservoir

Cause City/County: Charlotte County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 4.27 miles of impaired waters. 4ACAR001.70 (Ambient)(2018)(Cargills at Cargills Creek Road)

4ACAR001.70 (Ambient)(2018)((Cargills at Cargills Creek Road)) Three of 10 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_CAR01A08 / Cargills Creek / Cargills Creek from its headwaters to its mouth on Kerr Reservoir (RU90).	4A	Escherichia coli (E. coli)	2008	L	4.27

Cargills Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.27

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L41R-01-BAC** **Difficult Creek**

Cause Location: Difficult Creek from East Prong to Ashcake Creek.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID.23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 6.99 miles of impaired waters. 4ADFF004.90 (2018)(Difficult Cr. @ Rt. 720, DSS Brian Farm)

and 4ADFF009.01 (2018)(Difficult Cr. @ Rt. 360, USS Brian Farm)

4ADFF004.90 (2018)(Difficult Cr. @ Rt. 720, DSS Brian Farm)

Three of 12 samples in excess of the instantaneous criterion.

4ADFF009.01 (2018) (Difficult Cr. @ Rt. 360, USS Brian Farm)One of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L41R_DFF01A02 / Difficult Creek / East Prong to Ashcake Creek	4A	Escherichia coli (E. coli)	2008	L	7

Difficult Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L42L-01-DO **Talbott Reservoir**

Cause Location: Talbott Reservoir

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Talbott Reservoir located in Patrick County is listed for Aquatic Life Use during the 2020 303(d)/305(b) Integrated Report data window.

4ADAN194.10 (Station #3 at Dam) 2022 data window reports 136 of 277 DO measurements in excess of the Class VI DO criterion of 6.0 mg/L. 2020 data window reports 59 of 194 DO measurements in excess of the Class VI DO criterion of 6.0 mg/L. The range of values in excess of the criterion are between 0.14 and 5.97.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN01A02 / Talbott Reservoir / Talbott Reservoir from its impounding structure upstream to its backwaters (RD01).	5C	Dissolved Oxygen	2020	L	140.51

Talbott Reservoir

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		140.51	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L42L-01-HG Talbott Reservoir

Cause Location: Talbott Reservoir

Cause City/County: Patrick County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/> for VDH Advisories or Bans.

4ADAN196.09- (Talbott Res. Arm of Reservoir) 2007 fish tissue collection finds two species in excess of the WQS TV based 0.3 ppm criterion; largemouth bass (4-fish composite at 0.394 ppm) and yellow bullhead catfish (2 fish composite at 0.429 ppm).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN01A02 / Talbott Reservoir / Talbott Reservoir from its impounding structure upstream to its backwaters (RD01).	5A	Mercury in Fish Tissue	2010	L	140.51

Talbott Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	140.51	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L42L-01-TEMP** **Talbott Reservoir**

Cause Location: Talbott Reservoir

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: Talbott Reservoir located in Patrick County is listed for Aquatic Life Use during the 2020 303(d)/305(b) Integrated Report data window.

4ADAN194.10 (Station #3 at Dam) The reservoir 2022 data window reports 96 out of 420 Temperature measurements in excess of the Class VI temperature criterion of 20 C. 2020 data window reports 143 of 420 Temperature measurements in excess of the Class VI temperature criterion of 20 C. The range of values in excess of the criterion are between 20.02 and 26.35.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN01A02 / Talbott Reservoir / Talbott Reservoir from its impounding structure upstream to its backwaters (RD01).	5C	Temperature	2020	L	140.51

Talbott Reservoir

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	140.51	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L42L-06-BAC Townes Reservoir

Cause Location: Townes Reservoir from its impounding structure upstream to its backwaters (RD01).

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008 (Fed ID 35748) and State Water Control Board approved 4/28/2009. Townes Creek Reservoir located in Patrick County is initially listed for the Recreation Use during the 2018 303(d)/305(b) Integrated Report data window. This impairment is nested in the Dan River Bacteria TMDL Study.

4ADAN187.94 (Townes Reservoir at Dam)

2022: E.coli- One STV exceedances but insufficient data to analyze geomean. Impairment carries. 2020 data window reports 2 of 14 Escherichia coli (E.coli) measurements exceed the 235 cfu/100 ml instantaneous criterion. 2018 data window reports 2 of 14 Escherichia coli (E.coli) measurements exceed the 235 cfu/100 ml instantaneous criterion. The excursions are 301 cfu/100 ml and 487 cfu/100 ml.

Note: The initial listing date was in 2018 based on the instantaneous 235 WQS, which reports 2 of 14 Escherichia coli (E.coli) measurements exceed the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN02A02 / Townes Reservoir / Townes Reservoir from its impounding structure upstream to its backwaters (RD01).	4A	Escherichia coli (E. coli)	2018	L	28.13

Townes Reservoir

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		28.13	

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L42L-06-PH Townes Reservoir

Cause Location: Townes Reservoir from its impounding structure upstream to its backwaters (RD01).

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Townes Creek Reservoir located in Patrick County is listed for Aquatic Life Use during the 2018 303(d)/305(b) Integrated Report data window.

4ADAN187.94 (Townes Reservoir at Dam) The reservoir 2022 data window reports 2 of 17 pH measurements in excess of the Class IV pH acidity criterion of 9.0. The reservoir 2018 data window reports 2 of 17 pH measurements in excess of the Class IV pH acidity criterion of 9.0. The two values in excess of the criterion are at 9.1 (6/30/2015) and one at 9.7 (7/28/15)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN02A02 / Townes Reservoir / Townes Reservoir from its impounding structure upstream to its backwaters (RD01).	5A	pH	2018	L	28.13

Townes Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		28.13	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L42R-01-BAC** **Little Dan River**

Cause Location: Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Escherichia coli (E.coli) bacteria results render the Recreational Use impaired for 7.26 miles in 2008. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35748] and SWCB approved 4/28/2009. The Dan River Bactria TMDL did not specifically address the Little Dan River but is encompassed by the TMDL Watershed. These waters are nested within the Dan River Bacteria TMDL Watershed and allocations via the Study. These waters are Category 4A.

4ALDR004.50- (Rt. 645 Bridge) There are no additional data beyond the 2008 Integrated Report (IR) where two of nine E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values are 250 and 500 cfu/100 ml.

4ALDR002.61- (Rt. 649 Bridge (Gammons Rd.)) No additional data beyond the 2016 data window where two of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. The excessive values are 250 and 383 cfu/100 ml. Within the 2008 IR, E.coli observations showed three of nine are in excess of the instantaneous criterion. Values exceeding the criterion range from 400 to 700 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_LDR01A02 / Little Dan River / Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek Class V (RD03).	4A	Escherichia coli (E. coli)	2008	L	7.27

Little Dan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.27

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L42R-01-TEMP Dan River

Cause Location: The Dan River from the Pinnacles Power House downstream to the VA-NC State Line in Patrick County.

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The Dan River 2002 temperature impairment of 9.66 miles is extended 5.81 miles upstream with additional data obtained at 4ADAN181.10 within the 2008 data window. The Aquatic Life Use remains impaired for temperature (Category 5C).

4ADAN181.10- (Rt. 648 Bridge near Kibler (Kibler Valley Rd.)) There are no additional data beyond the 2014 Integrated Report (IR). Temperature exceedances of the 21°C Class V criterion are found in three of 12 measurements in 2014. The three excursions occur on 6/29/2011 (21.2°C), 8/25/2011 (21.4°C) and 7/31/2012 (21.7°C). There are no additional temperature data within the 2010 and 2012 data windows. The 2008 assessment records two of nine temperature measurements exceed the 21°C Class V stockable trout water criterion. These exceedances occur on 8/24/2005 at 21.8°C and 22.3°C on 8/30/2006 within both the 2008 and 2010 data windows.

4ADAN169.57- (Rt. 645 Bridge, VA-NC Stateline) One of 12 temperature measurements exceeds during the 2020 data window at 23°C (7/25/17). There are no additional temperature data beyond the 2008 assessment where exceedances of the 21°C Class V criterion are found in two of nine measurements within the 2008 and 2010 data windows. The two excursions occur on the same days as at 4ADAN181.10; 8/24/2005 at 21.6°C and 8/30/2006 at 22.5°C. Previous assessment cycles have found temperature exceeds the criterion in one of 11 measurements taken within the 2004 assessment window (1998 - 2002- Station last sampled in May 2000). There were no additional data within the 2006 data window. The 2002 assessment and the original 303(d) Listing Cycle found three of 19 excursions of the criterion. The exceedances are 21.5 °C (1996), 21.2 °C (1997) and 23.6 °C (1998), all occurring in the month of July.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN01A00 / Dan River / Dan River mainstem from the VA/NC State Line upstream to the Squirrel Creek mouth on the Dan River Class V (RD02).	5C	Temperature	2002	L	9.67
VAW-L42R_DAN02A02 / Dan River / Dan River mainstem from the Squirrel Creek mouth upstream to the Pinnacles Power House Class V (RD02).	5C	Temperature	2008	L	5.81

Dan River

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			15.48

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L42R-02-BAC** **Dan River**

Cause Location: The Dan River mainstem from the backwaters of Talbott Reservoir upstream to the Cockram Mill Pond Dam.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This initial 2012 impairment is nested within the approved Dan River Bacteria TMDL. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008. Fed ID 35748 and received SWCB approval on 4/28/2009.

4ADAN205.79 (Dan River Road- Rt. 632 Bridge) 2020 & 2018 data window where six of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion. 2016 data window where eleven of 24 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is from 272 cfu/100 ml to greater than 2000. 2012 IR where five of 12 escherichia coli (E.coli) samples exceed the instantaneous criterion ranging from 320 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN05A02 / Dan River / Dan River mainstem from the backwaters of Talbott Reservoir upstream to the mouth of Tuggle Creek Class IV (RD01).	4A	Escherichia coli (E. coli)	2012	L	2.73
VAW-L42R_DAN06A02 / Dan River / Dan River mainstem from the mouth of Tuggle Creek upstream to the Cockram Mill Pond Dam Class IV (RD01).	4A	Escherichia coli (E. coli)	2012	L	5.73

Dan River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.46

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L42R-03-BAC** Elk Creek

Cause Location: Elk Creek from the state line upstream to it's headwaters.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This initial 2012 Elk Creek impairment is nested within the approved Dan River Bacteria TMDL. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008. Fed ID 35748 and received SWCB approval on 4/28/2009.

4AELK005.44- The 2018 IR finds five of 12 escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion. Excursions range from 400 to greater than 1,300 cfu/100 ml. There are no additional data beyond the 2012 IR where escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion in four of 12 samples. The range of exceeding values is from 300 to 1200 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_ELK01A12 / Elk Creek / Elk Creek from the state line upstream to it's headwaters (RD04).	4A	Escherichia coli (E. coli)	2012	L	7.78

Elk Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.78

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L42R-04-BAC Peters Creek

Cause Location: Peters Creek mainstem from the VA/NC State Line upstream to the confluence of Ditch Creek.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreational Use impairment on Peters Creek is an initial 2012 Listing. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 Fed ID 35748 and SWCB approval on 4/28/2009. These waters are nested within the Dan River Bacteria TMDL.

4APRS008.76 (Five Forks Rd. near State Line- Rt. 660) Within the 2018 data window, four of 12 E.coli samples exceeded the 235 cfu/100 ml instantaneous criterion. The range of excursions was 262 to 1,935 cru/100 ml. The 2012 IR found four of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion. The range of exceeding values is from 250 cfu/100 ml to 1700.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_PRS01A02 / Peters Creek / Peters Creek mainstem from the VA/NC State Line upstream to the confluence of Ditch Creek Class IV (RD05).	4A	Escherichia coli (E. coli)	2012	L	5.97

Peters Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.97

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L42R-05-BAC** **Dan River**

Cause Location: The Dan River from the Pinnacles Power House downstream to the VA-NC State Line in Patrick County.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008 (Fed ID 35748) and State Water Control Board approved 4/28/2009. The 2014 initially 303(d) Listed bacteria impairment is nested within the Dan River Bacteria TMDL Watershed and allocations via the Study. A portion of these relisted Dan River waters from the mouth of Squirrel Creek downstream to the VA/NC State Line was 303(d) Listed for fecal coliform in 1998 and delisted in 2002 (10.41 miles). The waters are relisted with the 2014 Integrated Report (IR) for escherichia coli (E.coli). These waters are Category 4A. The 2014 relisted bacteria impairment extends 15.47 miles.

4ADAN181.10- (Rt. 648 Bridge near Kibler (Kibler Valley Rd.)) Two of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion at 1150 and greater than 2000 cfu/100 ml within the 2014 data window. There are no additional data beyond the 2014 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN01A00 / Dan River / Dan River mainstem from the VA/NC State Line upstream to the Squirrel Creek mouth on the Dan River Class V (RD02).	4A	Escherichia coli (E. coli)	2014	L	9.67
VAW-L42R_DAN02A02 / Dan River / Dan River mainstem from the Squirrel Creek mouth upstream to the Pinnacles Power House Class V (RD02).	4A	Escherichia coli (E. coli)	2014	L	5.81

Dan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.48

Sources: Livestock (Grazing or Feeding Operations); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L43R-01-BAC** **South Mayo River**

Cause Location: The upper limit is 0.3 miles upstream of the Wilson Creek mouth (near Dobyns) on the South Mayo River and extends downstream to the Virginia / North Carolina State Line.

Cause City/County: Henry County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The South Mayo River Bacteria TMDL Load Duration Study is U.S. EPA approved 2/27/2004 and SWCB approved 6/17/2004 for the original 1998 303(d) Listed 5.78 mile impairment. Extensions described below were not specifically addressed by the Load Duration TMDL. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the extensions described below and are nested within the Bacteria TMDL. Additional data collection causes the original 1998 bacteria impairment (from Russell Creek mouth downstream to the mouth of Spoon Creek) to be extended 20.67 miles upstream with the 2004 Integrated Report (IR). The 2004 IR also extends the original listed bacteria impairment 10.97 miles downstream for a total impaired mileage of 37.47.

The original bacteria impairment (5.83 mi) is based on fecal coliform (FC) bacteria data producing a greater than 10% exceedance rate of the former 1998 1000 cfu/100 ml instantaneous criterion at station 4ASMR016.09 (Rt. 700 Bridge at the USGS gaging station). Additional data collection and application of the former FC 400 cfu/100 ml instantaneous criterion results in the 2004 IR extension upstream from 2 stations 4ASMR033.98 (Rt. 787 Bridge West of Stuart) and 4ASMR027.44 (Rt. 681 Bridge South of Stuart). The 2004 10.97 mile downstream extension in watershed L45 results from additional FC data collection at station 4ASMR004.14 (Rt. 695 Bridge).

Station 4ASMR033.98 (Rt. 787 Bridge West of Stuart) There are no additional data beyond the 2010 IR. 2010: 2/12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion with exceeding values of 420 and 450 cfu/100 ml. 2008: 2/12 FC samples exceed the former 400 cfu/100 ml instantaneous criterion at 900 and 1200 cfu/100 ml. 2006: 2/15 FC exceedances with the same exceedance range as 2008. 2004: initial 303(d) Listing Cycle 5/20 FC samples exceeding values range from 500-1200 cfu/100 ml. (Note: 4ASMR033.98 is a 1999 Federal Consent Decree Attachment B station for FC bacteria. The station was not 2002 303(d) Listed as there are no exceedances of the former 1000 cfu/100 ml criterion from 19 samples within the 2002 data window.)

4ASMR027.44- (Rt. 681 Bridge South of Stuart) 2016 IR: 1/11 value of 300 cfu/100 ml. Delisting of this station is not proposed as data from station 4ASMR016.09 shows impairment and upstream station 4ASMR033.98 has no additional data to indicate improved conditions. There are no additional data beyond the 2010 where 4/12 E.coli samples exceed ranging from 320 to greater than 2000 cfu/100 ml. 2008 and 2006 IRs: 2/12 FC samples exceed the former 400 cfu/100 ml instantaneous criterion at 1400 and 1700 cfu/100 ml. 2004 IR: initial 303(d) Listing Cycle, 2/9 samples and the same range of exceedance.

4ASMR016.09- (Rt. 700 Bridge at the USGS gaging station) 2020: 12/36 E.coli exceedances. 2018: 8/36 excursions range from 275 to greater than 4,000 cfu/100ml. 2016: 6/36 E.coli exceedances range from 300 cfu/100 ml to greater than 2000. 2012 and 2014: 11/36 range of exceedance from 300 to greater than 2000 cfu/100 ml for both cycles. 2010: 15/41 E.coli exceedances from 250 to greater than 2000 cfu/100 ml. 2008: 11/33 range of exceedance from 250 to greater than 2000 cfu/100 ml. 2006: 8/20 with the same range of exceedance as 2008. 2004: 1/3.

4ASMR004.14- (Rt. 695 Bridge) There are no additional data beyond the 2008 IR where 4/17 E.coli exceedances occur ranging from 350-700 cfu/100 ml within the 2008 and 2010 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_SMR02A02 / South Mayo River / South Mayo River mainstem from the Anglin Branch confluence downstream to the Russell Creek confluence on the South Mayo River.	4A	Escherichia coli (E. coli)	2010	L	8.16

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_SMR03A02 / South Mayo River / South Mayo River mainstem from the Town of Stuart POTW downstream to the confluence of Anglin Branch.	4A	Escherichia coli (E. coli)	2010	L	4.61
VAW-L43R_SMR03B02 / South Mayo River / South Fork Mayo River mainstem from the confluence of the North Fork South Mayo River downstream to the Town of Stuart POTW.	4A	Escherichia coli (E. coli)	2010	L	2.32
VAW-L43R_SMR04A00 / South Mayo River / South Mayo River mainstem from the Town of Stuart water intake downstream to the North Fork South Mayo River confluence.	4A	Escherichia coli (E. coli)	2010	L	0.43
VAW-L43R_SMR05A00 / South Mayo River / South Mayo River mainstem from the WQS natural trout section just upstream of the Stuart water intake downstream to the Town of Stuart intake.	4A	Escherichia coli (E. coli)	2010	L	0.43
VAW-L43R_SMR06A00 / South Mayo River / South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.	4A	Escherichia coli (E. coli)	2010	L	4.74
VAW-L45R_SMR01A00 / South Mayo River / South Mayo River mainstem from the upstream ending of the WQS designated public water supply (PWS) section 3f (36°33'25" / 80°02'15") located downstream of unnamed tributary on downstream to VA/NC State Line (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.02
VAW-L45R_SMR02A00 / South Mayo River / South Mayo River mainstem from the mouth of an unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f upstream ending (36°33'25" / 80°02'15") (RD09).	4A	Escherichia coli (E. coli)	2008	L	0.72
VAW-L45R_SMR03A00 / South Mayo River / South Mayo River mainstem from the Spoon Creek mouth downstream to an unnamed tributary above the WQS designated public water supply (PWS) section (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.24
VAW-L45R_SMR04A14 / South Mayo River / South Mayo River mainstem from the Russell Creek mouth downstream to the Spoon Creek confluence (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.83

South Mayo River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		37.5

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L43R-01-TEMP** **South Mayo River**

Cause Location: South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: These waters were previously 303(d) Listed in 2004 and delisted in 2006. The temperature impairment returns with the 2010 assessment.

4ASMR033.98 (Rt. 787 Bridge west of Stuart)- There are no additional data beyond the 2010 Integrated Report (IR). 2010 data find the Aquatic Life Use is impaired where temperature measurements exceed the Class VI 20°C criterion in three of 15 samples. Excursions range from 20.6 to 20.8°C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_SMR06A00 / South Mayo River / South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.	5C	Temperature	2010	L	4.74

South Mayo River

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.74

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L43R-02-BAC** **Russell Creek**

Cause Location: Russell Creek from it's mouth on the South Mayo River upstream to Gilbert Mill (Rt. 631).

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 Fed ID 35757; and SWCB approval on 4/28/2009. Previous to the Dan River TMDL a Flow Duration Bacteria TMDL Study on the South Mayo River received U.S. EPA approval on 02/27/2004 Fed ID 23412 / 24558; and SWCB approval on 6/17/2004. Russell Creek is nested within the Dan River TMDL watershed.

4ARSL003.20- (Palmetto School Rd. - Rt. 825 Bridge) The 2018 data window finds E.coli exceed the 235 cfu/100ml instantaneous criterion in eight of 12 samples. Excursions range from 373 to greater than 10,000 cfu/100 ml. 2012, 2014 and 2016 assessments reveal escherichia coli (E.coli) exceed the WQS 235 cfu/100 ml instantaneous criterion in seven of 12 samples. Values in excess of the criterion range from 250 cfu/100 ml to greater than 2000. There are no additional data within the 2016 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_RSL01A12 / Russell Creek / Russell Creek from it's mouth on the South Mayo River upstream to Gilbert Mill (Rt. 631) (RD07).	4A	Escherichia coli (E. coli)	2012	L	8.54

Russell Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.54

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L44R-01-BAC** **Spoon Creek**

Cause Location: Spoon Creek mainstem from an unnamed tributary to Spoon Creek (southeast of Patrick Springs (36° 37' 02" / 80° 09' 45") downstream to its confluence with the South Mayo River.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: These 2004 fecal coliform (FC) bacteria 303(d) Listed waters remain impaired for 8.17 miles as non-support for the Recreational Use continues. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL Watershed incorporates Spoon Creek. Spoon Creek is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ASOO003.12 (Route 832 Bridge) The 2022 data window finds five of 12 E.coli samples in exceedance of the statistical threshold value. The 2020 data window finds six of 12 E.coli samples in exceedance of the instantaneous criterion. The 2018 data window finds nine of 23 E.coli samples in exceedance of the instantaneous criterion. Excursions range from 300 to greater than 12,000 cfu/100 ml. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in three of 12 observations within the 2014 and 2016 data windows. Exceeding values range from 300 to 650 cfu/100 ml. There are no additional data within the 2012 data window. The 2008 Integrated Report (IR) finds escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in eight of 21 observations within both the 2008 and 2010 assessments. Exceeding values range from 320 to 1600 cfu/100 ml. The 2006 IR finds E.coli exceeds the instantaneous criterion in three of nine observations. Exceeding values range from 320 to 1100 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L44R_SOO01A00 / Spoon Creek / Spoon Creek mainstem from an unnamed tributary to Spoon Creek (southeast of Patrick Springs @ 36° 37' 02" / 80° 09' 45") downstream to its confluence with the South Mayo River.	4A	Escherichia coli (E. coli)	2006	L	8.17

Spoon Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.17

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L45R-01-HG South Mayo River

Cause Location: South Mayo River mainstem from the confluence of Spoon Creek downstream to the Virginia / North Carolina State Line.

Cause City/County: Henry County; Patrick County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2008 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov/> for more information about mercury contamination and <http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/> for VDH Advisories or Bans.

4ASMR004.17 (George Taylor Rd, Rt. 695 Bridge)- There are no additional data beyond the 2010 Integrated Report (IR). 2007 fish tissue records exceedance of the mercury (Hg) WQS tissue value (TV) of 0.30 ppm in smallmouth bass (1 fish 27.3 cm) at 0.442 ppm and (4 fish composite 38.0-43.1 cm) redborse sucker at 0.419 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L45R_SMR01A00 / South Mayo River / South Mayo River mainstem from the upstream ending of the WQS designated public water supply (PWS) section 3f (36°33'25" / 80°02'15") located downstream of unnamed tributary on downstream to VA/NC State Line (RD09).	5A	Mercury in Fish Tissue	2010	L	5.02
VAW-L45R_SMR02A00 / South Mayo River / South Mayo River mainstem from the mouth of an unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f upstream ending (36°33'25" / 80°02'15") (RD09).	5A	Mercury in Fish Tissue	2010	L	0.72
VAW-L45R_SMR03A00 / South Mayo River / South Mayo River mainstem from the Spoon Creek mouth downstream to an unnamed tributary above the WQS designated public water supply (PWS) section (RD09).	5A	Mercury in Fish Tissue	2010	L	5.24

South Mayo River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			10.98

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L46R-01-BAC** **North Mayo River**

Cause Location: The bacteria impairment begins at the confluence of Laurel Branch and Polebridge Creek extending downstream to the Virginia / North Carolina State Line.

Cause City/County: Henry County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the North Mayo River within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

Station 4ANMR002.60 is a 1999 Federal Consent Decree Attachment B station for fecal coliform bacteria (FC). The station is not 303(d) Listed in 2002 as only one exceedance of the former 1000 cfu/100 ml instantaneous criterion is found from 21 samples. Two stations 4ANMR020.13 (Rt. 626 Bridge) and 4ANMR002.60 (Rt. 629 Bridge at Gage) both found excursions of the former 400 cfu/100 ml Water Quality Standards (WQS) instantaneous criterion for fecal coliform (FC) bacteria in 2004. The Recreational Use remains impaired for 22.92 miles for bacteria exceedances.

4ANMR020.13- (Rt. 626 Bridge) There are no additional data beyond the 2006 Integrated Report (IR) where four of 12 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 500 to 1000 cfu/100 ml.

4ANMR002.60- (Rt. 629 Bridge at Gage) The 2020 data window finds 21 of 36 E.coli excursions. Escherichia coli (E.coli) exceeds the WQS 235 cfu/100 ml instantaneous criterion in 20 of 36 and 14 of 36 observations within the 2018 and 2016 data windows, respectively. The range of exceedance is from 250 cfu/100 ml to greater than 2000. Twelve of 36 E.coli samples exceed the instantaneous criterion in 2014. Excessive values range from 250 to greater than 2000 cfu/100 ml. The 2012 assessment finds ten of 35 E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion. Exceedances range from 280 to 1400 cfu/100 ml. Seven of 23 E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion within the 2010 data window. 2010 exceeding values range from 280 to 1100 cfu/100 ml. The 2008 assessment finds three of 11 E.coli samples exceed the instantaneous criterion with exceeding values ranging from 280 to 1100 cfu/100 ml. 2006 IR finds one (600 cfu/100 ml) of 21 FC samples in excess of the instantaneous criterion. 2004 IR reports FC exceeds the former instantaneous criterion 400 cfu/100 ml in three of 25 samples. Exceedances are 500, 600 and 1100 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L46R_NMR01A00 / North Mayo River / North Mayo River mainstem from the Horse Pasture Creek mouth downstream to VA/NC State Line.	4A	Escherichia coli (E. coli)	2008	L	4.38
VAW-L46R_NMR02A00 / North Mayo River / North Mayo River mainstem from the upper end of the WQS designated public water supply (PWS) section 3f (36° 34' 25" / 79° 59' 34") downstream to the Horse Pasture Creek mouth.	4A	Escherichia coli (E. coli)	2008	L	0.73
VAW-L46R_NMR03A00 / North Mayo River / North Mayo River mainstem from the first upstream (RF3) unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f (36° 34' 25" / 79° 59' 34").	4A	Escherichia coli (E. coli)	2008	L	5.25

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North Mayo River

Recreation

Estuary
(Sq. Miles)
Reservoir
(Acres)
River
(Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 10.36

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L46R_NMR04A00 / North Mayo River / North Mayo River mainstem from the Kroger Creek mouth downstream to the first upstream (RF3) unnamed tributary (36°35'43" / 80°01'44").	4A	Fecal Coliform	2004	L	2.76
VAW-L46R_NMR05A02 / North Mayo River / North Mayo River mainstem from the RD10/RD12 boundary downstream to the mouth of Kroger Creek (RD12).	4A	Fecal Coliform	2004	L	7.75
VAW-L46R_NMR06A14 / North Mayo River / North Mayo River mainstem from the confluence of Laurel Branch and Polebridge Creek downstream to the RD10/RD12 boundary (RD10).	4A	Fecal Coliform	2004	L	2.08

North Mayo River

Recreation

Estuary
(Sq. Miles)
Reservoir
(Acres)
River
(Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 12.59

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L47R-01-BAC** **Horse Pasture Creek**

Cause Location: The upper limit of the bacteria impairment is at the confluence of an unnamed tributary East of Route 696 (36°39'38" / 80°00'55") downstream to the mouth of Horse Pasture Creek on the North Mayo River (Spencer and Price Quads).

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The waters remain impaired for 7.44 miles for non-support of the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35754] and SWCB approved 4/28/2009. Horse Pasture Creek is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>. The 2004 original 303(d) Listing for fecal coliform (FC) bacteria continues where escherichia coli (E.coli) replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AHRN004.93- (Route 695 Bridge) Nine of 22 E.coli excursions reported during the 2020 data window. No new data beyond the 2016 data window. Nine of 24 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion within the 2016 data window. Excursions range from 269 to 1300 cfu/100 ml. The 2014 data window reveals five of 12 E.coli observations in excess of the instantaneous criterion. Excessive values range from 400 to 1300 cfu/10 ml. There are no additional data within the 2010 or 2012 data windows. The 2008 assessment reports E.coli bacteria exceed the 235 instantaneous criterion in six of 21 samples. Exceeding values range from 280 cfu/100 ml to 1050. Three excursions each of the former FC 400 and current E.coli 235 cfu/100 ml instantaneous criteria are found from nine observations within the 2006 data window. The FC range of exceedance is from 600 to 2000 cfu/100 ml while E.coli exceeds in the range of 280 to 1050. The 2004 IR finds FC exceeds the former 400 cfu/100 ml instantaneous criterion in five of 17 samples with a range of exceedance as in 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L47R_HRN01A00 / Horse Pasture Creek / Horse Pasture mainstem from the ending of the WQS designated public water supply (PWS) section 3f (36°34'59" / 79°59'40") downstream to the Horse Pasture Creek mouth on the North Mayo River.	4A	Escherichia coli (E. coli)	2006	L	0.48
VAW-L47R_HRN02A00 / Horse Pasture Creek / Horse Pasture Creek mainstem from an unnamed tributary mouth East of Route 696 (36°39'38" / 80°00'55") downstream to the upstream ending of WQS PWS section 3f (36°34'59" / 79°59'40").	4A	Escherichia coli (E. coli)	2006	L	6.97

Horse Pasture Creek

Recreation	Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	7.45

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L47R-01-BEN** **Horse Pasture Creek**

Cause Location: The upper limit of the bacteria impairment is at the confluence of an unnamed tributary East of Route 696 (36°39'38" / 80°00'55") downstream to the mouth of Horse Pasture Creek on the North Mayo River (Spencer and Price Quads).

Cause City/County: Henry County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired from data collected at two sites within the 2010 data window causing this 2010 initial 303(d) Listing.

4AHRN007.65 (Off Rt. 695 north of Rt. 58) Bio 'IM' A 2003 Probabilistic site. The 2008 assessment reserved judgment on 303(d) listing of these waters for Aquatic Life Use impairment until more data could be collected to determine use support. Two 2003 VSCI surveys scoring 67.5 spring and 41.5 fall resulted in an average score of 54.5. The spring collection indicates full support while the fall indicates impairment. The impaired Use is confirmed based on additional data collection at 4AHRN004.93. The land use at this station consists of forest and pasture land. There is a beef cattle farm upstream that includes a large pond that may affect flow and the ability of the stream to transport sediment. Stream banks are eroded.

4AHRN004.93 (Route 695 Bridge) Five Virginia Stream Condition Index (VSCI) surveys (Fall 2009 and Fall 2010; Spring/Fall 2013-2014) find continued benthic impairment with an average score of 53.3. Three fall VSCI surveys (2008, 2009 & 2010) results in an average score of 49.3 indicating impairment. Data collection at this station validates biological community impairment at the upstream Probabilistic Monitoring station surveyed in 2003 (4AHRN007.93). This site is also collocated at an ambient chemical monitoring station. The stream substrate is impacted by fine sediments also with eroded stream banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L47R_HRN01A00 / Horse Pasture Creek / Horse Pasture mainstem from the ending of the WQS designated public water supply (PWS) section 3f (36°34'59" / 79°59'40") downstream to the Horse Pasture Creek mouth on the North Mayo River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.48
VAW-L47R_HRN02A00 / Horse Pasture Creek / Horse Pasture Creek mainstem from an unnamed tributary mouth East of Route 696 (36°39'38" / 80°00'55") downstream to the upstream ending of WQS PWS section 3f (36°34'59" / 79°59'40").	5A	Benthic Macroinvertebrates Bioassessments	2010	L	6.97

Horse Pasture Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.45

Sources: Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization; Wet Weather Discharges (Non-Point Source)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L48R-01-BAC** Mayo River

Cause Location: Fall Creek and its tributaries downstream to the VA/NC State Line.

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2016 initial 303(d) Listing is a result of escherichia coli (E.coli) bacteria excursions of the WQS instantaneous criterion of 235 cfu/100 ml criterion. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the Mayo River within the TMDL Watershed. The Mayo River is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMAY018.17 (Rt. 691 Bridge at Gage) No data beyond the 2016 data window where four of twelve E.coli samples exceed the instantaneous criterion. Values in excess of the criterion range from 275 to 1450 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L48R_FCR01A16 / Mayo River (Fall Creek) / Fall Creek mainstem downstream to the VA/NC State Line (RD13).	4A	Escherichia coli (E. coli)	2016	L	4.02

Mayo River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.02

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L50R-01-BAC Smith River and Sycamore Creek

Cause Location: Smith River from the mouth of Rich Run on the Smith River downstream to the mouth of Shooting Creek on the Smith River spanning the Woolwine and Charity Quads. And Sycamore Creek from it's mouth on the Smith River upstream to the Pole Branch confluence.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreational Use is impaired based on escherichia coli (E.coli) data showing excessive counts recorded at 4ASRE075.69 and 4ASYC002.02. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 [Fed ID 35748 / 35756]; and SWCB approval on 4/28/2009. The Recreational Use impairment is extended during the 2018 Integrated Reporting window

4ASRE075.69 (Rt. 708 Bridge) The 2022 data window reports six of 36 excursions of the statistical threshold value of 410 cfu/100ml in the same 90-day period with <10 samples. The 2020 data window reports ten of 36 excursions. Escherichia coli (E.coli) exceed the 235 cfu/100 ml criterion in eight of 36 samples within the 2014, 2016 and 2018 data windows. 2018 excursions range from 275 to 1,850 cfu/100ml. 2016 excessive values range from 300 to 1200 cfu/100 ml and 2014 excursions range from 250 to 1200 cfu/100 ml. 2012 E.coli data exceed the instantaneous criterion in six of 36 samples. Excursions also range from 250 to 1200 cfu/100 ml.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) Nine of 36 E.coli excursions are reported during the 2020 data window. The 2018 Integrated Reporting window finds five of 24 E.coli samples exceed the 235 cfu/100 ml criterion. Excursions range from 313 - >9,000 cfu/100 ml.

4ASYC002.02 (Elamsville Road Bridge) Four of twelve E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Prior to 2018, there were no additional data beyond the 2012 IR. E.coli exceed the 235 WQS instantaneous criterion in two of 12 samples. The exceeding values are 380 and 1000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L50R_SRE01A00 / Smith River / Smith River mainstem from the Liberty Fabrics outfall downstream to Sycamore Creek at the RD15/16/17 watershed boundaries (RD15).	4A	Escherichia coli (E. coli)	2012	L	3.89
VAW-L50R_SRE02A00 / Smith River / Smith River mainstem from the Jacks Creek mouth downstream to Liberty Fabrics outfall.	4A	Escherichia coli (E. coli)	2012	L	0.26
VAW-L50R_SRE03A00 / Smith River / Smith River mainstem WQS Class VI end of section, as described in WQS, downstream to mouth of Jacks Creek.	4A	Escherichia coli (E. coli)	2012	L	0.59
VAW-L50R_SRE04A00 / Smith River / Smith River mainstem from the Rich Run mouth downstream to WQS Natural Trout section, as described in WQS.	4A	Escherichia coli (E. coli)	2012	L	2.87
VAW-L50R_SYC01A12 / Sycamore Creek / Sycamore Creek from it's mouth on the Smith River upstream to the Pole Branch confluence (RD16).	4A	Escherichia coli (E. coli)	2012	L	6.15
VAW-L51R_SRE07A00 / Smith River / Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).	4A	Escherichia coli (E. coli)	2018	L	6.43

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SRE08A00 / Smith River / Smith River mainstem (WQS Class VI waters) from Rt. 704 upstream to the mouth of Widgeon Creek.	4A	Escherichia coli (E. coli)	2018	L	1.45
VAW-L51R_SRE08B14 / Smith River / Smith River mainstem from the RD15/16/17 watershed boundaries downstream to the mouth of Widgeon Creek (RD17).	4A	Escherichia coli (E. coli)	2012	L	1.91

Smith River and Sycamore Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.55

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L50R-01-TEMP Smith River

Cause Location: The temperature impaired waters begin at the mouth of Rich Run on the Smith River and extend downstream to the mouth of Shooting Creek on the Smith River spanning the Woolwine and Charity Quads.

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: Exceedance of the WQS Class VI 20°C temperature criterion for this natural trout water caused the original 2002 303(d) Listing of these waters. The 9.48 mile Aquatic Life Use impairment remains and is extended during the 2018 data window by 1.45 miles.

4ASRE075.69- (Rt. 708 Bridge) One additional excursion is reported during the 2020 data window at 23°C (7/18/18) (7/36 exceed within the 2020 IR). The 2018 data window finds nine of 36 temperature measurements exceed the 20°C Class VI natural trout water criterion with exceedances ranging from 20.8°C to 23.6°C. 2014 and 2016 temperature data records nine of 36 measurements in excess of the 20°C natural trout water criterion. Both the 2014 and 2016 range of exceedance is from 20.3 to 25.2°C all occurring in the summer months. Temperature exceeds the natural trout criterion in ten of 35 measurements within the 2012 data window. The range of exceedance is from 20.5 to 25.2°C all occurring in the summer months. 2010 data find nine of 37 temperature measurements exceeding the 20°C criterion in the summer months. Excursions range from 20.4° to 22.7°C. Temperature exceeds the 20°C natural trout criterion in 12 of 41 measurements with the 2008 assessment. The range of exceedance is from 20.4 to 24.3°C all occurring in the summer months. 2006 records nine of 33 measurements exceeding the criterion and ranging from 21 to 24°C. Excursions are found primarily during the 1999-2002 drought. The temperature impairment, originally listed in 2002, is based on 4ASRE075.69 data where three of 20 measurements exceed the criterion.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) - From 24 temperature measurements during the 2018 data window, four exceed the Class VI 20°C criterion. Exceedances range from 21.6°C to 22.0°C and occur during July, August, and September. These data were incorrectly assigned to 4ASRE063.69 during the 2016 IR.

Supplemental information: (Outside 2008 Assessment data window 2000 - 2004): Two of eight exceedances of the 20°C criterion are recorded by the US Geological Survey (USGS) station 02071510. The excursions are from July 18 (23°C) and August 15 (24°C) 1995. The USGS station is located 1.19 miles upstream of any known potential anthropogenic source of heat at the Rt. 615 crossing.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L50R_SRE01A00 / Smith River / Smith River mainstem from the Liberty Fabrics outfall downstream to Sycamore Creek at the RD15/16/17 watershed boundaries (RD15).	5C	Temperature	2002	L	3.89
VAW-L50R_SRE02A00 / Smith River / Smith River mainstem from the Jacks Creek mouth downstream to Liberty Fabrics outfall.	5C	Temperature	2002	L	0.26
VAW-L50R_SRE03A00 / Smith River / Smith River mainstem WQS Class VI end of section, as described in WQS, downstream to mouth of Jacks Creek.	5C	Temperature	2002	L	0.59
VAW-L50R_SRE04A00 / Smith River / Smith River mainstem from the Rich Run mouth downstream to WQS Natural Trout section, as described in WQS.	5C	Temperature	2002	L	2.87
VAW-L51R_SRE08A00 / Smith River / Smith River mainstem (WQS Class VI waters) from Rt. 704 upstream to the mouth of Widgeon Creek.	5C	Temperature	2018	L	1.45

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SRE08B14 / Smith River / Smith River mainstem from the RD15/16/17 watershed boundaries downstream to the mouth of Widgeon Creek (RD17).	5C	Temperature	2002	L	1.91

Smith River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			10.97

Sources: Natural Sources; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L51L-01-DO Philpott Reservoir

Cause Location: Philpott Reservoir

Cause City/County: Franklin County; Henry County; Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired from data collected at five sites within the 2022 data window supporting the 2020 initial 303(d) Listing.

4ASRE046.90 (Above the Dam) 2022: DO- 41 of 202 measurements exceed the Class V 5mg/l DO criterion. 2020: DO- 18 of 104 measurements exceed the Class V 5mg/l DO criterion. Excursions range from 1.94 - 3.69 mg/l. 4ASRE048.98 ((#2A,#2B,#2C GOOSE POINT - TOP, MIDDLE, B) 2022: DO- 51 of 207 measurements exceed the Class V 5 mg/l DO criterion. 2020: DO- 11 of 92 measurements exceed the Class V 5 mg/l DO criterion. Excursions range from .41 - 1.58 mg/l. 4ASRE051.06 (Horsehoe point) 2022: DO- 31 of 109 measurements exceed the Class V 5.0 mg/l DO criterion. 4ASRE052.31 (#3A,#3B,#3C HORSEHOE POINT - TOP, MIDDLE) 2022: DO- 42 of 128 DO measurements exceed the Class V 5.0 mg/l DO criterion. 2020: DO- 42 of 117 measurements exceed the Class V 5.0 mg/l DO criterion. 4ASRE056.06 (#4A,#4B,#4C UNION BRIDGE - TOP, MIDDLE) 2022: DO- 22 of 185 measurements exceed the Class V 5.0 mg/l DO criterion. 2020: DO -19 of 96 measurements exceed the Class V 5.0 mg/l DO criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51L_GOB01A02 / Philpott Reservoir (Goblin Town Creek) / Philpott Reservoir - Goblin Town Creek arm from its confluence with the Smith River upstream to the Fairystone Dam.	5A	Dissolved Oxygen	2020	L	532.39
VAW-L51L_SRE01A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from its impounding structure upstream to just above the confluence of Goblin Town Creek.	5A	Dissolved Oxygen	2002	L	1221.36
VAW-L51L_SRE02A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Goblin Town Creek confluence upstream to just above the Beards Creek mouth.	5A	Dissolved Oxygen	2020	L	671.09
VAW-L51L_SRE03A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Beards Creek confluence upstream to its backwaters.	5A	Dissolved Oxygen	2020	L	388.71

Philpott Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	2813.55	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L51L-01-HG Philpott Reservoir

Cause Location: Philpott Reservoir

Cause City/County: Franklin County; Henry County; Patrick County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov> for more information about mercury contamination and <http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/> for VDH Advisories or Bans.

4ASRE046.90 (Above Philpott Dam)- 2020 Mercury (Hg) Collections: two species exceed the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm; Largemouth bass (4 fish) at .47 ppm (4 fish) at .36 ppm, and Carp (2 fish) at .34 ppm. 2007 fish tissue analysis finds exceedances of the WQS based tissue value (TV) for mercury (Hg) of 0.3 ppm in three individual largemouth bass (size 41.8 cm) at 0.59 ppm, (size 40.9 cm) at 0.563 ppm and (size 33.2 cm) at 0.374 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51L_GOB01A02 / Philpott Reservoir (Goblin Town Creek) / Philpott Reservoir - Goblin Town Creek arm from its confluence with the Smith River upstream to the Fairystone Dam.	5A	Mercury in Fish Tissue	2010	L	532.39
VAW-L51L_SRE01A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from its impounding structure upstream to just above the confluence of Goblin Town Creek.	5A	Mercury in Fish Tissue	2010	L	1221.36
VAW-L51L_SRE02A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Goblin Town Creek confluence upstream to just above the Beards Creek mouth.	5A	Mercury in Fish Tissue	2010	L	671.09
VAW-L51L_SRE03A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Beards Creek confluence upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	388.71

Philpott Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	2813.55	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L51L-01-TEMP Philpott Reservoir

Cause Location: Philpott Reservoir

Cause City/County: Franklin County; Henry County; Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: The Aquatic Life Use is impaired from data collected at five sites within the 2022 data window supporting the 2020 303(d) Listing.

4ASRE046.90 (Above the Dam) 2022: Temp- 187 of 700 observations exceed the Class V Stockable Trout Waters criterion. 2020: Temp- 104 of 396 observations exceed the Class V Stockable Trout Waters criterion. Excursions range from 21.04°C to 30.04°C. 4ASRE048.98 ((#2A,#2B,#2C GOOSE POINT - TOP, MIDDLE, B) 2022: Temp-189 of 650 observations exceed the Class V Stockable Trout Waters criterion. 2020: Temp- 95 of 355 observations exceed the Class V Stockable Trout Waters criterion. Excursions range from 21.32°C to 30.11°C. 4ASRE051.06 (Horsehoe point) 2022: Temp- 81 of 248 42 temperature observations exceed the Class V Stockable Trout Waters criterion. 4ASRE052.31 (#3A,#3B,#3C HORSEHOE POINT - TOP,MIDDLE) 2022: Temp- 103 of 461 observations exceed the Class V Stockable Trout Waters criterion. 2020: Temp- 98 of 403 observations exceed the Class V Stockable Trout Waters criterion. Excursions range from 21.08°C to 30.41°C. 4ASRE056.06 (#4A,#4B,#4C UNION BRIDGE - TOP, MIDDLE) 2022: Temp-182 of 398 observations exceed the Class V Stockable Trout Waters criterion. 2020: Temp-19 of 96 observations exceed the Class V Stockable Trout Waters criterion. Excursions range from 21.15°C to 30.35°C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51L_GOB01A02 / Philpott Reservoir (Goblin Town Creek) / Philpott Reservoir - Goblin Town Creek arm from its confluence with the Smith River upstream to the Fairystone Dam.	5A	Temperature	2020	L	532.39
VAW-L51L_SRE01A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from its impounding structure upstream to just above the confluence of Goblin Town Creek.	5A	Temperature	2020	L	1221.36
VAW-L51L_SRE02A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Goblin Town Creek confluence upstream to just above the Beards Creek mouth.	5A	Temperature	2020	L	671.09
VAW-L51L_SRE03A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Beards Creek confluence upstream to its backwaters.	5A	Temperature	2020	L	388.71

Philpott Reservoir

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	2813.55	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L51R-01-BAC **Goblintown Creek**

Cause Location: Goblintown Creek from the backwaters of Fairystone Lake upstream to the headwaters of Goblintown Creek.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Escherichia coli (E.coli) exceedances cause this initial 2014 303(d) Listing for the Recreational Use impairment. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748 / 35756. SWCB approved 4/28/2009. Goblintown Creek is nested within the overall Bacteria TMDL Watershed.

4AGOB005.18 (Rt. 623 Bridge near Fairystone State Park) The 2020 data window reports two of 12 E.coli excursions. Two escherichia coli (E.coli) of 12 samples exceed the 235 cfu/100 ml instantaneous criterion at 375 and 950 cfu/100 ml. There are no additional data beyond the 2014 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_GOB01A08 / Goblintown Creek / Goblintown Creek from the backwaters of Fairystone Lake upstream to the confluence of Little Goblintown Creek (RD20).	4A	Escherichia coli (E. coli)	2014	L	1.2
VAW-L51R_GOB02A08 / Goblintown Creek / Goblintown Creek from the mouth of Little Goblintown Creek upstream to its headwaters (RD20).	4A	Escherichia coli (E. coli)	2014	L	5.6

Goblintown Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.8

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L51R-01-TEMP Rennet Bag Creek

Cause Location: Rennet Bag Creek from its headwaters downstream to its inundation at Philpott Reservoir. The impairment spans the Endicott, Charity and Philpott Reservoir Quads.

Cause City/County: Floyd County; Franklin County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: Station 4ARBC005.44 is utilized to assess both the natural trout and stockable trout waters for this stream. Station 4ARBC005.44 is located on Rt. 43 west of Endicott near the downstream end of the WQS 9.41 mile natural trout water section. And is just upstream of the Class V stockable trout waters that are 2.13 miles in length. Both WQS Classes are assessed by this station. The 2002 temperature impairment remains from the initial 303(d) Listing.

4ARBC005.44- (Rt. 43 west of Endicott) No additional data beyond the 2016 assessment where three of 12 temperature measurements exceed the Class VI Natural Trout criterion of 20°C. Excessive values occur in July, August, and September with a range of 20.2°C to 21.9°C. Only one excursion of the Class V Stockable Trout waters occurs. There are no additional data beyond the 2008 Integrated Report (IR). The natural trout water (Class VI) criterion of 20°C is exceeded in three of eight measurements taken within the 2010 and 2008 data windows. These excursions are 20.6 (8/25/05), 21.9 (6/22/06) and 21.6°C (8/29/06). Based on these results two of eight temperature measurements exceed the downstream stockable trout water (Class V) criterion of 21°C in both the 2010 and 2008. In the 2002 and 2004 assessments two temperature exceedances from six measurements are found. Temperature excursions of the WQS Class V (stockable trout) 21°C and Class VI (natural trout) 20°C criteria occurred in the summer months of August 1999 at 26.4 °C and June 2000 at 23.3 °C. Both excursions occur during the 1999-2002 drought years.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_RBC01A00 / Rennet Bag Creek / Rennet Bag Creek mainstem from its inundation at Philpott Reservoir upstream to the confluence of Long Branch Class V (RD18).	5C	Temperature	2002	L	2.13
VAW-L51R_RBC02A02 / Rennet Bag Creek / Rennet Bag Creek mainstem from the confluence of Long Branch upstream to its headwaters Class VI.	5C	Temperature	2002	L	9.42

Rennet Bag Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			11.55

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L51R-02-BAC** **Shooting Creek**

Cause Location: Shooting Creek from its mouth on the Smith River upstream to its headwaters.

Cause City/County: Floyd County; Franklin County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Escherichia coli (E.coli) exceedances cause this initial 2014 303(d) Listing for the Recreational Use impairment. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748 / 35756. SWCB approved 4/28/2009. Shooting Creek is nested within the overall Bacteria TMDL Watershed.

4ASOT000.99- (Rt. 622 Bridge, Deer Run Rd.) The 2016 and 2018 data windows find three of 24 escherichia coli (E.coli) samples in excess of the WQS instantaneous criterion of 235 cfu/100 ml. Excessive values range from 375 to 950 cfu/100 ml. E.coli exceeds the instantaneous criterion in three of 12 observations within the 2014 data window. Values in excess of the criterion are the same as in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SOT01A08 / Shooting Creek / Shooting Creek from its mouth on the Smith River upstream to its headwaters (RD17).	4A	Escherichia coli (E. coli)	2014	L	7.33

Shooting Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 7.33

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Cause Group Code: **L51R-02-TEMP** **Shooting Creek**

Cause Location: Shooting Creek from its mouth on the Smith River upstream to its headwaters.

Cause City/County: Floyd County; Franklin County; Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: 4ASOT000.99- (Rt. 622 Bridge) Five of 24 temperature measurements exceed the Class VI 20°C within the 2018 and 2016 data windows. Values in excess range from 20.4°C to 22.2°C. Each excursion occurs within the summer months. 2014 temperature excursions are found in three of 12 measurements. The three excursions are 21.8°C (6/29/2011), 21.5°C (8/25/2011) and 22.2°C (7/31/2012). There are no additional data within the 2012 data window. Three of eight temperature measurements exceed the 20°C Class VI natural trout water criterion within both 2008 and 2010 data windows. Temperature excursions are 20.6 (8/25/05 & 6/22/06) and 21.2°C (8/29/06). These waters were assessed based on a stream Class IV designation in the 2008 IR resulting in full support. The stream Class is VI, natural trout waters, and should have been initially 303(d) Listed in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SOT01A08 / Shooting Creek / Shooting Creek from its mouth on the Smith River upstream to its headwaters (RD17).	5C	Temperature	2008	L	7.33

Shooting Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.33

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L51R-03-BAC** Nicholas Creek

Cause Location: Nicholas Creek from the inundated waters of Philpott Reservoir upstream to a point south of Franklin St. at 36°54'13" / 80°03'48".

Cause City/County: Franklin County; Henry County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This initial 2016 303(d) Listing is the result of excursions of the escherichia coli WQS instantaneous criterion of 235 cfu/100 ml. The Recreational Use is impaired. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748 / 35756. SWCB approved 4/28/2009. Nicholas Creek is nested within the overall Bacteria TMDL Watershed.

4ANCH001.23 (Rt. 780 (Jamison Rd.) Entrance to Jamison Mill Park- Four of 12 E.coli samples exceed the instantaneous criterion within the 2016 data window. Excursions range from 250 to 528 cfu/100 ml. No additional data was collected since the 2016 Integrated Report data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_NCH01A12 / Nicholas Creek / Nicholas Creek from the inundated waters of Philpott Reservoir upstream to a point south of Franklin St. at 36°54'13" / 80°03'48" (RD19).	4A	Escherichia coli (E. coli)	2016	L	5.41

Nicholas Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.41

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L51R-03-TEMP Smith River

Cause Location: Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).

Cause City/County: Patrick County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The 2016 Integrated Report (IR) produced the initial 303(d) Listing for temperature excursions of the Class V Stockable Trout water criterion resulting in impairment of the Aquatic Life Use. Part of the 2016 IR listing was made in error as the data discussed below were actually collected at 4ASRE069.46. Of the 2016 IR 8.99 mile listed segment, 2.55 miles are delisted and 6.43 miles remain listed in the 2018 IR.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) - Two additional excursions are reported during the 2020 data window at 23°C and 22°C (7/18/18 and 8/2/18, respectively). The 2018 IR finds four of 24 excursions of the Class V 21°C criterion. Exceedances are: 21.6°C (7/7/14), 22.0°C (9/3/14), 21.6°C (8/18/16), and 21.7°C (9/19/16). The 7/7/14 and 9/3/14 excursions were incorrectly assigned to 4ASRE063.69 during the 2016 IR and resulted in the original temperature impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SRE07A00 / Smith River / Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).	5C	Temperature	2016	L	6.43

Smith River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			6.43

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L51R-04-BAC Rennet Bag Creek

Cause Location: Rennet Bag Creek from its headwaters downstream to its inundation at Philpott Reservoir. The impairment spans the Endicott, Charity and Philpott Reservoir Quads.

Cause City/County: Floyd County; Franklin County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2016 Integrated Report (IR) is the initial listing of E.Coli for Rennet Bag Creek. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748 / 35756. SWCB approved 4/28/2009. Rennet Bag Creek is nested within the overall Bacteria TMDL Watershed.

4ARBC005.44 - (Rt. 43 west of Endicott) No additional data beyond the 2016 data window. The 2016 assessment finds three Escherichia Coli (E.Coli) bacteria exceedances of the 235 cfu/100 mL instantaneous criterion. Exceedances range from 575 to greater than 2000 cfu/100 mL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_RBC01A00 / Rennet Bag Creek / Rennet Bag Creek mainstem from its inundation at Philpott Reservoir upstream to the confluence of Long Branch Class V (RD18).	4A	Escherichia coli (E. coli)	2016	L	2.13
VAW-L51R_RBC02A02 / Rennet Bag Creek / Rennet Bag Creek mainstem from the confluence of Long Branch upstream to its headwaters Class VI.	4A	Escherichia coli (E. coli)	2016	L	9.42

Rennet Bag Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.55

Sources: Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L52R-01-BAC** **Smith River**

Cause Location: The bacteria impairment begins at the Smith River mainstem from just above Bassett and extends downstream to the backwaters of the Martinsville power pool (Martinsville West Quad).

Cause City/County: Henry County; Martinsville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The original 2002 Assessment basis for 303(d) Listing the waters is exceedance of the former fecal coliform (FC) bacteria instantaneous criterion of 1000 cfu/100 ml and the former geometric mean (WQS frequency of 2 samples/calendar month of 200 cfu/100 ml causing the waters to not support the Recreational Use. Special monitoring on Blackberry Creek (L52R) and the Smith River (L53R) reported and 303(d) Listed these exceedances in 2002. The 2020 IR extends impaired waters upstream an additional 2.53 miles.

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35748 / 35756] and SWCB approved 4/28/2009. The Smith River is encompassed by the overall Dan River Bacteria TMDL Watershed and allocations. Portions of the Smith River are nested within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

A portion of the bacteria impaired waters were delisted in 2004 for the area between the Blackberry Creek mouth on the Smith River (L52R Bassett Quad) extending downstream to the Reed Creek confluence on the Smith River L53R- Martinsville West Quad), 3.31 miles. The delisting of these waters was based on an exceedance rate of less than 10.5%. This portion returned to 303(d) Listing status with the 2006 Integrated Report (IR) based on stations 2000W0034A and 4ASRE036.55. The total bacteria impairment size is 10.30 miles.

4ASRE039.43- The 2020 data window finds three of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

4ASRE036.55- There are no additional data beyond the 2008 assessment where escherichia coli (E.coli) are found to exceed the 235 cfu/100 ml instantaneous criterion in three of 21 samples. Exceeding values range from 250 to 720 cfu/100 ml. 2006 exceedances are 250 and 350 cfu/100 ml from two of nine samples.

4ASRE033.19- Nineteen of 41 E.coli samples exceed during the 2020 data window. During the 2018 data window, eighteen of 41 E.Coli samples exceed the 235 cfu/100 ml instantaneous criterion; exceedances range from 262 to greater than 2,000 cfu/100 ml. 2014 E.coli samples exceed the 235 cfu/100 ml criterion in eight of 36 samples. Exceeding values range from 250 to greater than 2000 cfu/100 ml. Ten of 46 E.coli samples exceed the WQS instantaneous criterion within the 2012 data window. The range of exceedance is from 250 cfu/100 ml to greater than 2000. The 2010 assessment finds E.coli exceed the instantaneous criterion in nine of 43 observations with the same range of exceedance as 2012. E.coli exceed the instantaneous criterion in four of 31 samples in 2008. Exceeding values range from 280 to 1000 cfu/100 ml.

Special Study Stations:

2008 E. coli exceedances / total observations; range 2008 / 2006 & 2004 exceedances / total observations; range 2004.

2000W0034B- (downstream of Blackberry Creek confluence)- SS data ends 6/06/02- 1 of 10 at 270 / 2006 & 2004- 2 of 20; 270 to >800.

2000W0034A- (located downstream in VAW-L53R)- SS data ends 6/06/02- 1 of 11 exceeds at >800 / 2006 & 2004- 2 of 21; at >800.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_SRE01A00 / Smith River / The Smith River mainstem from the Blackberry Creek mouth downstream to Rock Run mouth (Watershed Boundary RD22).	4A	Escherichia coli (E. coli)	2006	L	0.97
VAW-L52R_SRE02A00 / Smith River / The Smith River mainstem from just above Bassett downstream to Blackberry Creek mouth (RD22).	4A	Escherichia coli (E. coli)	2020	L	2.54
VAW-L53R_SRE01B06 / Smith River / Smith River mainstem from the former E. I. duPont outfall upstream to the E. I. duPont water intake on the Smith River (RD24).	4A	Escherichia coli (E. coli)	2008	L	0.49
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	4A	Escherichia coli (E. coli)	2008	L	4.26
VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).	4A	Escherichia coli (E. coli)	2008	L	2.26
VAW-L53R_SRE04A00 / Smith River / Smith River mainstem from the mouth of Reed Creek upstream to an unnamed tributary. The unnamed tributary is approximately 0.70 miles downstream of the Alt. 57 Bridge (RD22).	4A	Escherichia coli (E. coli)	2006	L	0.82
VAW-L53R_SRE05A00 / Smith River / Smith River mainstem from an unnamed tributary located approximately 0.70 miles downstream of the Alt. 57 Bridge, upstream to the watershed boundary at the mouth of Rock Run (RD22).	4A	Escherichia coli (E. coli)	2006	L	1.54

Smith River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.88

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L52R-02-BAC Blackberry Creek and Blackberry, UTs

Cause Location: The impairment begins at the headwaters of Blackberry Creek (~RM 13.63) and extends downstream to Blackberry Creek's mouth on the Smith River. The impaired waters include an unnamed tributary from the north (XMI). The mouth of the unnamed tributary is at 36° 44' 38" / 80° 03' 07". The bacteria impairment spans the Charity, Sanville, Martinsville West and Bassett Quads.

Cause City/County: Henry County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Blackberry Creek as it lies within the TMDL Watershed. An unnamed tributary (XMI) is nested within the Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment.

Exceedance of the former fecal coliform (FC) instantaneous criterion of 1000 cfu/100 ml and the geomean of 200 cfu/100 ml caused the waters to not support recreational use in 2002. Ambient station 4ABRY000.05, a 1999 Federal Consent Decree Attachment B station is 2002 303(d) Listed with a 2010 TMDL schedule date. The 2002 FC exceedance rate of 15% from 3/20 samples at 4ABRY000.05 resulted in the original 303(d) Listing. Exceedance of the Escherichia coli 235 cfu/100 ml instantaneous criterion and the former (2 samples/month) geomean in 2004 continue to show nonsupport with the 2010 Integrated Report (IR). Recreation Use is impaired for 15.49 mi in the Blackberry Creek drainage. An unnamed tributary comprises 1.15 mi of the overall impairment.

Special monitoring of Blackberry Creek began in fall 1999 after complaints from local residents regarding sewer service in the Blackberry Creek drainage. Below are sites having data within the 2008 data window, 2000 Special Study sites and instantaneous results from the 2004 IR.

4ABRY011.44 formerly 2000W0034L- (at Microfilm Rd) There are no additional data beyond the 2008 IR where E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 10/22 samples ranging from 250-20,000 cfu/100 ml. The former geomean (2 samps/mo) 126 cfu/100 ml criterion exceeds in 3/6 calcs. 2010: 6/12.

4ABRY010.27 formerly 2000W0034J- (Rt. 687 Br) 2008: 5/17 E.coli samples exceeds 350-1100 cfu/100 ml. 2010 and 2012: 4/12.

4ABRY000.05 formerly 2000W0034E- (American Legion Br) There are no additional data beyond the 2008 IR where 11/31 E.coli exceeds from 260-1200 cfu/100 ml and 3/7 geomean calcs exceed the former (2 samps/mo) 126 cfu/100 ml criterion.

Special Study Stations (no additional data beyond 2008 IR):

2008 E. coli exceeds / total obs; range 2008 / 2004 exceeds / total obs; range 2004.

2000W0034C (Rt. 57A) SS data ends 6/6/02 - 2 of 11 / range 500 to >800 / 2004 - 5 of 21 range 340 to >800.

2000W0034E (American Legion Br) SS data ends 6/6/02 - 2004 - 7 of 20 / range 250 to >800.

4ABRY000.05- 2004 FC exceeds the 400 cfu/100 ml inst. criterion in 4/20 samps from 500 cfu/100 ml to >8000.

2000W0034F (upstream of Rt. 698 Br) SS data ends 6/6/02 - 5 of 11; range 280 to >800 / 2004 - 10 of 21 range 280 to >800.

2000W0034G (Rt. 676 Br) SS data ends 6/6/02 - 1 of 10 / 620 / 2004 - 2 of 20; range 330-620.

2000W0034H (Rt. 677) SS data ends 6/6/02 - 2 of 10; 280 and >800 / 2004 - 3 of 20; 280 and >800.

2000W0034I (Rt. 882 Br) SS data ends 6/6/02 - 4 of 11; range 400 to >800 / 2004 - 7 of 21; range 330 to >800.

2000W0034J (Rt. 687 Br) SS data ends 6/6/02 - 2004 - 5 of 15; range 290 to >800.

2000W0034L (at Microfilm Rd) SS data ends 6/6/02 - 2004 - 8 of 19 / range 250 to >800.

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2000W0034R (along Rt. 799) SS data ends 6/6/02 - 4 of 10; range 400 to >800 / 2004 - 8 of 20; range 380 to >800.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_BRY01A00 / Blackberry Creek / Blackberry Creek mainstem from the upper end of the WQS designated public water supply (PWS) section near the American Legion Bridge downstream to the Blackberry Creek mouth on the Smith River.	4A	Escherichia coli (E. coli)	2004	L	0.54
VAW-L52R_BRY02A00 / Blackberry Creek / The Blackberry Creek mainstem from the confluence of Whitt Branch downstream to the end of the WQS public water supply designation near the American Legion Bridge.	4A	Escherichia coli (E. coli)	2004	L	3.73
VAW-L52R_BRY03A00 / Blackberry Creek / Blackberry Creek mainstem from the Sanville Utilities Fairway Acres outfall downstream to Whitt Branch.	4A	Escherichia coli (E. coli)	2004	L	5.54
VAW-L52R_BRY04A02 / Blackberry Creek / Blackberry Creek mainstem from its headwaters downstream to the Sanville Utilities Fairway Acres outfall.	4A	Escherichia coli (E. coli)	2004	L	4.56
VAW-L52R_XMI01A02 / Blackberry Creek, UT (XMI) / An unnamed tributary to Blackberry Creek from its mouth upstream to its headwaters. The mouth of the tributary is located at 36° 44' 38" / 80° 03' 07".	4A	Escherichia coli (E. coli)	2004	L	1.15

Blackberry Creek and Blackberry, UTs

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.52

Sources: Municipal (Urbanized High Density Area); Municipal Point Source Discharges; Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L52R-03-BAC** **Town Creek**

Cause Location: Town Creek from it's confluence on the Smith River upstream to the mouth of Grassy Fork.

Cause City/County: Franklin County; Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Town Creek Recreational Use impairment is a result of the 2012 assessment. Town Creek is nested within the overall Dan River Bacteria TMDL Watershed U.S. EPA approved on 12/8/2008, Fed ID: 35756 and SWCB approved on 4/28/2009.

4ATWN000.22- (Philpott Drive - Rt. 674 Bridge) Escherichia coli (E.coli) exceed the 235 cfu/100 ml water quality criterion in four of 12 samples collected during the 2018 data window. Excursions range from 275 to 15,531 cfu/100 ml. E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion in four of 12 samples within the 2012 data window. Values in excess of the criterion range from 280 cfu/100 ml to 1300. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_TWN01A12 / Town Creek / Town Creek from it's confluence on the Smith River upstream to the mouth of Grassy Fork.	4A	Escherichia coli (E. coli)	2012	L	1.88

Town Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.88

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L52R-04-BEN** **Smith River**

Cause Location: Smith River mainstem just above Bassett downstream to the mouth of Reed Creek (RD22).

Cause City/County: Henry County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2020 data window finds a new Aquatic Life Use 303(d) listing on the Smith River based on benthic macroinvertebrate community data evaluated by the Virginia Stream Condition Index (VSCI). Note that a downstream section of the Smith River is associated with the Smith River Benthic Phased TMDL (Phase I) U.S. EPA approved 1/13/2011 [Fed ID: 39707].

4ASRE038.57 (Off Rt. 57 in Bassett) Bio 'IM' from two 2017 VSCI Scores 43.3 (S) and 52.2 (F). This station was sampled as one of the randomly chosen Probabilistic monitoring stations in 2017. Benthic community samples had low taxa richness and low abundance of pollution-sensitive organisms. The watershed upstream of this site includes Philpott Reservoir, industrial and commercial properties and roads. Fluctuating flows from Philpott Dam have an effect on the benthic community along with storm water runoff from developed land.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_SRE01A00 / Smith River / The Smith River mainstem from the Blackberry Creek mouth downstream to Rock Run mouth (Watershed Boundary RD22).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	0.97
VAW-L52R_SRE02A00 / Smith River / The Smith River mainstem from just above Bassett downstream to Blackberry Creek mouth (RD22).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.54
VAW-L53R_SRE04A00 / Smith River / Smith River mainstem from the mouth of Reed Creek upstream to an unnamed tributary. The unnamed tributary is approximately 0.70 miles downstream of the Alt. 57 Bridge (RD22).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	0.82
VAW-L53R_SRE05A00 / Smith River / Smith River mainstem from an unnamed tributary located approximately 0.70 miles downstream of the Alt. 57 Bridge, upstream to the watershed boundary at the mouth of Rock Run (RD22).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	1.54

Smith River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.87

Sources: Dam or Impoundment; Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: L53L-01-BAC Martinsville (Beaver Creek) Reservoir

Cause Location: Martinsville Reservoir

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. This bacteria impairment is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ABAU005.34 (Martinsville Reservoir at Dam) 2022: E.coli Comment: Insufficient Information (Prioritize for follow up monitoring)- No STV exceedances but insufficient data to analyze geomean. 2020 & 2018 assessment finds escherichia coli (E.coli) exceeds the WQS instantaneous criterion of 235 cfu/100ml in zero of 14 samples, this reservoir is bracketed by impaired stream AUs, therefore the reservoir is going to remain impaired due to the other continuous impairments upstream and downstream. The 2010 assessment finds escherichia coli (E.coli) exceed the WQS instantaneous criterion of 235 cfu/100 ml in two of 13 observations. Values in excess of the criterion are 420 and 450 cfu/100 ml. There are no additional data within the 2014 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53L_BAU01A02 / Martinsville (Beaver Creek) Reservoir / Martinsville Reservoir on Beaver Creek from its impounding structure upstream to its backwaters.	4A	Escherichia coli (E. coli)	2010	L	182.29

Martinsville (Beaver Creek) Reservoir

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		182.29	

Sources: Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-01-BEN** **Smith River**

Cause Location: Smith River from the mouth of Reed Creek downstream to the backwaters of the Martinsville Dam Power Pool.

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 2012 Integrated Report (IR) partially delisted the original 4.74 mile General Standard Benthic impairment. The 2014 assessment finds impairment has returned and relists these waters and extends the impairment upstream 2.25 miles. The extension upstream is due to declining Virginia Stream Condition Index (VSCI) scores at 4ASRE033.19. These waters (4.74 miles) were originally 303(d) Listed in 2008 for contravention of the General Standard and are now nested within the Smith River Benthic Phased TMDL. Phase I U.S. EPA approved 1/13/11 (Fed IDs: 39703, 39705 (delist), 39706 & 39707).

4ASRE033.19- (Rt. 701 Bridge - Fieldale) Bio 'IM' from three VSCI scores (2016, 2020) avg 46 during the 2022 data window. No additional data since the 2016 assessment recorded 12 VSCI surveys (2009-14) with an average score of 55.5. Spring bioassessments at this station show a decline since 2009 and Fall bioassessments show a slight improvement since 2009. Overall VSCI scores are declining. This station has been the upstream control site for all Smith River biomonitoring stations and is located approximately 0.65 mi upstream of the Upper Smith River WWTP which is currently off line. Eleven VSCI surveys (2007-12) with an average 6 year score of 57.6 and 2 year score of 54.0 are recorded within the 2014 assessment. Bioassessments at this station have shown a range of scores between 50 and 63 and a slight decline from the fall of 2007 to the fall of 2012. The river is impacted by the operation of one hydroelectric dam, sediment deposition and urban NPS runoff. Sediment deposition in this reach of the Smith River may negatively affect the benthic community. This is possibly a result of the upstream scouring caused by discharges from Philpott Dam as well as inputs from tributaries.

4ASRE032.38- Bio 'IM' This station initially assessed in 2012 using Best Professional Judgment (BPJ) based on 4ASRE033.19 and 4ASRE0031.00 scoring in the 60s, or fully supporting. This station is re-assessed in 2014 indicating impairment. There are no additional data beyond the 2012 data window. Two 2010 surveys with an average score of 59.7 (spring 56.08; fall 63.48). This station is between historical biomonitoring stations 4ASRE033.19 and 4ASRE031.00 and adjacent to the closed Upper Smith River STP. Similar to station 4ASRE033.19 and 4ASRE031.00, this reach of the river appears to be impacted by sediment deposition and urban NPS runoff.

4ASRE031.00- (Behind Church at Kohler) During the 2018 data window, 9 VSCI surveys and 12 VSCI surveys (2009-14) find impairment with an average score of 56.7 within the 2016 data window. Spring average VSCI scores fall below the impairment threshold and the Fall VSCI scores are slightly above the impairment threshold. Both seasons are experiencing a decline in VSCI scores and overall decline to present. The 2014 assessment reports 9 VSCI surveys (2008-12) with an average 6 year score of 59.2 and a 2 year average score of 54.10. These scores show impairment and result in the re-listing of this portion of the Smith River. The 2012 assessment de-listed these waters with a 6 year average score of 61.8 and a 2 year average of 64.8. Five VSCI surveys (2003-08) within the 2010 data window report an average score of 52.6. Note: 2008 assessment (4 surveys 2003-2006) score 51.6. Compared to the upstream control site, there is a difference in the average Stream Condition Index (SCI) score (51.6 at this station vs 60.1 at 4ASRE033.19). The benthic community typically has fewer total taxa and fewer sensitive taxa than the reference site. The station is approx. 1.54 mi below the former Upper Smith River WWTP. Similar to the reference station, this reach of the river appears to be impacted by sediment deposition and urban NPS runoff. The WWTP ceased discharge 11/11/2003 and the VPDES permit terminated in June 2004. Benthic community scores declined 2000-04 and increased 2005-06.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_SRE01B06 / Smith River / Smith River mainstem from the former E. I. duPont outfall upstream to the E. I. duPont water intake on the Smith River (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	0.49
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	4.26
VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.26

Smith River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.01

Sources: Dam or Impoundment; Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment)

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Roanoke and Yadkin River Basins

Cause Group Code: L53R-01-TEMP Smith River

Cause Location: Smith River mainstem from the mouth of Reed Creek downstream to the E.I. DuPont Intake (RD24).

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: The 2016 Integrated Report (IR) is the initial 303(d) listing for Aquatic Life Use due to temperature impairment.

4ASRE033.19 - (Rt. 701 in Fieldale) A continuous temperature monitoring device was placed at the station during the critical time period of August 4th to September 2nd 2014. The device recorded temperature every 30 minutes for 30 days. The 2016 assessment reveals 20% of the days exceeded the max daily temperature at least 10.5% of the day for the Class VI Natural Trout criterion of 20°C. The rate of temperature change (0.5°C per hour) was exceeded 72.4% of the days the temperature sensor was deployed. These temperature exceedances are believed the result of the hydroelectric operations and flow release patterns from the Philpott Dam.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	5A	Temperature	2016	L	4.26
VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).	5A	Temperature	2016	L	2.26

Smith River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			6.52

Sources: Dam or Impoundment; Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment)

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-02-BAC** **Jordan Creek**

Cause Location: The mainstem waters of Jordan Creek from its headwaters to its mouth on the Smith River.

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2006 303(d) Listed 6.00 mile waters remain impaired for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Jordan Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AJOR000.02- (Rt. 682 Bridge) There are no additional data beyond the 2008 assessment where seven of 21 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values range from 320 to 1500 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_JOR01A06 / Jordan Creek / The mainstem waters of Jordan Creek (RD24).	4A	Escherichia coli (E. coli)	2006	L	6

Jordan Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6

Sources: Municipal (Urbanized High Density Area); Residential Districts; Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-03-BAC** Beaver Creek

Cause Location: The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir.

Cause City/County: Franklin County; Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreational Use remains impaired for these 2006 303(d) Listed 5.30 mile waters. The impairment is extended 6.97 miles upstream from inundation of Martinsville Reservoir. Impairment results described below for station 4ABAU011.17 for a total of 12.27 impaired miles. The Dan River Bacteria TMDL is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. This bacteria impairment is nested within the Dan River Bacteria TMDL. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ABAU011.17 (Off Rt. 922 upstream of the Rt. 657 crossing) Fourteen of 14 E.coli excursions reported during the 2020 data window. Three of three E.coli samples exceed during the 2018 data window. In 2016, two of two escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml during the 2016 IR. All samples exceed at greater than 800 cfu/100 ml.

4ABAU000.94- (Rt. 220 Business Bridge) There are no additional data within the 2012, 2014 or 2016 data windows. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 10 of 24 samples within the 2012 data window. Exceeding values range from 250 to greater than 2000 cfu/100 ml. The 2008 and 2010 assessments find E.coli exceeds the instantaneous criterion in 13 of 21 samples. Exceeding values range from 380 to greater than 2000 cfu/100 ml.

4ABAU000.25- (Off Koehler Rd.) E.coli bacteria exceed the instantaneous criterion in three of 12 observations within the 2016 data window. Values in excess of the criterion range from 250 cfu/100 ml to greater than 2000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU01A06 / Beaver Creek / The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).	4A	Escherichia coli (E. coli)	2006	L	5.30
VAW-L53R_BAU02A06 / Beaver Creek / Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir (RD24).	4A	Escherichia coli (E. coli)	2016	L	6.98

Beaver Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.28

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-03-BEN** Beaver Creek

Cause Location: Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir.

Cause City/County: Franklin County; Henry County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2008 IR reports the Aquatic Life Use impaired for 6.97 miles due to contravention of the General Standard.

4ABAU011.17- (Off Rt. 922 upstream of Rt. 657 crossing) Two 2017 VSCI scores of 53.2 and 29.9 in spring and fall, respectively. The 2018 IR adds two additional VSCI surveys (2015) to the 2016 assessment VSCI surveys (2011, 2013) for a total of six VSCI scores averaging 37.5. Two 2011 Virginia Stream Condition Index (VSCI) surveys within the 2014 data window find continued impairment with an average score of 38.8. Taxa richness is higher in the fall and the abundance of midges (Chironomidae) higher in the spring. Sediment deposition, bank erosion, bank vegetation, and riparian buffer width scores were low in this reach. Approximately 46% of the riparian land cover in the watershed is agricultural. The benthic community is dominated by pollution tolerant organisms and appears to be affected by habitat impacts. There are no additional data within the 2010 or 2012 data windows. The 2008 Integrated Report (IR) finds the benthic community impaired from two 2004 VSCI surveys with an average score of 51.2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU02A06 / Beaver Creek / Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.98

Beaver Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.98

Sources: Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-04-BAC** **Reed Creek**

Cause Location: Reed Creek mainstem from its mouth on the Smith River upstream approximately one mile above the Rt. 609 crossing.

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This 2008 303(d) Listed water extends 4.13 miles resulting in non-support for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Reed Creek as it lies within the TMDL Watershed. Reed Creek is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AREE000.80 (Rt. 993 Bridge upstream of Rt. 57 Bridge) Three of 12 E.coli excursions are reported during the 2020 data window. There are no additional data beyond the 2014 Integrated Report (IR). Three of 12 Escherichia coli (E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excessive values range from 325 to 925 cfu/100 ml within the 2014 data window. There are no additional data within the 2012 Integrated Report (IR). Four escherichia coli (E.coli) samples of 21 exceed the instantaneous criterion in both the 2008 and 2010 assessments. Exceeding values range from 300 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_REE01A00 / Reed Creek / Reed Creek mainstem from its mouth on the Smith River upstream approximately one mile above the Rt. 609 crossing (RD23).	4A	Escherichia coli (E. coli)	2008	L	4.14

Reed Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.14

Sources: Municipal (Urbanized High Density Area); Residential Districts; Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L53R-04-BEN** Jones Creek, UT (XMP)

Cause Location: Unnamed tributary (XMP) to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek.

Cause City/County: Franklin County; Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2006 303(d) Listed 2.04 mile Aquatic Life Use impairment remains due to contravention of the General Standard. There are no additional data beyond the 2008 assessment.

4AXMP001.85- (directly below Henry County Landfill) Bio 'IM' A single 2003 Virginia Stream Condition Index (VSCI) survey scoring spring 2003 47.1. Analysis of the benthic community data with VSCI metrics displays a difference between the benthic communities above and below the landfill. The community at the reference site (4AXMP002.21, VSCI avg.=72.8) was very diverse in pollution sensitive organisms and approximated what would be considered Ecoregion reference quality for a first order stream in the Piedmont area. Two metrics that show the difference in pollution sensitivity of the communities are the Taxa Richness and EPT metrics. EPT represents the sensitive Mayflies, Stoneflies, and Caddisflies. The reference site also had a much higher number of organisms present (159) in a similar amount of habitat sampled relative to the impact site (34).

The main physical difference between the two stations is the presence of large growths of sphaerotilus bacteria at the downstream site. The bacteria covered practically every part of the stream substrate including the mineral sand, gravel and cobble bottom of the stream as well as the woody debris and leaf packs in stream. This covering ranged in thickness from about one inch in high velocity areas to approximately one foot in pool habitats. This bacterium typically thrives in waters impacted by organic effluents and is often referred to as "sewage fungus." This bacterium was not observed at the reference site. Such a large presence of this bacterium indicates a pollution impact. More recent investigations have found that sphaerotilus bacteria is common in waters impacted by landfill leachate indicating that excessive growths are related to volatile organic chemicals. The bacterial growth has an impact on the abundance of benthic organisms.

4AXMP001.26- One fall 2006 survey scoring 57.4. Several metrics indicated a substantial difference in the pollution sensitivity of the communities at this station versus the upstream site. This sample also required 3.5 times more effort than the upstream site to collect an equivalent number of organisms, displaying a large difference in macro invertebrate abundance.

4AXMP000.44 (Dwnstr. of Henry Co. Landfill off Rt. 663; Clearview Dr.) Bio 'J' Four VSCI surveys (2013-2014) with an average score of 52.3. This stream begins upslope of the Martinsville Sanitary Landfill then flows through a pipe that is buried below the landfill. In 2003 the stream appeared to be impacted by landfill leachate. Volatile organic chemicals (VOCs) were found in both groundwater and surface water samples collected down gradient of the landfill.

This new station was sampled to determine the status of the benthic community at a location well beyond the landfill boundary and above the confluence with Jones Creek as well as to validate the assessment of upstream station (4AXMP001.26) sampled in the fall of 2006. The VSCI scores from 2014 were much better than those from 2013 but the two year average is below 60. VDEQ is going to reserve judgment at this time and plans to sample this site in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_XMP01A06 / Jones Creek, UT (XMP) / Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2006	L	2

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Jones Creek, UT (XMP)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water

Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)

River
(Miles)

2

Sources: Landfills

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-05-BAC** Daniels Creek

Cause Location: Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: This initial 2016 Recreational Use impairment is a result of escherichia coli (E.coli) excursions of the WQS instantaneous criterion. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Daniels Creek bacteria impairment is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4ADEL001.35 (Off Rt. 619 (Daniels Cr. Rd) on Miles Rd.) No new data beyond the 2016 data window where six of six E.coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Excursions range from 1,625 cfu/100 ml to 24,196.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_DEL01A10 / Daniels Creek / Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).	4A	Escherichia coli (E. coli)	2016	L	3.99

Daniels Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.99

Sources: Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-05-BEN** Beaver Creek

Cause Location: The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).

Cause City/County: Henry County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2016 Integrated Report finds the benthic community impaired due to contravention of the WQS General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4ABAU000.25 (Off Koehler Rd.) Bio 'IM' Six Virginia Stream Condition Index (VSCI) surveys (2013-2015) with an average score of 34.3. The benthic community consisted of more pollution tolerant taxa and less diversity in the Spring surveys. Total Habitat Scores were in the Marginal to low Sub-Optimal range. Embeddedness and Substrate scores were the lowest ranging from marginal to poor and are likely the dominant factors in the negative effect on the benthic macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU01A06 / Beaver Creek / The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	5.3

Beaver Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.3

Sources: Clean Sediments; Sediment Resuspension (Clean Sediment); Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-06-BAC Jones Creek, UT (XMP)**

Cause Location: Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).

Cause City/County: Franklin County; Henry County; Martinsville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2016 Listed water extends 2.00 miles resulting in non-support for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Jones Creek unnamed tributary (XMP) as it lies within the TMDL Watershed. The Jones Creek unnamed tributary (XMP) is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>

4AXMP000.44 (Dwnstr. Of Henry Co. Landfill off Rt. 663; Clearview Dr.) Five of 11 E.coli samples exceed the instantaneous criterion within the 2016 data window. Values in excess of the 235 cfu/10 ml criterion range from 300 to greater than 2000 cfu/10 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_XMP01A06 / Jones Creek, UT (XMP) / Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).	4A	Escherichia coli (E. coli)	2016	L	2

Jones Creek, UT (XMP)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2

Sources: Municipal (Urbanized High Density Area); Residential Districts; Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L53R-06-BEN** Daniels Creek

Cause Location: Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).

Cause City/County: Henry County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired due to contravention of the WQS General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4ADEL001.35 (Off Rt. 619 (Daniels Cr. Rd) on Miles Rd.) The 2016 assessment finds the benthic community impaired from four of four Virginia Stream Condition Index (VSCI) surveys with an average score of 18.6. Habitat survey scores were low in this reach due to urban impacts to the watershed. The benthic community is dominated by pollution tolerant organisms. Pollution sensitive organisms were not present in some samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_DEL01A10 / Daniels Creek / Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3.99

Daniels Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.99

Sources: Municipal (Urbanized High Density Area); Streambank Modifications/Destabilization; Unspecified Urban Stormwater; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: L53R-07-BEN Jones Creek

Cause Location: Jones Creek mainstem upstream to XMP confluence (RD24).

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This 2016 initial macroinvertebrate impaired water is Listed for contravention of the WQS Aquatic Life Use General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4AJCR000.42 (Upstream of Rt. 220 Business) There is no additional data beyond the 2016 data window where Bio 'IM' The benthic community is impaired based on four Virginia Stream Condition Index (VSCI) (2013-2014) with an average score of 29.2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_JCR01A16 / Jones Creek / Jones Creek mainstem upstream to XMP confluence (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.36

Jones Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.36

Sources: Municipal (Urbanized High Density Area); Unspecified Urban Stormwater; Wet Weather Discharges (Non-Point Source)

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Roanoke and Yadkin River Basins

Cause Group Code: **L54R-01-BAC** **Smith River**

Cause Location: The bacteria impairment begins at the Martinsville Dam (Martinsville West Quad) and extends downstream to the VA/NC State Line on the Northwest Eden Quad.

Cause City/County: Henry County; Martinsville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the Smith River as it lies within the TMDL Watershed.

Station 4ASRE022.71 is a 1999 Federal Consent Decree Attachment B station and was not 2002 listed as impaired for fecal coliform (FC) bacteria. Only 4/59 samples exceeded the former 1000 cfu/100 ml instantaneous criterion for an exceedance rate of 6% in 2002. The 2002 303(d) Listing for 10.06 mi has been extended upstream 3.65 mi (2004 Integrated Report (IR)) and downstream 6.30 mi (2006 IR) for a total of 20.01 mi thru the 2008 Assessment.

4ASRE026.27 There are no additional data beyond the 2008 assessment where 2/21 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml inst. criterion. E.coli data indicate this station would meet delisting guidance however the range of exceeding values is from 600-1060 cfu/100 ml. Due to the magnitude of the exceedances and the downstream exceedances the waters remain impaired for Recreational Use.

4ASRE022.71 (Footbridge above the Martinsville STP) There are no additional data beyond the 2004 IR where 8/41 FC samples exceed the former 400 cfu/100 ml inst. criterion. Exceeding values range from 500 to greater than 8000 cfu/100 ml. The 2004 IR 303(d) Listing extends the 2002 bacteria impairment 3.59 mi upstream from the original 303(d) Listing. Data within the 2006 data window find 3/17 samples in excess of the criterion with exceeding values ranging from 600-900 cfu/100 ml.

4ASRE021.58 (Rt. 58 Bypass Bridge, Henry Co.) There are no additional E.coli data beyond the 2008 assessment where E.coli excursions range from 300-1400 cfu/100 ml in 4/9 samples. Each exceedance is in excess of the 235 cfu/100 ml inst. criterion. The 2006 data window produces 3/17 FC samples in excess of the former 400 cfu/100 ml inst. criterion ranging from 1100 to greater than 8000 cfu/100 ml. The 2004 IR reports 6/35 FC obs with exceeding values ranging from 600 to greater than 8000 cfu/100 ml.

4ASRE019.00 One of 7 E.coli excursions are reported during the 2020 data window. Both the 2010 and 2008 assessments find 6/20 E.coli obs exceed the 235 cfu/100 ml inst. criterion within their respective data windows. Exceeding values range from 250-1060 cfu/100 ml. Two of 6 geomean calcs exceed the former (2 samples/mo) 126 cfu/100 ml criterion at 150 and 235. There are no additional data beyond the 2008 assessment.

4ASRE015.43 (Rt. 636 Bridge) There are no additional E.coli data beyond the 2008 assessment. Both the 2010 and 2008 assessments find E.coli exceed the inst. criterion in 4/20 samples. The range of exceedance is from 250-90 cfu/100 ml in each respective data window. One of 6 geomean calcs exceeds the former (2 samples/mo) 126 cfu/100 ml criterion at 306 in 2008. One excursion of the inst. criterion is found from 17 obs within the 2006 data window at 1100 cfu/100 ml. 2004 IR findings are FC exceeds the former 400 cfu/100 ml criterion in 6/35 samples. Exceeding values range from 500-1300 cfu/100 ml.

4ASRE007.90 (Rt. 622 Bridge, Morgan Ford Bridge) The 2018 IR finds 9/47 E.coli samples exceed the 235 cfu/100 ml inst. criterion. Excursions range from 241-1,850 cfu/100 ml. Seven of 48 E.coli exceed the inst. criterion of 235 cfu/100 ml. Exceeding values range from 325-1850 cfu/100 ml. 2014 data show 5/36 E.coli obs exceeding the inst. criterion. Excessive values range from 350-1850 cfu/10 ml. E.coli exceedances of the inst. criterion range from 250-1500 cfu/100 ml in 7/36 samples within the 2012 data window. The 2010 data window finds 8/33 E.coli samples exceed the inst. criterion. Exceeding values range from 250-1700 cfu/100 ml. 2008 E.coli exceedances range from 250-600 cfu/100 ml from 6/21 samples. The 2006 IR reports 6/48 FC samples exceed the former 400 cfu/100 m

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_SRE01A00 / Smith River / Smith River mainstem from the Home Creek mouth downstream to VA/NC State Line (RD30).	4A	Escherichia coli (E. coli)	2008	L	3.19
VAW-L54R_SRE02A00 / Smith River / The mainstem Smith River located between the Turkeypen Branch mouth downstream to the Home Creek mouth (RD30).	4A	Escherichia coli (E. coli)	2008	L	3.12
VAW-L54R_SRE03A00 / Smith River / Smith River mainstem from the Leatherwood Creek mouth downstream to the confluence of Turkeypen Branch (RD30).	4A	Escherichia coli (E. coli)	2008	L	4.68
VAW-L54R_SRE03A02 / Smith River / Smith River mainstem from the Marrowbone Creek mouth downstream to the confluence of Leatherwood Creek (RD26).	4A	Escherichia coli (E. coli)	2008	L	1.75
VAW-L54R_SRE04A00 / Smith River / The mainstem Smith River located between the HCPSA Lower Smith River STP and the confluence of Marrowbone Creek (RD26).	4A	Escherichia coli (E. coli)	2008	L	0.39
VAW-L54R_SRE05A00 / Smith River / The mainstem Smith River located between the Martinsville City STP outfall downstream to the Henry County PSA Lower Smith STP outfall (RD26).	4A	Escherichia coli (E. coli)	2008	L	3.28
VAW-L54R_SRE06A00 / Smith River / The mainstem Smith River located between the Martinsville Dam downstream to Martinsville City STP outfall (RD26).	4A	Escherichia coli (E. coli)	2008	L	3.66

Smith River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.07

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L54R-01-BEN Smith River

Cause Location: The benthic impairment begins near the Martinsville Dam and extends downstream to the mouth of Turkeypen Creek.

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Smith River General Standard - Benthic TMDL received U.S. EPA approval 1/13/11 for a phased approach [Fed IDs 39703/39705/39706/39707]. Phase I seeks to define/identify stressors to the benthic community beyond general identification. The 2012 assessment delisted the benthic impairment 3.59 mi (AU VAW-L54R_SRE06A00 / Fed ID 39705) based on Virginia Stream Condition Index (VSCI) surveys from stations 4ASRE024.30 & 4ASRE022.90 upstream of the Martinsville STP. Benthic data from station 4ASRE024.30 show a decline during the 2016 data window and return 3.65 mi to impaired status. The increase of 0.06 miles from 2012 are due to the 2014 cycle GIS mapping conversion of the National Hydrography Dataset from 1:100K to 1:24K scale.

The 1998 Aquatic Life Use impairment remains for these 13.71 mi waters. Two municipal facilities closed as a result of industrial plant closings in the Martinsville/Henry County area greatly reducing influent chloride levels. A 1998 Corbicula study indicates chlorides may have impacted benthos. Stations below are downstream of 2 hydroelectric dams resulting in daily fluctuations of stream flow and temperature.

4ASRE024.30 (Off Frith Rd. downstream of RR trestle) 2016 12 surveys (2009-2014) Spring seasonal avg scored 17 points below the impairment threshold of VSCI <60 while Fall seasonal avg scored 8 points abv. Overall, there is a decline in VSCI scores within the 2016 data window. Recent emergency sewer repairs upstream of this site may contribute to improved conditions in the future.

4ASRE022.90 (Downstream of Machine Br mouth) 2016 IR 11 surveys avg 62.4. Fall 2013 (55.90) Spr. 2014 (36.50) Fall 2014 (63.0).

4ASRE022.30 (below the Martinsville STP) No additional VSCI samples within 2018 IR data window. 2016 IR 10 surveys (2009-2014) 58.6. 2014 IR 11 surveys (2007-2012) 6-yr avg 57.3/2-yr avg 63.9. 2012 IR 7 surveys (2005-2010) 6-yr avg 53.52/2-yr avg 56.47. 2010 IR 7 surveys (2003-2008) 52.0. 2008 IR (2001-2006) 51.3.

2016 IR data shows scores typically higher in Spring than Fall. In the last 2 yrs, Fall scores > Spring scores. Fall 2011 (75.29) & Spr. 2012 (68.66) indicate the best water quality at this site since established in 1997. Historical data show slight improvement in VSCI scores. However, data indicate a decline in Fall 2012 (52.63). Benthos at this site typically consist of pollution tolerant taxa in Spring. This station shows the least improvement of stations sampled for the Smith R. TMDL. Fall 2005 survey indicates a community dominated by the moderately tolerant caddisfly, an indication of organic/nutrient pollution. Improvement in operation of the Martinsville WWTP may be responsible for increasing scores since 2001.

4ASRE019.00 (abv Marrowbone Ck mouth) 2016 IR 11 surveys (2009-14) 6-yr avg 54.9/2-yr avg 53.5. Spr. 2012, recorded the highest score (68.59), scores have since declined. 2014 IR 11 surveys (2007-2012) 6-yr avg 54.3/2-yr avg 61.2. 2012 IR 9 surveys (2005-2010) 6-yr avg 49.58/2-yr avg 49.71. 2010 IR 7 surveys (2003-2008) 46.8. 2008 IR 5 surveys (2001-2006) 42.4.

The dominant family observed has typically been the moderately tolerant caddisfly Hydropsychidae (an indication of organic/nutrient pollution). Fall 2009 had the largest percentage (27.84%) of mayflies (VSCI=62.0). Fall 2008 (VSCI=58.22) had 13.22% mayflies. Fall 2001 survey, reports sensitive insects in the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) decreased and pollution tolerant organisms increased relative to earlier surveys. 2007/2008 surveys show Hydropsychidae and other nutrient/organic pollution tolerant families dominate samples.

4ASRE015.43 (Rt. 636 Br) 2018 IR 9 surveys (2011-2014) 59.7. 2016 IR 11 surveys (2009-2014) 6-yr avg 58.0/2-yr avg 55.7. 2014 IR 11 surveys (2007-2012) 6-yr avg 54.9/2-yr avg 55.5. 201

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_SRE03A00 / Smith River / Smith River mainstem from the Leatherwood Creek mouth downstream to the confluence of Turkeypen Branch (RD30).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.68
VAW-L54R_SRE03A02 / Smith River / Smith River mainstem from the Marrowbone Creek mouth downstream to the confluence of Leatherwood Creek (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	1.75
VAW-L54R_SRE04A00 / Smith River / The mainstem Smith River located between the HCPSA Lower Smith River STP and the confluence of Marrowbone Creek (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.39
VAW-L54R_SRE05A00 / Smith River / The mainstem Smith River located between the Martinsville City STP outfall downstream to the Henry County PSA Lower Smith STP outfall (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	3.28
VAW-L54R_SRE06A00 / Smith River / The mainstem Smith River located between the Martinsville Dam downstream to Martinsville City STP outfall (RD26).	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.66

Smith River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.76

Sources: Dam or Impoundment; Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment); Silviculture Harvesting

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Roanoke and Yadkin River Basins

Cause Group Code: **L54R-02-BAC** **Mulberry Creek**

Cause Location: Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00").

Cause City/County: Henry County; Martinsville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35748] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Mulberry Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMBY001.51 (Sam Lions Trail/Country Club Dr. Crossing) There is no additional data beyond the 2016 Integrated report (IR) which found the initial bacteria Listing from four of 12 escherichia coli (E.coli) samples in excess of the WQS instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is from 275 to 500 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MBY01A10 / Mulberry Creek / Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00") (RD26).	4A	Escherichia coli (E. coli)	2016	L	2.6

Mulberry Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.6

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L54R-02-BEN** **Machine Branch**

Cause Location: Machine Branch from its mouth on the Smith River upstream to its headwaters.

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 4AMCH000.53 (Clover Rd - Rt. 976 Bridge) Bio 'IM' from two 2020 VSCI scores avg 32. This is a TMDL station that was selected to be the Targeted Stress site in 2020. The watershed is commercial, industrial and has a racetrack upstream. Much of the riparian zone is grass mowed up to the streambanks. Bio 'IM' The 2016 & 2018 Integrated Reports (IRs) find continued impaired benthic community impairment. Five Virginia Stream Condition Index (VSCI) surveys (2009-2014) report an average score of 21.9. The 2014 (IR) finds Aquatic Life Use impairment from three VSCI (2008-2009) surveys. The average score is 24.0. The original 2010 303(d) Listing is based on the single 2008 survey scoring 30.7. The surveys find a stressed community with low taxonomic diversity dominated by pollution-tolerant organisms. Habitat surveys indicate a stream section with substrates impacted by excessive fine sediments, severely eroded stream banks, and impacted riparian buffer strips.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MCH01A10 / Machine Branch / Machine Branch from its mouth on the Smith River upstream to its headwaters (RD26).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.69

Machine Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			0.69

Sources: Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: **L54R-03-BAC** **Machine Branch**

Cause Location: Machine Branch from its mouth on the Smith River upstream to its headwaters.

Cause City/County: Henry County; Martinsville

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Machine Branch as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AMCH000.53 (Clover Rd - Rt. 976 Bridge) Four of 13 escherichia coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. This initial 2016 listing of the waters shows a range of exceeding values from 259 to 591 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MCH01A10 / Machine Branch / Machine Branch from its mouth on the Smith River upstream to its headwaters (RD26).	4A	Escherichia coli (E. coli)	2016	L	0.69

Machine Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.69

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L54R-03-BEN** Mulberry Creek

Cause Location: Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00").

Cause City/County: Henry County; Martinsville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired as determined by the 2010 assessment.

4AMBY001.51 (Sam Lions Trail/Country Club Dr. Crossing) Bio 'IM' There are no additional data beyond the 2016 Integrated Report (IR) which found impairment from four Virginia Stream Condition Index (VSCI) surveys (2013-2014). The average score is 45.9. The samples are dominated by pollution tolerant organisms and show variability in the total number of taxa observed. Habitat surveys indicated the stream is impacted by eroded banks and sediment.

4AMBY001.33- Bio 'IM' A 2008 probabilistic site. Two 2008 Virginia Stream Condition Index (VSCI) surveys with an average score of 46.8 find a stressed benthic community dominated by pollution tolerant organisms. Habitat surveys indicate the stream is impacted by eroded banks, sediment deposition and a riparian zone that has almost no vegetation. There are no additional data within the 2012 or 2014 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MBY01A10 / Mulberry Creek / Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00") (RD26).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.6

Mulberry Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.6

Sources: Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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Roanoke and Yadkin River Basins

Cause Group Code: **L55R-01-BAC** Marrowbone Creek

Cause Location: The bacteria impairment begins at the former Henry County PSA Water Treatment Plant on Marrowbone Creek and extends downstream to Marrowbone Creek's mouth on the Smith River (Northwest Eden Quad).

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Marrowbone Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

Station 4AMRR000.02 is a 1999 Federal Consent Decree Attachment B station. The 2002 impairment remains for the Recreational Use.

4AMRR000.02 (Rt. 642 Bridge) Four of 11 E.coli samples exceed during the 2020 data window. There are no additional data beyond the 2014 data window. Seven of 24 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2014 data window. Exceedances range from 250 cfu/100 ml to 850 causing non-support of the Recreational Use. The 2010 and 2012 data windows report eight of 23 E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion. The eight exceeding values range from 250 to 1410 cfu/100 ml. The 2008 assessment finds three of 11 E.coli exceedances ranging from 270 cfu/100 ml to 1410.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L55R_MRR01A00 / Marrowbone Creek / Marrowbone Creek mainstem from its mouth on the Smith River upstream to the Henry County PSA Water Treatment Plant (RD25).	4A	Escherichia coli (E. coli)	2008	L	4.48

Marrowbone Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.48

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L56R-01-BAC Leatherwood Creek and Headwater Tributaries

Cause Location: This bacteria impairment begins in the headwater tributaries and mainstem of Leatherwood Creek, excluding the West Fork of Leatherwood Creek, on downstream to its mouth on the Smith River (Martinsville East and Northwest Eden Quads).

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Leatherwood Creek as it lies within the TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

Station 4ALWD002.54 is a 1999 Federal Consent Decree Attachment B station. The waters are 2002 303(d) Listed for fecal coliform bacteria where three of 23 samples exceed the former 1000 cfu/100 ml instantaneous criterion (1996 to 2000 data window). The 2002 original 8.45 mile 303(d) Listing is extended 25.30 miles with the 2006 Integrated Report (IR) based on results from station 4ALWD011.03. Bacteria impaired waters now total 33.75 miles. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ALWD011.03 (Rt. 648 Bridge) Eight of 11 excursions are reported during the 2020 data window. There is no additional data beyond the 2014 IR which found six of 12 escherichia coli (E.coli) samples are in excess of the WQS 235 cfu/100 ml instantaneous criterion. Excessive values range from 350 to 850 cfu/100 ml. There are no additional data within the 2010 or 2012 data windows. The 2008 assessment finds eight of 21 E.coli samples exceed the 235 cfu/100 ml criterion. Values in excess of the criterion range from 250 to 1600 cfu/100 ml. Two of five geometric mean calculations exceed the former (2 samples / calendar month) 126 cfu/100 ml criterion at 188 and 704 cfu/100 ml. 2006 E.coli results extended the bacteria impairment on the mainstem of Leatherwood upstream to include headwater tributaries (excluding the West Fork) for a total of 15.95 miles.

4ALWD002.54 (Rt. 650 Bridge) There is no new data since the 2016 data window. The 2016 assessment finds four of 12 E.coli samples exceed the WQS instantaneous criterion with values ranging from 250 to 450 cfu/100 ml. There are no additional data beyond the 2008 assessment where eight of 31 E.coli samples exceed the 235 cfu/100 ml criterion. Values in excess of the criterion range from 250 to 1600 cfu/100 ml. Two of five geometric mean calculations exceed the former (2 samples / calendar month) 126 cfu/100 ml criterion at 188 and 704 cfu/100 ml

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L56R_LWD01A00 / Leatherwood Creek / Leatherwood Creek mainstem from its mouth on the Smith River upstream to an unnamed tributary's confluence with Leatherwood approximately 0.1 miles upstream of the Rt. 620 crossing (RD29).	4A	Escherichia coli (E. coli)	2008	L	5.44
VAW-L56R_LWD02A00 / Leatherwood Creek / Leatherwood Creek mainstem from an unnamed tributary's confluence with Leatherwood approximately 0.1 miles upstream of the Rt. 620 crossing on upstream to the Martinsville City water intake (RD29).	4A	Escherichia coli (E. coli)	2008	L	3.02

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L56R_LWD02B14 / Leatherwood Creek / Leatherwood Creek from the Martinsville City intake upstream to West Fork Leatherwood Creek confluence and tributaries to points 5 miles upstream (RD29).	4A	Escherichia coli (E. coli)	2006	L	0.04
VAW-L56R_LWD03A00 / Leatherwood Creek / Leatherwood Creek mainstem and tributaries from the mouth of West Fork Leatherwood Creek to points 5 miles upstream Class III sec. 4c PWS (RD27).	4A	Escherichia coli (E. coli)	2006	L	25.31

Leatherwood Creek and Headwater Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			33.81

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L56R-02-BAC** **West Fork Leatherwood Creek**

Cause Location: West Fork of Leatherwood Creek mainstem and tributaries from its mouth on Leatherwood Creek upstream to the end of WQS PWS section waters.

Cause City/County: Henry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35752] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the West Fork Leatherwood Creek as it lies within the TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>. The 2012 assessment initially finds the Recreational Use impaired due to escherichia coli (E.coli) exceedances.

4ALWF004.32 (Rt. 57 Bridge) The 2018 data window finds three of 11 samples exceed the 235 cfu/100 ml instantaneous E.coli criterion. Excursions range from 292-528 cfu/100 ml. The 2012 IR finds escherichia coli (E.coli) exceed the WQS 235 cfu/100 ml instantaneous criterion in six of 12 samples. Values in excess of the criterion range from 380 to 550 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L56R_LWF01A00 / West Fork Leatherwood Creek & Tributaries / West Fork of Leatherwood Creek mainstem and tributaries from its mouth on Leatherwood Creek to points 5 miles upstream from the Martinsville City intake on Leatherwood Creek (RD28).	4A	Escherichia coli (E. coli)	2012	L	23.46

West Fork Leatherwood Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.46

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L57R-01-BAC Dan River

Cause Location: Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia).

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.38 miles of impaired waters. 4ADAN075.22 (Ambient)(Route 880 Bridge at State Line)

4ADAN075.22 (Ambient)(Route 880 Bridge at State Line) Ten of 37 samples in excess of the instantaneous criterion during the 2020 data window. Eight of 35 samples in excess of the statistical threshold value of 410 cfu/100ml in the 2022 data window

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN04A00 / Dan River / Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia) (RD32)	4A	Escherichia coli (E. coli)	2006	L	7.37

Dan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.37

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L57R-04-BAC** Cascade Creek

Cause Location: Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 11.79 miles of impaired waters. 4ACAS001.92 (Ambient)(Route 860- near State Line)

4ACAS001.92 (Ambient) (Route 860 - near State Line) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_CAS01A00 / Cascade Creek / Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters (RD31).	4A	Escherichia coli (E. coli)	2006	L	11.82

Cascade Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.82

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L57R-04-BEN** Cascade Creek and East Branch Cascade Creek

Cause Location: Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters including East Branch Cascade Creek (CEB) mainstem from its mouth on Cascade Cr. upstream to its headwaters in RD31.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The initial Aquatic Life Use impairment on Cascade Creek occurs during the 2020 data window based on several benthic macroinvertebrate samples collected at the stations listed below. The 2022 data window extends the impairment to include the entire 4.9 miles of East Branch Cascade Creek mainstem upstream to its headwaters.

4ACAS006.64 (Cascade Mill Rd Rt. 855) - Virginia Stream Condition (VSCI) scores collected in Spring (59.6) and Fall 2017 (50.7) result in benthic impairment during the 2020 data window.

4ACAS004.33 (Unicorn Dr Rt. 855) - Impaired conditions for benthic macroinvertebrate communities are observed during Spring and Fall 2017 based on VSCI scores of 50.6 and 49, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_CAS01A00 / Cascade Creek / Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters (RD31).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	11.82
VAW-L57R_CEB01A20 / East Branch Cascade Creek / East Branch Cascade Creek mainstem from its mouth on Cascade Cr. (CAS) upstream to its headwaters (RD31).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.90

Cascade Creek and East Branch Cascade Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		16.72

Sources: Agriculture; Non-Point Source; Silviculture Harvesting; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L57R-05-BEN** Pumpkin Creek

Cause Location: Pumpkin Ck @ Cobb Knob Rd

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 4APMN001.01 (2017 Bio)(@ Cobb Knob Rd) 2022 Cycle: Bio 'IM' from four VSCI scores avg 45 (2017, 2019). This stream is very sandy and has marginal riffles consisting of gravel with some cobble. Cattle have access to the stream and the habitat assessment indicates a high probability of stress to the aquatic life.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_PMN01A20 / Pumpkin Creek / Pumpkin Creek from its mouth on Cascade Cr. (CAS) upstream to its headwaters just over the Henry Co. / Pittsylvania Co. line (RD31).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	3.73

Pumpkin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.73

Sources: Clean Sediments; Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L57R-06-HG Dan River

Cause Location: Dan River mainstem from the impounded backwaters of Schoolfield Dam upstream to the VA/NC State Line.

Cause City/County: Pittsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This Dan River Mercury 303(d) listing is separated from the adjacent Mercury 303(d) listing by the Schoolfield Dam. This initial 2020 data window listing is based on fish tissue collections during 2017 and 2018. It will ultimately include the impounded waters of Schoolfield Dam, but those waters were previously listed and assigned to a different cause group code.

4ADAN060.16 (Above Schoolfield Dam) Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm and the VDH screening value of 0.5 ppm is found in one species from 2017 collections; Largemouth Bass (1 fish) at 0.61 ppm and (1 fish) at 0.53 ppm. Two species exceeded the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm: Largemouth Bass (1 fish) at 0.49 ppm, (1 fish) at 0.39 ppm, and (1 fish) at 0.39 ppm; and Quillback Carpsucker (1 fish) at 0.46 ppm. Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm and the VDH screening value of 0.5 ppm is found in one species from 2018 collections; Largemouth Bass (2 fish) at 0.61 ppm. One species exceeded the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm: Largemouth Bass (3 fish) at 0.32 ppm, (3 fish) at 0.34 ppm. 2019 (Hg) collections: One species exceeds the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm; Largemouth bass (1 fish) at 0.50 ppm, (2 fish) at .34 ppm, (2 fish) at .53 ppm, and (2 fish) at .30 ppm. Two of these collections were above the VDH level of concern (.50ppm):

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN03A00 / Dan River / Dan River mainstem from the impounded backwaters of Schoolfield Dam upstream to the VA/NC State Line (RD33).	5A	Mercury in Fish Tissue	2020	L	4.17

Dan River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.17

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L58R-01-BAC** **Sandy River**

Cause Location: Sandy River mainstem from the Hickory Forest Creek mouth downstream to the Sandy River confluence on the Dan River.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 7.23 miles of impaired waters. 4ASRV000.20 (Ambient, TMDL Monitoring)(Route 58 Bridge)

4ASRV000.20 (Ambient, TMDL Monitoring)(Route 58 Bridge) 2022: Seven of 35 samples in excess of the statistical threshold value of 410 cfu/100ml. 2020: 10 of 12 samples in excess of the instantaneous criterion. 2016: Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SRV01A00 / Sandy River / Sandy River mainstem from the Hickory Forest Creek mouth downstream to the Sandy River confluence on the Dan River (RD36).	4A	Escherichia coli (E. coli)	2010	L	7.23

Sandy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.23

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L58R-02-BAC** Tanyard Creek

Cause Location: Tanyard Creek from the confluence of Gladly Fork to South Prong Sandy River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 2.86 miles of impaired waters. 4ATRD000.04 (Ambient) (Route 855 in Soap Stone)

4ATRD000.04 (Ambient) (Route 855 in Soap Stone) two of 11 samples in excess of the instantaneous criterion.

Was listed in 2008 as Tardy Creek - correct name is Tanyard Creek

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_TRD01A06 / Tanyard Creek / From the confluence of Gladly Fork to South Prong Sandy River (RD34).	4A	Escherichia coli (E. coli)	2006	L	2.86

Tanyard Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.86

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L58R-04-BAC** **Sandy River**

Cause Location: Sandy River from its headwaters to its confluence with Bawley Branch.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

Two stations are located within the 10.79 miles of impaired waters. 4ASRV022.99 (Ambient)(Sandy River @ Wyatt Farm Road RT. 612) and 4ASRV025.40 (Ambient)(2018)(Sandy River @ Mapleton Rd.)

4ASRV022.99 (Ambient)(Sandy River @ Wyatt Farm Road RT. 612)Three of 12 samples in excess of the instantaneous criterion.

4ASRV025.40 (Ambient)(2018)(Sandy River @ Mapleton Rd.) Six of 12 samples in excess of the instantaneous criterion..

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SRV04A06 / Sandy River / From its headwaters to its confluence with Bawley Branch (RD35).	4A	Escherichia coli (E. coli)	2006	L	10.79

Sandy River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.79

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L58R-05-BAC** **Sugartree Creek**

Cause Location: Sugartree Creek from its headwaters to its mouth on Sandy River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 6.97 miles of impaired waters. 4ASUT000.89 (Ambient)(2018)(Sugartree @ Inman Rd)

4ASUT000.89 (Ambient)(2018)(Sugartree @ Inman Rd) Three of 10 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SUT01A08 / Sugartree Creek / Sugartree Creek from its headwaters to its mouth on Sandy River	4A	Escherichia coli (E. coli)	2008	L	6.97

Sugartree Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.97

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L58R-06-BAC** **Stewart Creek**

Cause Location: Stewart Creek from its headwaters to its mouth on Sandy River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 7.34 miles of impaired waters. 4ASWA002.97 (TMDL Monitoring)(Route 882) 4ASWA002.97 (TMDL Monitoring)(Route 882) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SWA01A08 / Stewart Creek / Stewart Creek from its headwaters to its mouth on Sandy River (RD36).	4A	Escherichia coli (E. coli)	2008	L	7.34

Stewart Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.34

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L58R-07-BAC South Prong Sandy River

Cause Location: South Prong Sandy River from its headwaters to the confluence with Sandy River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2018: 35759, EPA Approved 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 13.22 miles of impaired waters. 4ASSP002.44 (Rt. 841, Whispering Pines Rd.) 4ASSP002.44 (Rt. 841, Whispering Pines Rd.) - The 2018 data window finds six of 10 Escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion. Excursions range from 246 to 1850 cfu/100 ml. The 2020 data window finds six of 11 Escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion. The 2022 data window finds three of 12 Escherichia coli (E.coli) samples in excess of the 410 cfu/100 ml statistical threshold value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SSP01A06 / South Prong Sandy River / From its headwaters to the confluence with Sandy River (RD34).	4A	Escherichia coli (E. coli)	2018	L	13.23

South Prong Sandy River

Recreation	Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	
	13.23

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L59R-01-BAC** Sandy Creek

Cause Location: Sandy Creek mainstem from near its headwaters downstream to the confluence of Little Sandy Creek.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Sandy Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID.35758] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35758, 12/8/2008

One station is located within the 9.49 miles of impaired waters. 4ASCR007.06 (Ambient, TMDL Monitoring)(Route 746 Bridge)

4ASCR007.06 (Ambient, TMDL Monitoring)(Route 746 Bridge) 2022: Three of 12 samples in excess of the statistical threshold value of 410 cfu/100ml. 2020: Three of 12 samples in excess of the instantaneous criterion. 2018: Three of 12 samples in excess of the instantaneous criterion. 2016: Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L59R_SCR02A02 / Sandy Creek / Sandy Creek mainstem from near its headwaters downstream to the confluence of Little Sandy Creek (RD37).	4A	Escherichia coli (E. coli)	2008	L	9.49

Sandy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.49

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L59R-02-BEN** Sandy Creek

Cause Location: Sandy Creek mainstem from the Little Sandy Creek mouth downstream to the confluence of Sandy Creek on the Dan River.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 data window finds the initial 5.52 mile listing of Sandy Creek for Aquatic Life Use based on benthic macroinvertebrate community surveys.

4ASCR003.33 (upstream of Rt 724, Pittsylvania Co.; Probabilistic Monitoring) - The 2022 data window finds two Virginia Stream Condition Index (VSCI) Scores not meeting the impairment threshold of 60. The data were collected during 2020: VSCI 53.3 (Spring) and VSCI 42.8 (Fall). This stream is very sandy and has marginal riffles. Sediment deposition and bank erosion are stressors to the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L59R_SCR01A02 / Sandy Creek / Sandy Creek mainstem from the Little Sandy Creek mouth downstream to the confluence of Sandy Creek on the Dan River.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	5.52

Sandy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.52

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L60R-01-BAC Dan River

Cause Location: Dan River from the VA/NC State Line to its confluence with Peter Creek.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

Three stations are located within the 36.91 miles of impaired waters. 4ADAN042.80 (Ambient)(2018)(Route 62 at VA/NC State Line), 4ADAN028.90 (Ambient)(Route 658 at Paces), and 4ADAN015.30 (Ambient)(Route 501 below South Boston)

4ADAN042.80 (Ambient)(2018)(Route 62 at VA/NC State Line) 2020: Two of 12 samples in excess of the instantaneous criterion. 2018:Three of 12 samples in excess of the instantaneous criterion.

4ADAN028.90 (Ambient) (Route 658 at Paces) 2022:Four of 29 samples in excess of the statistical threshold value of 410 cfu/100ml. 2020:Eight of 30 samples in excess of the instantaneous criterion. 2018: Nine of 35 samples in excess of the instantaneous criterion. 2016:11 of 36 samples in excess of the instantaneous criterion.

4ADAN015.30 (Ambient)(Route 501 below South Boston)6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch (RD41).	4A	Escherichia coli (E. coli)	2004	L	1.84
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge (RD46).	4A	Escherichia coli (E. coli)	1998	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek (RD46).	4A	Escherichia coli (E. coli)	1998	L	2.81
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location (RD49).	4A	Escherichia coli (E. coli)	1998	L	10.57
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	4A	Escherichia coli (E. coli)	1998	L	6.58
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)	4A	Escherichia coli (E. coli)	1998	L	3.30

Dan River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		36.96

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L60R-01-HG Dan River, Banister River and Hyco River

Cause Location: Dan River within the state of Virginia from Schoolfield Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to Rt. 738 bridge and Banister River up to the Banister Dam.

Cause City/County: Danville; Halifax County; Pittsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The initial 303(d) listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/1/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm.

4ADAN054.03 [Rt.265 Bridge] - The initial 303(d) Listing is based on 2007 fish tissue analysis where Hg is found in 4 Sp; Smouth bass at 0.71 ppm, flathead catfish at 0.90 ppm and 0.78 ppm and 0.38 ppm, channel catfish at 0.31 ppm, and quillback carpsucker 0.39 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 data windows. Exceedance of the Hg WQS based tissue value (TV) of 0.3 ppm is found in 1 sp in the 2015 FT Sample collections; flathead catfish at 0.34 ppm and 4 sp in the 2016 FT Sample collections; flathead catfish at 0.84 ppm and 0.64 ppm, striped bass at 0.74 ppm, 0.62 ppm, and 0.31 ppm, Lmouth bass at 0.31 ppm, and Smouth bass at 0.30 ppm. Exceedance of the Hg WQS based TV of 0.3 ppm and the VDH screening value of 0.5 ppm is found in 1 sp from 2017 collections; Striped Bass (1 fish) at 0.56 ppm; 1 sp exceeded the Hg WQS based TV of 0.3 ppm; Smouth Bass (1 fish) at 0.40 ppm. Exceedance of the Hg WQS based TV of 0.3 ppm is found in 1 sp from 2018 collections; Walleye (1 fish) at 0.37 ppm.

4ABAN000.50 (2007 FT/Sed)[upstream of the pipeline]- Listing based on 2007 fish tissue analysis where Hg is found in 2 sp; longnose gar at 1.03ppm, 0.83ppm, and 1.09 ppm and blue catfish at 0.72 ppm, 0.83 ppm, 0.39 ppm, 0.37 ppm, 0.36 ppm, and 0.32; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

4ABAN008.30 (2007 FT/Sed)[near Rt.614 bridge]- Listing based on 2007 fish tissue analysis where Hg is found in 1 sp; blue catfish at 0.52 ppm and 0.51 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

4ADAN001.18 [Dan River/Kerr Reservoir near State Park] - Listing based on 2007 fish tissue analysis where Hg is found in 3 sp; white crappie at 0.42 ppm and 0.39 ppm, Lmouth bass at 0.36 ppm and 0.43 ppm, and flathead catfish at 0.37 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 windows. Exceedance of the Hg WQS based TV of 0.3 ppm is found in 1 sp in the 2015 FT Sample collections; blue catfish at 0.38 ppm and 2 sp in the 2016 FT sample collections; golden redhorse sucker at 0.34 ppm and 0.32 ppm; and Lmouth bass at 0.55 ppm, 0.31 ppm, and 0.30 ppm. Exceedance of the Hg WQS based TV of 0.3 ppm is found in 3 sp from 2017 collections; Freshwater Drum (1 fish) at 0.34 ppm; Channel Catfish (1 Fish) at 0.30 ppm; and Carp (1 Fish) at 0.41 ppm. Exceedance of the Hg WQS based TV of 0.3 ppm and the VDH screening value of 0.5 ppm is found in 1 sp from 2018 collections; Flathead Catfish (1 fish) at 1.03 ppm; Exceedance of the Hg WQS based TV of 0.3 ppm is found in 1 sp; Lmouth Bass (3 fish) at 0.30 ppm. 2018 PCB collections.

4AHYC002.70 (2007 FT/Sed)[Hyco River near Rt.58] - Listing based on 2007 fish tissue analysis where Hg is found in 3 sp; Lmouth bass at 1.28 ppm, 0.73 ppm, and 0.48 ppm, bowfin at 0.47 ppm, and blue catfish at 0.45 ppm and 0.44 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

VDH Fish Advisory - PCBs: Issued 10/27/99, revised 12/31/04 & Mercury: Issued 8/31/07

Dan River within the state of Virginia from the Brantley Steam Plant Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN01A00 / Dan River / Dan River mainstem from the mouth of Sandy River upstream to the Schoolfield Dam (RD33).	5A	Mercury in Fish Tissue	2010	L	1.17
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch (RD41).	5A	Mercury in Fish Tissue	2008	L	1.84
VAW-L60R_DAN02A00 / Dan River / Dan River mainstem from Danville Northside POTW downstream to VA/NC State Line (exiting Virginia) (RD39).	5A	Mercury in Fish Tissue	2008	L	2.03
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW (RD39).	5A	Mercury in Fish Tissue	2008	L	0.38
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam (RD39).	5A	Mercury in Fish Tissue	2010	L	4.28
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge (RD46).	5A	Mercury in Fish Tissue	2008	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek (RD46).	5A	Mercury in Fish Tissue	2008	L	2.81
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location (RD49).	5A	Mercury in Fish Tissue	2008	L	10.57
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	5A	Mercury in Fish Tissue	2008	L	6.58
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge (RD67).	5A	Mercury in Fish Tissue	2008	L	1.40
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek (RD67).	5A	Mercury in Fish Tissue	2008	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River (RD67).	5A	Mercury in Fish Tissue	2008	L	2.34
VAW-L73L_DAN07A04 / Dan River / Peter Creek Confluence to Roanoke River Confluence (Kerr Reservoir)	5A	Mercury in Fish Tissue	2008	L	1655.18
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)	5A	Mercury in Fish Tissue	2008	L	3.30
VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	5A	Mercury in Fish Tissue	2008	L	6.12

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Dan River, Banister River and Hyco River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		1655.18	62.93

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-01-PCB** **Dan River, Banister River and Hyco River**

Cause Location: Dan River within the state of Virginia from the VA/NC State Line in Pittsylvania Co. downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to the VA/NC State Line and Banister River up to the Banister Dam.

Cause City/County: Danville; Halifax County; Pittsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The 2022 data window extends impairment on the Dan R. all the way up to the VA/NC State Line in Pittsylvania Co. and includes the backwaters of the Schoolfield Dam impoundment. Previously, the 2018 data window extended the impairment upstream on Hyco River by 17.48 miles. 4ADAN060.16 (Above Schoolfield Dam) 2019: 1 species out of 4 collected exceeds the DEQ screening value of 18 ppb: Carp (2 fish comp [70.8-75.1 cm]) at 59.47 ppb. 2016 fish collections find 1 species (Carp) out of 4 species collected exceeds WQS TV of 20 ppb (3 fish comp [69.0-73.3 cm]) at 53.21 ppb. 4ADAN054.03 (Rte 265 Br.-downstream of Danville) 2013 4 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb at 235.05 ppb. Remaining species analyzed Carp at 58.81 ppb and 76.6 ppb; Blue catfish at 91.57 ppb; and Golden redhorse sucker at 42.590ppb. 2007 4 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb at 222.30 ppb, 130.18 ppb, and 33.24 ppb. Remaining species analyzed Channel catfish at 32.20 ppb and 38.37 ppb; Redhorse sucker at 29.85 ppb; and Carp at 20.65 ppb and 27.66 ppb. 4ADAN028.90 (near Route 658 Br. near Paces) 2013 4 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 283.76 ppb and 68.92 ppb. Remaining species analyzed Carp at 45.77 ppb and 69.326 ppb; Blue catfish at 55.42 ppb and 27.79 ppb; and Channel catfish at 33.926 ppb. 4ADAN015.30 (near Route 501 below South Boston) 2013 3 species analyzed - Blue catfish exceeds WQS TV of 20 ppb; at 118.84 ppb, 268.04 ppb and 44.04 ppb. Remaining species analyzed Carp at 71.31 ppb; Flathead catfish at 724.49 ppb and 602.72 ppb. 4ABAN000.50 (upstream of the pipeline) 2013 3 species analyzed - Blue catfish exceeds WQS TV of 20 ppb; at 32.91 ppb. Remaining species analyzed Flathead catfish at 225.11 ppb; and Carp at 32.19 ppb and 54.88 ppb. 2007 3 species analyzed - Longnose gar exceeds WQS TV of 20 ppb; at 172.08 ppb, 686.90 ppb, and 254.03 ppb. Remaining species analyzed Blue catfish at 115.07 ppb, 180.97 ppb, 62.57 ppb, 70.64 ppb, 87.68 ppb, 82.28 ppb, and 40.18 ppb; and Carp at 97.04 ppb, 76.16 ppb, 40.53 ppb, 27.50 ppb, and 37.69 ppb. 4ABAN008.30 (near Route 614 br.) 2013 °PCB No exceedances. 2007 3 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 222.46 ppb. Remaining species analyzed Channel catfish at 99.31 ppb and 28.23 ppb; and Blue catfish at 199.72 ppb and 48.23 ppb. 4ADAN009.93 (at mouth of Grassy Cr.) 2013 4 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 480.96 ppb and 535.55 ppb. Remaining species analyzed Carp at 50.73 ppb and 87.03 ppb; Blue catfish at 84.23 ppb and 30.06 ppb; and Golden redhorse sucker at 39.84 ppb. 4ADAN001.18 (near Staunton River State Park) 2007 3 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 357.84 ppb. Remaining species analyzed Channel catfish at 21.28 ppb, 20.95 ppb, and 51.00 ppb; and Carp at 61.70 ppb, 158.54 ppb, and 20.33 ppb. 4AHYC010.76 (Near Rt. 744 Br.) 2013 fish tissue data finds 2 Channel Catfish PCB concentrations greater than DEQ's screening value of 20 ppb at 29.4 ppb and 28.1 ppb total PCB. 4AHYC002.70 (near Route 58 br.) 2013 2 species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 77.40 ppb. Remaining species analyzed Carp at 36.12 ppb and 71.07 ppb. 2007 species analyzed - Channel catfish exceeds WQS TV of 20 ppb; at 28.88 ppb. Remaining species analyzed Blue catfish at 43.16 ppb and 51.89 ppb; and Carp at 36.80 ppb, 21.49 ppb, 23.20 ppb, 27.61 ppb, and 23.02 ppb. VDH Fish Advisory - PCBs: Issued 10/27/99, revised 12/31/04 & Mercury: Issued 8/31/07 Dan River within the state of Virginia from the Brantley Steam Plant Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to Rt. 738 br. and Banister River up to the Banister Dam. These river segments comprise ~67 miles.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN01A00 / Dan River / Dan River mainstem from the mouth of Sandy River upstream to the Schoolfield Dam (RD33).	5A	PCBs in Fish Tissue	2010	L	1.17
VAW-L57R_DAN02A00 / Dan River / Dan River mainstem from the Schoolfield Dam upstream to the backwaters of the impoundment (RD33).	5A	PCBs in Fish Tissue	2022	L	2.52
VAW-L57R_DAN03A00 / Dan River / Dan River mainstem from the impounded backwaters of Schoolfield Dam upstream to the VA/NC State Line (RD33).	5A	PCBs in Fish Tissue	2022	L	4.17
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch (RD41).	5A	PCBs in Fish Tissue	2002	L	1.84
VAW-L60R_DAN02A00 / Dan River / Dan River mainstem from Danville Northside POTW downstream to VA/NC State Line (exiting Virginia) (RD39).	5A	PCBs in Fish Tissue	2006	L	2.03
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW (RD39).	5A	PCBs in Fish Tissue	2006	L	0.38
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam (RD39).	5A	PCBs in Fish Tissue	2010	L	4.28
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge (RD46).	5A	PCBs in Fish Tissue	2002	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek (RD46).	5A	PCBs in Fish Tissue	2004	L	2.81
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location (RD49).	5A	PCBs in Fish Tissue	2002	L	10.57
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	5A	PCBs in Fish Tissue	2002	L	6.58
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge (RD67).	5A	PCBs in Fish Tissue	2004	L	1.40
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek (RD67).	5A	PCBs in Fish Tissue	2004	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River (RD67).	5A	PCBs in Fish Tissue	2004	L	2.34
VAW-L73L_DAN07A04 / Dan River / Peter Creek Confluence to Roanoke River Confluence (Kerr Reservoir)	5A	PCBs in Fish Tissue	2002	L	1655.18
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)	5A	PCBs in Fish Tissue	2002	L	3.30

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	5A	PCBs in Fish Tissue	2006	L	6.12
VAW-L74R_HYC02A06 / Hyco River / From the VA/NC State Line downstream to the Route 738 Bridge.	5A	PCBs in Fish Tissue	2018	L	17.48

Dan River, Banister River and Hyco River

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1655.18	87.1

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-02-BAC** **Pumpkin Creek**

Cause Location: Pumpkin Creek from the VA/NC line to the mouth on the Dan River.

Cause City/County: Danville; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 4.28 miles of impaired waters. 4APKP002.31 (Ambient)(Old Route 86)

4APKP002.31 (Ambient) (Old Route 86)Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_PKP01A06 / Pumpkin Creek / From the VA/NC line to the mouth on the Dan River (RD39).	4A	Escherichia coli (E. coli)	2006	L	4.28

Pumpkin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.28

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-02-BEN** **Pumpkin Creek**

Cause Location: From the VA/NC line to the mouth on the Dan River

Cause City/County: Danville; Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4APKP002.46 (2009/2015 Bio) (Pumpkin Creek at College Park Road)The 2018 data window finds Bio 'IM' from two 2015 VSCI surveys: Spring 26.5, Fall 57.7. 2012 data window: Bio IM. Sampling station is in an urban watershed with abundant impervious surfaces. Flow regime and sedimentation seem to be affecting the benthic community negatively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_PKP01A06 / Pumpkin Creek / From the VA/NC line to the mouth on the Dan River (RD39).	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.28

Pumpkin Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.28

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-03-BAC** Cane Creek

Cause Location: Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 12.25 miles of impaired waters. 4ACAN000.80 (Ambient)(2018)(Cane Cr. @ Cedar Rd (NC Route 1530))

4ACAN000.80 (Ambient)(2018) (Cane Cr. @ Cedar Rd (NC Route 1530))Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_CAN01A02 / Cane Creek / Cane Creek mainstem from its headwaters downstream to the VA/NC State Line (RD41).	4A	Escherichia coli (E. coli)	2008	L	12.25

Cane Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.25

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-03-BEN** Cane Creek

Cause Location: Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ACAN000.80 (2009/2016 Bio)(Cane Cr. @ Cedar Rd (NC Route 1530)) The 2018 data window finds Bio 'IM' from two 2016 VSCI surveys: Spring 43.7, Fall 74.0. Bank scour and sedimentation are negatively affecting the site. The fall 2015 VSCI is very promising and could indicate recovery; therefore this stream will be monitored in the future to document any improvements.

2012 data window: Bio 'IM' - Bank scour and sedimentation are negatively affecting the site.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_CAN01A02 / Cane Creek / Cane Creek mainstem from its headwaters downstream to the VA/NC State Line (RD41).	5A	Benthic Macroinvertebrates Bioassessments	2012	L	12.25

Cane Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.25

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L60R-04-BEN** **Rutledge Creek**

Cause Location: Rutledge Creek from its headwaters to the mouth on Pumpkin Creek

Cause City/County: Danville

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ARUT000.45 (2009 & 2011 Bio) (Rutledge Cr @ Edmunds St, Danville)No new data since the 2016 data window:

IM - 4ARUT000.45 is located in an older suburban watershed with abundant impervious surfaces. An historic pollution event at an up gradient industrial facility may be affecting the benthic community as well.

4ARUT002.04 (2009/2014 Bio) No new data since the 2016 data window:

J - 4ARUT002.04 is located in an older suburban watershed with abundant impervious surfaces. An historic pollution event at an up gradient industrial facility may be affecting the benthic community as well. Significant seasonal variability and a single score near the impairment cutoff of 60 warrants further sampling at 4ARUT002.04

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_RUT01A12 / Rutledge Creek / Rutledge Creek from its headwaters to the mouth on Pumpkin Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.37

Rutledge Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.37

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L60R-05-BAC Dan River

Cause Location: Dan River from its confluence with Sandy River downstream to VA/NC State Line (exiting Virginia).

Cause City/County: Danville; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for the original 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008. The 2018 303(d) listed waters are nested in the Dan River Bacteria TMDL. The 2022 cycle extends the bacteria impairment an addition 2.02 miles to the VA/NC state line.

4ADAN053.40 (Bridge located near Danville STP) The 2018 data window finds four of 11 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_DAN02A00 / Dan River / Dan River mainstem from Danville Northside POTW downstream to VA/NC State Line (exiting Virginia) (RD39).	4A	Escherichia coli (E. coli)	2022	L	2.03
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW (RD39).	4A	Escherichia coli (E. coli)	2018	L	0.38
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam (RD39).	4A	Escherichia coli (E. coli)	2018	L	4.28

Dan River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.69

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L61R-01-BAC** **Fall Creek**

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Fall Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID.35751] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35751, 12/8/2008

Three stations are located within the 11.97 miles of impaired waters. 4AFAL001.58 (Ambient, TMDL Monitoring)(Route 730), 4AFAL005.42 (TMDL)(Fall Cr @ Twin Arch Dr (Rt 695)), and 4AFAL006.58 (Probambient)(2018)(in stream)

4AFAL001.58 (Ambient, TMDL Monitoring)(Route 730) Three of 24 samples in excess of the instantaneous criterion.

4AFAL005.42 (TMDL)(Fall Cr @ Twin Arch Dr (Rt 695)) Five of 12 samples in excess of the instantaneous criterion.

4AFAL006.58 (Probambient)(2018)(in stream) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters (RD38).	4A	Escherichia coli (E. coli)	2008	L	11.97

Fall Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.97

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L61R-01-BEN Fall Creek

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AFAL000.92 (2007-2008, 2011-2012 Bio)(Fall Creek near E. Thomas St. (Rt. 655))

IM - AFAL000.92 exhibits significant seasonal variation. Additional data must be collected to accurately characterize the status of the stream community. VSCI scores from 2011 and 2012 indicate an unbalanced community with tolerant taxa dominating the samples. Sediment and nutrient enrichment are probable stressors to this reach.

4AFAL006.61 (2014 Probmon/2016) The 2018 data window finds Bio 'IM' from four VSCI surveys (2014, 2016) with an average score of 48.3.

IM - Bank scour and slight sedimentation were observed. Originally a PROBMON station, accessible from Rt 29 in Danville.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters (RD38).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	11.97

Fall Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.97

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L61R-01-HG Fall Creek

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Station ID:

4AFAL000.92 (2007 FT Sampling)(Fall Creek near E. Thomas St. (Rt. 655))

Hg 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters (RD38).	5A	Mercury in Fish Tissue	2010	L	11.97

Fall Creek

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.97

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L61R-02-BAC** **Lawless Creek**

Cause Location: Lawless Creek from its headwaters to its mouth at Fall Creek.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35751

The Dan River Bacteria TMDL Study (Fall Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID.35751] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35751, 12/8/2008

One station is located within the 4.72 miles of impaired waters. 4ALAW002.43 (Ambient)(2018)(Lawless Creek @ Lawless Creek Rd)

4ALAW002.43 (Ambient)(2018)(Lawless Creek @ Lawless Creek Rd) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_LAW01A04 / Lawless Creek / Lawless Creek from its headwaters to its mouth at Fall Creek (RD38).	4A	Escherichia coli (E. coli)	2014	L	4.72

Lawless Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.72

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L61R-02-BEN** Lawless Creek

Cause Location: Lawless Creek from its headwaters to its mouth at Fall Creek.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This initial 2018 Aquatic Life Use impairment listing is based on Virginia Stream Condition Index (VSCI) surveys collected at two stations on Lawless Creek.

4ALAW002.43 (Above Lawless Creek Rd.) - The 2018 data window finds Bio 'IM' from four (2013, 2015) VSCI surveys with an average score of 46.2, which is below the impairment threshold of VSCI = 60.

4ALAW002.33 (40 meters downstream of Lawless Creek Rd. bridge) - The 2018 data window finds Bio 'IM' from five VSCI surveys (2013-2015) with an average VSCI score of 50.8.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_LAW01A04 / Lawless Creek / Lawless Creek from its headwaters to its mouth at Fall Creek (RD38).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.72

Lawless Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.72

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L62R-03-BAC** **Double Creek**

Cause Location: Double Creek from its headwaters to its mouth on the Dan River.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Double Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID.35942] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35942, 12/8/2008

One station is located within the 8.89 miles of impaired waters. 4ADBC002.19 (Ambient, TMDL)

4ADBC002.19 (Ambient, TMDL) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_DBC01A98 / Double Creek / Headwaters to Dan River (RD44).	4A	Escherichia coli (E. coli)	2008	L	8.89

Double Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.89

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L62R-04-BAC** **Byrds Branch**

Cause Location: Byrds Branch from its headwaters to the mouth at the Dan River

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Dan River Bacteria TMDL Study (Byrds Branch) received U.S. EPA approval on 12/8/2008 [Fed. ID.35750] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35750, 12/8/2008

Two stations are located within the 3.76 miles of impaired waters. 4ABYR000.80 (Hog Farm Special Study Station & Follow-up) and 4ABYR002.13 (Hog Farm Special Study Station & Follow-up)(2018)

4ABYR000.80 (Hog Farm Special Study Station & Follow-up) Two of 6 samples in excess of the instantaneous criterion.

4ABYR002.13 (Hog Farm Special Study Station & Follow-up)(2018) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_BYR01A04 / Byrds Branch / Byrds Branch from its headwaters to the mouth at the Dan River (RD46).	4A	Escherichia coli (E. coli)	2008	L	3.76

Byrds Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.76

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L62R-05-BAC** **Big Toby Creek**

Cause Location: Big Toby Creek from its headwaters to its mouth on the Dan River

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.57 miles of impaired waters. 4ABTC000.60 (Ambient)(2018)

4ABTC000.60 (Ambient)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_BTC01A08 / Big Toby Creek / Big Toby Creek from its headwaters to its mouth on the Dan River	4A	Escherichia coli (E. coli)	2008	L	7.57

Big Toby Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.57

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L62R-06-BAC Powells Creek

Cause Location: Powells Creek from its headwaters to its mouth on the Dan River

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 4.63 miles of impaired waters. 4APOW000.69 (Ambient)(2018)

4APOW000.69 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_POW01A08 / Powells Creek / Powells Creek from its headwaters to its mouth on the Dan River	4A	Escherichia coli (E. coli)	2008	L	4.63

Powells Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.63

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L62R-07-BEN Wolfe Creek

Cause Location: Wolfe Creek from its headwaters to its mouth on the Dan River

Cause City/County: Halifax County; Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AWFE000.60 (2012 Bio)

J - This stream had marginal bank stability and increased sedimentation as well as marginal habitat.

4AWFE001.57 (2006-2007 FPM)

IM - scored close to the VSCI impairment cutoff score of 60. Habitat seemed suitable in Wolfe Creek; nutrient levels may be shifting the stream community towards more tolerant taxa. Access to the site is limited by private landowners and additional sampling will be difficult.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_WFE01A08 / Wolfe Creek / Wolfe Creek from its headwaters to its mouth on the Dan River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.87

Wolfe Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.87

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L62R-08-BAC** Sandy Creek

Cause Location: Sandy Creek from its headwaters to the mouth at the Dan River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 9.41 miles of impaired waters.

4ASLC002.75 (Ambient)(2018)

4ASLC002.75 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_SLC01A04 / Sandy Creek / Sandy Creek from its headwaters to the mouth at the Dan River (RD43).	4A	Escherichia coli (E. coli)	2012	L	9.41

Sandy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.41

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L62R-09-BAC** **Winns Creek**

Cause Location: Winns Creek from its headwaters to the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.12 miles of impaired waters. 4AWNS004.02 (Ambient)(2018)

4AWNS004.02 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_WNS01A04 / Winns Creek / Winns Creek from its headwaters to the mouth at the Dan River (RD45).	4A	Escherichia coli (E. coli)	2016	L	7.12

Winns Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.12

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L62R-10-BAC Sandy Creek, Unnamed Tributary

Cause Location: Unnamed Tributary of Sandy Creek from its headwaters to the mouth.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 2.3 miles of impaired waters. 4AXVQ000.97 (Prob Ambient)(2018)

4AXVQ000.97 (Prob Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_XVQ01A16 / Sandy Creek, Unnamed Tributary / Unnamed Tributary of Sandy Creek from its headwaters to the mouth (RD43).	4A	Escherichia coli (E. coli)	2016	L	2.3

Sandy Creek, Unnamed Tributary

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.3

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L62R-10-BEN** **Sandy Creek, Unnamed Tributary**

Cause Location: Unnamed Tributary of Sandy Creek from its headwaters to the mouth.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AXVQ000.77 (2013 FPM)

IM - 4AXVQ000.77 is a small stream within the PROBMON program. Access to the site is limited by private landowners and additional sampling will not be possible.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_XVQ01A16 / Sandy Creek, Unnamed Tributary / Unnamed Tributary of Sandy Creek from its headwaters to the mouth (RD43).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.3

Sandy Creek, Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.3

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L63R-01-BAC** **Birch Creek**

Cause Location: Birch Creek from its headwaters to the mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID.23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

Five stations are located within the 20.14 miles of impaired waters. 4ABIR001.00 (Ambient & Birch Creek TMDL), 4ABIR004.22 (Birch Creek TMDL), 4ABIR005.34 (Birch Creek TMDL), 4ABIR011.55 (Birch Creek TMDL & Ambient)(2018), and 4ABIR014.28 (Birch Creek TMDL)

4ABIR001.00 (Ambient & Birch Creek TMDL) Six of 11 samples in excess of the instantaneous criterion.

4ABIR004.22 (Birch Creek TMDL) Five of 11 samples in excess of the instantaneous criterion.

4ABIR005.34 (Birch Creek TMDL) Six of 11 samples in excess of the instantaneous criterion.

4ABIR011.55 (Birch Creek TMDL & Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

4ABIR014.28 (Birch Creek TMDL) Teo of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_BIR01A98 / Birch Creek / From its headwaters to its mouth on the Dan River (RD47).	4A	Escherichia coli (E. coli)	2004	L	20.16

Birch Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.16

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L63R-01-BEN** **Birch Creek**

Cause Location: Birch Creek from its headwaters to the mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABIR011.55 (2013 Bio)

IM - Unbalanced benthic community. A breached mill dam is present upstream which may negatively affect the flow regime. Moderate algae production and embeddedness indicate nutrient enrichment and sedimentation are also likely stressors.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_BIR01A98 / Birch Creek / From its headwaters to its mouth on the Dan River (RD47).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	20.16

Birch Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		20.16

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L63R-02-BAC** **Unnamed Tributary to Birch Creek**

Cause Location: Unnamed Tributary to Birch Creek from its headwaters to its mouth on Birch Creek

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23317

The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID.23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

One station is located within the 5.35 miles of impaired waters. 4AXDK000.94 (TMDL Monitoring)

4AXDK000.94 (TMDL Monitoring) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_XDK01A06 / Birch Creek, Unnamed Tributary / From its headwaters to the mouth on Birch Creek	4A	Escherichia coli (E. coli)	2006	L	5.35

Unnamed Tributary to Birch Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.35

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L63R-03-BAC Germey Creek

Cause Location: Germey Creek from its headwaters to its mouth on Birch Creek

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 23317

The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID.23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

One station is located within the 5.37 miles of impaired waters. 4AGER001.17 (Ambient)(2018)

4AGER001.17 (Ambient)(2018) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_GER01A08 / Germey Creek / Germey Creek from its headwaters to its mouth on Birch Creek	4A	Escherichia coli (E. coli)	2014	L	5.37

Germey Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.37

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L64R-01-BAC** **Lawsons Creek**

Cause Location: Lawsons Creek from its headwaters to the mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 15.54 miles of impaired waters. 4ALSN007.45 (Ambient, TMDL Monitoring)

4ALSN007.45 (Ambient, TMDL Monitoring) 2022: Six of 12 samples in excess of the statistical threshold value. 2020: Eight of 12 samples in excess of the instantaneous criterion. 2016: Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_LSN01A98 / Lawsons Creek / Headwaters to Jerimy Creek (RD50).	4A	Escherichia coli (E. coli)	2008	L	8.27
VAW-L64R_LSN02A02 / Lawsons Creek / Lawsons Creek from Jerimy Creek to its confluence with Dan River (RD50).	4A	Escherichia coli (E. coli)	2012	L	7.27

Lawsons Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.54

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-02-BAC** **Miry Creek**

Cause Location: Miry Creek from the confluence with the Dan River upstream to its headwaters.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008. The 2018 cycle extends the E.coli impairment upstream to the headwaters of Miry Creek.

One station is located within the 1.12 miles of impaired waters. 4AMRY000.82 (Ambient)

4AMRY003.58 (Route 681, Union Church Road) - The 2018 IR finds ten of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Exceedances range from 259 - >24,000 cfu/100 ml.

4AMRY000.82 (Ambient) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_MRY01A04 / Miry Creek / Miry Creek from the Mikes Creek confluence to the Dan River (RD48).	4A	Escherichia coli (E. coli)	2006	L	1.12
VAW-L64R_MRY02A18 / Miry Creek (Middle) / Miry Creek from the confluence with Mikes Cr. upstream to the UT confluence at Deer View Trl crossing (36 41 32.5 N, -78 59 56.4 W) (RD48).	4A	Escherichia coli (E. coli)	2018	L	2.12
VAW-L64R_MRY03A18 / Miry Creek (Upper) / Miry Creek from its confluence with Unnamed Tributary at Deer View Trl crossing (36 41 32.5 N, -78 59 36.4 W) upstream to its headwaters (RD48).	4A	Escherichia coli (E. coli)	2018	L	9.84

Miry Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.08

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L64R-02-BEN** **Miry Creek**

Cause Location: Miry Creek from the confluence with the Dan River upstream to its headwaters.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2020 data window is the initial 303(d) Aquatic Life Use listing for Miry Creek.

4AMRY000.82 (River Rd. [Rt. 659]) - Bio 'IM' based on three VSCI Scores collected in 2018 (Spring 46.4) and 2014 (Spring 42, Fall 60.6). 4AMRY000.82 continues to exhibit significant seasonal variation. Additional data must be collected to accurately characterize the status of the stream community. High flows in fall 2018 prohibited further sampling. Sedimentation is a probable stressor. 2022: Bio 'IM' from VSCI scores: 46 (S 2018), 61 (S 2020), and 47 (F 2020); VSCI avg 52. 4AMRY000.82 continues to exhibit significant seasonal variation

4AMRY003.58 (Union Church Rd. [Rt. 681]) - Bio 'J' from one 2018 Spring sample of 50.5. High flows in fall 2018 prevented additional sampling.

Additional Information: 4AMRY003.02 (Downstream of Rt. 681) - Bio 'J' from two 2015 VSCI scores of 48.46 (Spring) and 39.13 (Fall). This site was sampled as part of the probabilistic monitoring program and will not be revisited. Follow up samples may be collected at 4AMRY003.58.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_MRY01A04 / Miry Creek / Miry Creek from the Mikes Creek confluence to the Dan River (RD48).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	1.12
VAW-L64R_MRY02A18 / Miry Creek (Middle) / Miry Creek from the confluence with Mikes Cr. upstream to the UT confluence at Deer View Trl crossing (36 41 32.5 N, -78 59 56.4 W) (RD48).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.12
VAW-L64R_MRY03A18 / Miry Creek (Upper) / Miry Creek from its confluence with Unnamed Tributary at Deer View Trl crossing (36 41 32.5 N, -78 59 36.4 W) upstream to its headwaters (RD48).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	9.84

Miry Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.08

Sources: Clean Sediments; Non-Point Source

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-03-BAC** **Grassy Creek**

Cause Location: Grassy Creek from its headwaters to the Route 744 crossing

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 IR is the initial 303(d) listing for the Recreational Use on Grassy Creek. These waters are Nested in the Dan River Watershed Bacteria TMDL: Approved EPA 12/8/08, SWCB 4/28/09 [TMDL ID: 36223].

4AGSY004.60 - The 2022 data window finds five of 12 E.coli samples in exceedance of the 410 cfu/100 ml statistical threshold value. The 2020 data window finds eight of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_GSY01A08 / Grassy Creek / Grassy Creek from its headwaters to the Route 744 crossing (RD51).	4A	Escherichia coli (E. coli)	2020	L	0.83

Grassy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.83

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-03-BEN** Grassy Creek

Cause Location: Grassy Creek from its headwaters to the Route 744 crossing

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4AGSY004.98 (2006 FPM) IM - Headwater stream which flows through an active cattle pasture. The stream community may be negatively impacted from sedimentation and excess nutrients. Additional monitoring needed to accurately delineate impairment.

4AGSY004.60 (2010/2014 Bio) Bio 'IM' from two 2014 VSCI surveys: Spring 23.5, Fall 46.1. IM - Significant seasonal variability and a VSCI score close to the impairment cutoff of 60. Very low flows are characteristic of this waterbody. Further sampling is required to accurately assess this waterbody. 4AGSY004.60 was sampled in response to a J assessment of an upstream PROBMON station (4AGSY004.98). 2022: Bio 'IM' from six VSCI scores avg 38. This site is characterized by embedded riffles that are deteriorating with time. In 2020 there were new bank failures and scoured areas of the streambed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_GSY01A08 / Grassy Creek / Grassy Creek from its headwaters to the Route 744 crossing (RD51).	5A	Benthic Macroinvertebrates Bioassessments	2008	H	0.83

Grassy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.83

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-04-BAC** **Poplar Creek**

Cause Location: Poplar Creek from its headwaters to its mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 IR finds the initial Recreational Use 303(d) impairment listing for Poplar Creek. These waters are Nested in the Dan River Watershed Bacteria TMDLs which were EPA approved on 12/8/2008 and SWCB approved on 4/28/2009 [Fed ID: 36223].

4APDA000.35 - The 2022 data window finds six of 12 E.coli samples in exceedance of the 410 cfu/100 ml statistical threshold value. The 2020 data window finds six of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_PDA01A10 / Poplar Creek / Poplar Creek from its headwaters to its mouth on the Dan River (RD51).	4A	Escherichia coli (E. coli)	2020	L	4.05

Poplar Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.05

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-04-BEN** **Poplar Creek**

Cause Location: Poplar Creek from its headwaters to its mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4APDA000.35 (2008/2012 Bio) Bio 'IM' from four VSCI surveys with an avg score of 41.2. Flow regime related sedimentation seems to be negatively affecting the stream community. 4APDA000.35 is located in a highly urban/industrial watershed. 2022: Bio 'IM' from six VSCI surveys with an avg score of 32. Flow regime-related sedimentation seems to be negatively affecting the stream community. 4APDA000.35 is located in a highly urban/industrial watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_PDA01A10 / Poplar Creek / Poplar Creek from its headwaters to its mouth on the Dan River (RD51).	5A	Benthic Macroinvertebrates Bioassessments	2010	H	4.05

Poplar Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.05

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-05-BAC** **Reedy Creek**

Cause Location: Reedy Creek from its headwaters to the confluence of Woods Creek.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 data window finds the Recreational Use impaired on Reedy Creek based on E.coli samples collected in 2018. These waters are Nested in the Dan River Watershed Bacteria TMDL [Fed ID: 36223], EPA approved 12/8/2008 and SWCB approved 4/28/2009.

4ARAC000.92 (Ash St, South Boston)- The 2022 data window finds three of 12 E.coli samples in exceedance of the 410 cfu/100ml statistical threshold value. The 2020 data window finds seven of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_RAC01A04 / Reedy Creek / Reedy Creek from its headwaters to the confluence of Woods Creek (RD51).	4A	Escherichia coli (E. coli)	2020	L	2.92

Reedy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.92

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L64R-05-BEN** **Reedy Creek**

Cause Location: Reedy Creek from its headwaters to the confluence of Woods Creek.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4ARAC000.92 (2008/2012 Bio) IM - 4ARAC000.92 is located in an older suburban watershed with abundant impervious surfaces which negatively affects flows and sedimentation. There is also an unlined municipal landfill in the watershed which has historical leachate issues. 2018: Bio 'IM' from four VSCI surveys averaging 31.1 (2012, 2016).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_RAC01A04 / Reedy Creek / Reedy Creek from its headwaters to the confluence of Woods Creek (RD51).	5A	Benthic Macroinvertebrates Bioassessments	2010	H	2.92

Reedy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L64R-06-BAC** Stokes Creek

Cause Location: Stokes Creek from its headwaters to its mouth on Lawsons Creek.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 2.3 miles of impaired waters.4ASKS002.80 (Ambient)(2018)

4ASKS002.80 (Ambient)(2018) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_SKS01A08 / Stokes Creek / Stokes Creek from its headwaters to its mouth on Lawsons Creek	4A	Escherichia coli (E. coli)	2014	L	6.36

Stokes Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.36

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L65R-01-BAC Banister River

Cause Location: Banister River from its headwaters to its confluence with Bearskin Creek.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.33820] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33820, 11/04/2007

Two stations are located within the 11.88 miles of impaired waters. 4ABAN070.20 (Ambient & Banister River TMDL Study)(2018) and 4ABAN074.58 (TMDL Monitoring)

4ABAN070.20 (Ambient & Banister River TMDL Study)(2018) Six of 12 samples in excess of the instantaneous criterion.

4ABAN074.58 (TMDL Monitoring) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BAN03A00 / Banister River / Banister River mainstem from the mouth of Bearskin Creek upstream to the mouth of Wet Sleeve Creek (RD52).	4A	Escherichia coli (E. coli)	2010	L	5.09
VAW-L65R_BAN04A00 / Banister River / Banister River mainstem from the mouth of Wet Sleeve Creek upstream to its headwaters (RD52).	4A	Escherichia coli (E. coli)	2008	L	6.79

Banister River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.88

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L65R-02-BAC **Bearskin Creek**

Cause Location: Bearskin Creek from its mouth on the Banister River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33820

The Banister River Bacteria TMDL Study (Bearskin Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.34104] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34104, 11/04/2007

One station is located within the 9.57 of impaired waters. 4ABKN002.47 (Banister River TMDL Study)

4ABKN002.47 (Banister River TMDL Study) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BKN01A00 / Bearskin Creek / Bearskin Creek from its mouth on the Banister River upstream to its headwaters (RD53).	4A	Escherichia coli (E. coli)	2006	L	9.57

Bearskin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.57

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L65R-02-BEN** **Bearskin Creek**

Cause Location: Bearskin Creek from its mouth on the Banister River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABKN000.52 (Ambient, Bio) 2008/2011/2012/2014 Bio -2016 data window finds five VSCI surveys with average score: 59.3. IM - Sediment and flow regime seem to affect the stream community negatively. Showing improvement in 2012 and 2014. Sedimentation still seems to be the main stressor. However, when in-stream snag habitat is present a fairly diverse benthic community is supported. 2022: Bio 'IM' from two 2019 VSCI Scores avg 40 (S 45, F 36). Limited habitat available, sand deposition occurring.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BKN01A00 / Bearskin Creek / Bearskin Creek from its mouth on the Banister River upstream to its headwaters (RD53).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	9.57

Bearskin Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.57

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L65R-03-BAC** **White Oak Creek**

Cause Location: White Oak Creek from its headwaters to its mouth.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33820

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.33820] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33820, 11/04/2007

One station is located within the 6.37 miles of impaired waters. 4AWOA002.43 (Ambient)(2018)

4AWOA002.43 (Ambient)(2018) Ten of 12 samples in excess of the instantaneous criterion. (2020) Ten of 12 samples in excess of the instantaneous criterion. (2022) Six of 12 samples in excess of the statistical threshold value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_WOA01A10 / White Oak Creek / White Oak Creek from its headwaters to its mouth (RD54).	4A	Escherichia coli (E. coli)	2010	L	6.37

White Oak Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.37

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L65R-04-BAC** **Strawberry Creek**

Cause Location: Strawberry Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Strawberry Creek Recreational Use is 303(d) listed during the 2020 IR. These waters are Nested in the Banister River Watershed Bacteria TMDL [Fed ID: 33820], EPA approved 11/42007 and SWCB approved 7/31/2008.

4ASRW002.32 (Strawberry Rd, Rt 750) - The 2020 data window finds six of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_SRW02A08 / Strawberry Creek / Strawberry Creek from its headwaters to its mouth on the Banister River (RD52).	4A	Escherichia coli (E. coli)	2020	L	5.96

Strawberry Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.96

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L65R-04-BEN** **Strawberry Creek**

Cause Location: Strawberry Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ASRW002.32 (2011 Bio) IM - Habitat scores and taxa lists indicate sedimentation as a stressor causing an unbalanced community. 2022: Bio 'IM' from two 2020 VSCI scores avg 55 (S 56.5, F 54.7). Sedimentation is a likely stressor to the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_SRW02A08 / Strawberry Creek / Strawberry Creek from its headwaters to its mouth on the Banister River (RD52).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.96

Strawberry Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.96

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L66L-02-DO **Roaring Fork Reservoir**

Cause Location: Roaring Fork Reservoir

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID: 4ARFK000.20 (Lake Station) 2022: Dissolved Oxygen - 8/39 Exceedance Rate 2020:
Dissolved Oxygen - 7/29 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66L_RFK01A06 / Roaring Fork Reservoir / From its headwaters to its impounding structure	5A	Dissolved Oxygen	2008	L	19.58

Roaring Fork Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.58	

Sources: Dam or Impoundment

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Roanoke and Yadkin River Basins

Cause Group Code: **L66R-01-BAC** **Cherrystone Creek**

Cause Location: Cherrystone Creek from the Cherrystone Creek Reservoir Dam to the Chatham STP outfall.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 5.97 miles of impaired waters. 4ACRR003.56 (Ambient)

4ACRR003.56 (Ambient) 2022: Eight of 12 samples in excess of the statistical threshold value. 2020: 12 of 12 samples in excess of the instantaneous criterion.2016: Nine of 12 samples in excess of the instantaneous criterion. Station ID:

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_CRR02A00 / Cherrystone Creek / Cherrystone Creek mainstem from the Chatham STP outfall upstream to Chatham's water intake (RD55).	4A	Escherichia coli (E. coli)	2008	L	3.49
VAW-L66R_CRR03A00 / Cherrystone Creek / Cherrystone Creek from the town of Chatham water intake upstream to the Cherrystone Creek Dam (RD55).	4A	Escherichia coli (E. coli)	2008	L	2.49

Cherrystone Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.98

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L66R-02-BAC** **Little Cherrystone Creek**

Cause Location: Little Cherrystone Creek from its headwaters to its mouth on Cherrystone Creek

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33823

The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 4.84 miles of impaired waters. 4ALCC000.59 (Ambient)(2018)

4ALCC000.59 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_LCC01A08 / Little Cherrystone Creek / Little Cherrystone Creek from its headwaters to its mouth on Cherrystone Creek	4A	Escherichia coli (E. coli)	2008	L	4.84

Little Cherrystone Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.84

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: L66R-03-BAC Pole Bridge Branch

Cause Location: Pole Bridge Branch from its headwaters to its mouth.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33823

The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 5.02 miles of impaired waters. 4APDE002.12 (Ambient)

4APDE002.12 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_PDE01A10 / Pole Bridge Branch / Pole Bridge Branch from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2010	L	5.02

Pole Bridge Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.02

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L66R-04-BEN** Cherrystone Creek

Cause Location: Cherrystone Creek mainstem from the backwaters of Cherrystone Creek Reservoir upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 data window finds this initial 4.1 mile Aquatic Life Use 303(d) listing on Cherrystone Creek due to Virginia Stream Condition Index scores below the assessment threshold of 60.

4ACRR011.77 (Cherrystone Ck US of trib crossing 798) - The 2022 data window finds Bio 'IM' from 7 VSCI scores avg 59 (2016-17, 2019). This stream has great riffles but all surfaces are covered in periphyton. Previous samples scored just above the impairment threshold.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_CRR04A00 / Cherrystone Creek / Cherrystone Creek mainstem from the backwaters of Cherrystone Creek Reservoir upstream to its headwaters (RD55).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.1

Cherrystone Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.1

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L67R-01-BAC Banister River

Cause Location: Banister River from its confluence with Cherrystone Creek to the backwaters of Banister Lake.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

Four stations are located within the 39.29 miles of impaired waters. 4ABAN023.28 (Ambient), 4ABAN029.81 (TMDL Monitoring), 4ABAN039.76 (Ambient)(2018), and 4ABAN053.77 (Ambient)(2018)

4ABAN023.28 (Ambient) 2022: Six of 12 samples in excess of the statistical threshold value. 2020: Six of 12 samples in excess of the instantaneous criterion. 2016: Three of 12 samples in excess of the instantaneous criterion.

4ABAN029.81 (TMDL Monitoring) Three of 12 samples in excess of the instantaneous criterion.

4ABAN039.76 (Ambient)(2022) Nine of 35 samples in excess of the instantaneous criterion. (2020) Nine of 36 samples in excess of the instantaneous criterion. (2018) Seven of 35 samples in excess of the instantaneous criterion.

4ABAN053.77 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BAN01A98 / Banister River / Elkhorn Creek to Sandy Creek (RD62).	4A	Escherichia coli (E. coli)	2004	L	8.61
VAW-L67R_BAN02A04 / Banister River / Banister River from the Pittsylvania/Halifax County line downstream to the Elkhorn Creek confluence (RD60).	4A	Escherichia coli (E. coli)	2012	L	1.83
VAW-L67R_BAN03A04 / Banister River / Banister River from the Stinking River confluence downstream to the Pittsylvania/Halifax County line (RD60).	4A	Escherichia coli (E. coli)	2012	L	7.48
VAW-L67R_BAN04A08 / Banister River / Banister River from its confluence with Cherrystone Creek to its confluence with Stinking River (RD58).	4A	Escherichia coli (E. coli)	2016	L	16.87
VAW-L71R_BAN02A98 / Banister River / Sandy Creek to Banister Lake	4A	Escherichia coli (E. coli)	2004	L	4.49

Banister River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			39.28

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L67R-02-BAC Allen Creek

Cause Location: Allen Creek from its headwaters to its mouth on the Banister River

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 5.45 miles of impaired waters. 4AALL001.13 (Ambient)

4AALL001.13 (Ambient) Eight of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_ALL01A08 / Allen Creek / Allen Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2008	L	6.02

Allen Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.02

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L67R-03-BEN** **Elkhorn Creek**

Cause Location: Elkhorn Creek from its headwaters to its mouth.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AEKH003.18 (2001 Probabilistic Monitoring)

4AEKH003.68 (Bio)

2008/2012 Bio - IM

4AEKH003.68 was sampled to replace 4AEKH003.18. Bio 'IM' from four VSCI surveys (2012, 2015). VSCI scores average 45.7.

4AEKH003.18 was a probabilistic monitoring station located on private property. The final assessment of 4AEKH003.18 was °J°, meaning more information was needed for an accurate assessment. The remoteness of this site makes future sampling at 4AEKH003.18 unlikely.

The proximity of station 4AEKH003.68 to 4AEKH003.18 makes it a suitable surrogate for the assessment of both stations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_EKH01A04 / Elkhorn Creek / Elkhorn Creek from the Pittsylvania/Halifax County line downstream to the Banister River (RD61).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.01
VAW-L67R_EKH02A10 / Elkhorn Creek / Elkhorn Creek from the Pittsylvania/Halifax County line upstream to its headwaters (RD61).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	9.91

Elkhorn Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.92

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L67R-04-BAC** **Bradley Creek**

Cause Location: Bradley Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 6.47 miles of impaired waters.4ABDB000.75 (Ambient)(2018)

4ABDB000.75 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BDB01A08 / Bradley Creek / Bradley Creek from its headwaters to its mouth on the Banister River (RD62).	4A	Escherichia coli (E. coli)	2014	L	6.47

Bradley Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.47

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L67R-04-BEN Bradley Creek

Cause Location: Bradley Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABDB000.75 (2010/2014 Bio) IM - VSCI scores continually close to the impairment cutoff score of 60. Additional sampling yielded lower scores. Loose, soft sand/sediment dominated stream bottom and banks. 2022: Bio 'IM' from four VSCI scores avg 48.2 (2014, 2017). 4ABDB000.75 has VSCI scores continually close to the impairment cutoff score of 60. Additional sampling yielded lower scores. Loose, soft sand/sediment dominated stream bottom and banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BDB01A08 / Bradley Creek / Bradley Creek from its headwaters to its mouth on the Banister River (RD62).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	6.47

Bradley Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.47

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L67R-05-BAC** **Bye Creek**

Cause Location: Bye Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 7.3 miles of impaired waters. 4ABYE000.85 (Ambient)(2018)

4ABYE000.85 (Ambient)(2018) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BYE01A08 / Bye Creek / Bye Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2014	L	7.3

Bye Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.3

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L67R-06-BEN Shockoe Creek

Cause Location: Shockoe Cr. mainstem from its headwaters to its mouth on Banister R.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 assessment cycle finds the initial 5.51 mile 303(d) Aquatic Life Use listing on Shockoe Creek based on benthic macroinvertebrate community data as evaluated by the Virginia Stream Condition Index (VSCI). VSCI scores were found to be below the impairment threshold of VSCI=60.

4ASCK003.10 (Shockoe Ck @ Rte 895) finds Bio 'IM' from two 2019 VSCI scores: 58 (Spring) and 36 (Fall). Regional Biologist notes that this stream had low water and was very incised. It had multiple bank failures and the habitat was poor.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_SCK01A22 / Shockoe Creek / Shockoe Cr. mainstem from its headwaters to its mouth on Banister R. (BAN) (RD58).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	5.51

Shockoe Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.51

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L68R-01-BAC Whitehorn Creek

Cause Location: Whitehorn Creek mainstem from its mouth upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Whitehorn Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33819] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33819, 11/04/2007

Two stations are located within the 15.89 miles of impaired waters. 4AWRN000.43 (Ambient, TMDL Monitoring)(2018) and 4AWRN000.43 (Ambient, TMDL Monitoring)(2018)

4AWRN000.43 (Ambient, TMDL Monitoring)(2018) Five of 11 samples in excess of the instantaneous criterion.

4AWRN000.43 (Ambient, TMDL Monitoring)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L68R_WRN01A00 / Whitehorn Creek / Whitehorn Creek mainstem from its mouth upstream to the confluence with Georges Creek (RD57).	4A	Escherichia coli (E. coli)	2006	L	0.79
VAW-L68R_WRN02A06 / Whitehorn Creek / From its headwaters to the confluence with Georges Creek (RD56).	4A	Escherichia coli (E. coli)	2006	L	15.11

Whitehorn Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			15.9

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L68R-01-BEN Whitehorn Creek

Cause Location: Whitehorn Creek mainstem from its confluence with Georges Creek upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AWRN005.50 (2009/2013/2016 Bio) 2008 data window finds Bio 'IM' from four VSCI surveys (2013, 2016) averaging 51.1. Exhibits significant seasonal variation. Additional data were collected to accurately characterize the stream community. 2013 data are dominated by tolerant Chironomidae taxa and may indicate sediment as a probable stressor.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L68R_WRN02A06 / Whitehorn Creek / From its headwaters to the confluence with Georges Creek (RD56).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	15.11

Whitehorn Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			15.11

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L68R-02-BAC** Mill Creek

Cause Location: Mill Creek from its headwaters to its mouth on Whitethorn Creek.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 IR finds the Mill Creek Recreational Use impaired. These waters are Nested in the Banister River Watershed Bacteria TMDLs [Fed ID: 33820], EPA approved 11/4/2007 and SWCB approved 7/31/2008.

4AMIL002.17 - Eight of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2020 data window. Five of 12 E.coli samples exceed the 410 cfu/100 ml statistical threshold value during the 2022 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L68R_MIL01A16 / Mill Creek / Mill Creek from its headwaters to its mouth (RD56).	4A	Escherichia coli (E. coli)	2020	L	9.29

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.29

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L69R-01-BAC** **Stinking River**

Cause Location: Stinking River mainstem from its mouth on the Banister River upstream to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Stinking Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33822] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33822, 11/04/2007

Two stations are located within the 14.15 miles of impaired waters. 4ASNE005.30 (Ambient, TMDL Monitoring)(2018) and 4ASNE010.46 (TMDL Monitoring)

4ASNE005.30 (Ambient, TMDL Monitoring)(2018) One of 12 samples in excess of the instantaneous criterion.

4ASNE010.46 (TMDL Monitoring) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L69R_SNE01A00 / Stinking River / Stinking River mainstem from its mouth on the Banister River upstream to its headwaters (RD59).	4A	Escherichia coli (E. coli)	2008	L	14.15

Stinking River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.15

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L69R-02-BEN** Flybow Creek

Cause Location: Flyblow Creek from the confluence with an unnamed tributary (36 56' 56.645"N, -79 12' 45.017"W) to its headwaters.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2022 assessment report finds the initial benthic macroinvertebrate community 303(d) listing affecting the Aquatic Life Use on Flybow Creek. Virginia Stream Condition Index (VSCI) scores are reported below the impairment threshold of VSCI=60.

4AFly001.78 (Flyblow Creek at Rt 606) - the 2022 data window finds Bio 'IM' from four VSCI scores avg 50 (2016, 2019). Habitat scores indicate a high probability of stress to Aquatic Life. There is silviculture very close to the stream and heavy sediment deposition instream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L69R_FLY02A18 / Flyblow Creek / Flyblow Creek from the confluence with an unnamed tributary (36 56' 56.645"N, -79 12' 45.017"W) to its headwaters (RD59).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	2.14

Flybow Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.14

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L70R-01-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its confluence with Pine Creek to its mouth on the Banister River.

Cause City/County: Halifax County; Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Sandy Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID.33821] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33821, 11/04/2007

Two stations are located within the 20.47 miles of impaired waters. 4ASNA000.20 (Ambient)(2018) and 4ASNA015.30 (Ambient)

4ASNA000.20 (Ambient)(2022) Nine of 30 samples in excess of the instantaneous criterion. (2020) 11 of 30 samples in excess of the instantaneous criterion. (2018) Five of 17 samples in excess of the instantaneous criterion.

4ASNA015.30 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_SNA01A00 / Sandy Creek / Near the Pittsylvania/Halifax County line to mouth on Banister River (RD64).	4A	Escherichia coli (E. coli)	2014	L	14.57
VAW-L70R_SNA01B10 / Sandy Creek / Sandy Creek from its confluence with Pine Creek to near the Halifax/Pittsylvania County line.	4A	Escherichia coli (E. coli)	2010	L	5.90

Sandy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.47

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Upstream Impoundments; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L70R-02-BEN** **Sweden Fork**

Cause Location: Sweden Fork from its headwaters to the mouth.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ASDE004.07

Bio 'IM' from two 2014 VSCI surveys averaging 52.6.

4ASDE002.18 (2012 FPM/2014)

No additional data since the 2016 data window: Bio 'IM' from three VSCI surveys (2012, 2014) averaging 38.9. This site is on private property and was sampled as part of the Probabilistic Monitoring program, therefore it will not be revisited. The stream had relatively unstable banks and increased sediment deposition. There was a large beaver dam just downstream of the reach in fall 2012 in addition to several smaller beaver dams throughout the sampling reach.

4ASDE002.65 (2010 FPM)

J - VSCI scores close to the impairment cutoff of 60. Further sampling is required to accurately assess this waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_SDE01A12 / Sweden Fork / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2014	L	8.64

Sweden Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.64

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L70R-03-BEN** **Bar Branch**

Cause Location: Bar Branch from its headwaters to its mouth.

Cause City/County: Pittsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABAR000.32 (2012/2014 Bio) No additional data beyond the 2016 data window:

IM - 4ABAR000.32 exhibits great seasonal variability with the fall sample scoring near the impairment threshold of 60. Habitat scores indicate sediment may be a stressor on the system. Additional sampling is required to accurately assess water quality within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_BAR01A06 / Bar Branch / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.04

Bar Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.04

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L70R-04-BAC** **Lick Branch**

Cause Location: Lick Branch mainstem from its mouth on Sandy Cr. to the confluence of two unnamed tributaries (RD63).

Cause City/County: Pittsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2018 initial Recreational Use listing of Lick Branch is Nested in the Banister River Bacteria TMDL Study (Sandy Creek) which received U.S. EPA approval on 11/4/2007 [Fed. ID.33821] and SWCB approval on 7/31/2008. The TMDL addressed 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33821, 11/04/2007

4ALBR000.37 (Route 662 / Randolph Road) The 2018 data window finds an E.coli exceedance rate of 5/12 with excursions ranging from 246 to greater than 1,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_LBR01A18 / Lick Branch / Lick Branch mainstem from its mouth on Sandy Cr. to the confluence of two unnamed tributaries (RD63).	4A	Escherichia coli (E. coli)	2018	L	3

Lick Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L71L-01-DO Banister Lake

Cause Location: Banister Lake

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: Station ID: 4ABAN012.46 (Lake) 2022: Dissolve Oxygen - 7/52 Exceedance Rate 2020: Dissolve Oxygen - 7/52 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71L_BAN03L00 / Banister Lake / From its impounding structure to its backwaters on the Banister River	4C	Dissolved Oxygen	NA	NA	351.84

Banister Lake

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			351.84	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Roanoke and Yadkin River Basins

Cause Group Code: L71L-01-HG **Banister Lake**

Cause Location: Banister Lake

Cause City/County: Halifax County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 4ABAN012.46: 2020 FT (Hg) one species, 2 fish

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71L_BAN03L00 / Banister Lake / From its impounding structure to its backwaters on the Banister River	5A	Mercury in Fish Tissue	2022	L	351.84

Banister Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	351.84	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L71R-04-BAC Banister River

Cause Location: Banister River from Banister Lake Dam to its mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013 [Fed. ID.52942] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013

Two stations are located within the 11.99 miles of impaired waters. 4ABAN005.58 (Ambient)(2018) and 4ABAN001.86 (Ambient)

4ABAN005.58 (Ambient)(2018) 12 of 36 samples in excess of the instantaneous criterion.

4ABAN001.86 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge (RD67).	4A	Escherichia coli (E. coli)	2012	L	1.40
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek (RD67).	4A	Escherichia coli (E. coli)	2012	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River (RD67).	4A	Escherichia coli (E. coli)	2008	L	2.34

Banister River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.99

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L71R-05-BAC** Polecat Creek

Cause Location: Polecat Creek from its headwaters to the mouth at the Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID.34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/4/2007

Two stations are located within the 9.7 miles of impaired waters. 4APEC002.42 (Ambient)(2018) and 4APEC006.49 (Ambient)

4APEC002.42 (Ambient)(2022) Three of 12 samples in excess of the statistical threshold value. (2020) Five of 12 samples in excess of the instantaneous criterion. (2018) Three of 12 samples in excess of the instantaneous criterion.

4APEC006.49 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_PEC01A04 / Polecat Creek / Polecat Creek from its headwaters to the mouth at the Banister River (RD65).	4A	Escherichia coli (E. coli)	2010	L	9.71

Polecat Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.71

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L71R-05-BEN** **Polecat Creek**

Cause Location: Polecat Creek from its headwaters to the mouth at the Banister River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4APEC002.42 (2009 & 2013 Bio) 2018 data window:

Bio 'IM' from four VSCI surveys (2013, 2016) with an average score of 49.1.

IM - 4APEC002.42 exhibits seasonal variability. Spring scores are very low. Sedimentation is a likely stressor due to high embeddedness scores.

4APEC006.49 (2009/2013/2016 Bio) 2018 data window:

Bio 'IM' from four VSCI surveys (2013, 2016) averaging 43.8. IM - 4APEC006.49 has fall VSCI scores very close to the impairment cutoff score of 60. Spring scores are very low. Sedimentation is a likely stressor due to high embeddedness scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_PEC01A04 / Polecat Creek / Polecat Creek from its headwaters to the mouth at the Banister River (RD65).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	9.71

Polecat Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.71

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L71R-06-BAC** **Winn Creek**

Cause Location: Winn Creek from its headwaters to the mouth on the Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Winn Creek) received U.S. EPA approval on 7/8/2013 [Fed. ID.52941] and SWCB approval on 7/4/2014 for these 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52941, 7/8/2013

One station is located within the 7.09 miles of impaired waters. 4AWNN000.99 (Ambient)

4AWNN000.99 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_WNN01A06 / Winn Creek / From its headwaters to the mouth on the Banister River	4A	Escherichia coli (E. coli)	2008	L	7.09

Winn Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.09

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L71R-07-BAC** **Gibson Creek**

Cause Location: Gibson Creek from its headwaters to its mouth on the Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 52942

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013[Fed. ID.52942] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013

One station is located within the 5.26 miles of impaired waters. 4AGIB000.66 (Ambient)(2018)

4AGIB000.66 (Ambient)(2018) Two of 6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_GIB01A08 / Gibson Creek / Gibson Creek from its headwaters to its mouth on the Banister River (RD67).	4A	Escherichia coli (E. coli)	2014	L	5.39

Gibson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.39

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L71R-08-BAC** **Kents Creek**

Cause Location: Kents Creek from its backwaters on Banister Lake to its headwaters (RD65).

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013 [Fed. ID.52942] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013. The Unnamed Tributary to Kents Creek (XVY) is nested within the Banister River TMDL Study.

4AXVY000.00 (Off Ball Park Loop) - The 2018 data window finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in five of 12 samples with excursions ranging from 243 to greater than 11,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_KTS01A18 / Kents Creek / Kents Creek from its backwaters on Banister Lake to its headwaters (RD65).	4A	Escherichia coli (E. coli)	2018	L	1.9

Kents Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.9

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L72R-01-BAC** **Terrible Creek**

Cause Location: Terrible Creek from Little Terrible Creek to its mouth on Banister River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

4ATTRR001.92 (Ambient/Bio)(2018)

E. coli - 4/12Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L72R_TRR01A00 / Terrible Creek / Little Terrible Creek to Banister River (RD66).	5A	Escherichia coli (E. coli)	2014	L	4.83

Terrible Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.83

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L72R-01-BEN Terrible Creek

Cause Location: Terrible Creek from Little Terrible Creek to its mouth on Banister River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ATRR001.92 (Ambient/Bio) - The 2018 data window finds Aquatic Life Use impairment based on six VSCI surveys (2011-2012, 2016) with an average score of 55.1. 4ATRR001.92 exhibits some seasonal variability near the assessment threshold of 60. The community depends greatly on snag habitat which is limited by scoured banks and sandy bottoms. Sampling was moved downstream of the bridge in fall 2016 due to a massive beaver dam under the bridge. Beaver activity in the area may be affecting the flow regime of the stream and consequently the benthic community. Benthic macroinvertebrate community data was also collected: 2005-2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L72R_TRR01A00 / Terrible Creek / Little Terrible Creek to Banister River (RD66).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	4.83

Terrible Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.83

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L73R-01-BAC Aarons Creek

Cause Location: Aarons Creek from its headwaters to the first unnamed tributary downstream of White House Road.

Cause City/County: Halifax County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 64072

The Hyco River Bacteria TMDL Study (Aarons Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID.64072] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64072, 2/3/2015

One station is located within the 9.41 miles of impaired waters. 4AAAR006.20 (Ambient)(2018)

4AAAR006.20 (Ambient)(2018) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_AAR02A10 / Aarons Creek / Aarons Creek from the VA/NC border to the confluence with Big Branch located downstream of White House Road (RD75).	4A	Escherichia coli (E. coli)	2016	L	9.41

Aarons Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.41

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L73R-02-BAC** North Fork Aarons Creek

Cause Location: From its headwaters to the mouth on Aarons Creek

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 64072

The Hyco River Bacteria TMDL Study (Aarons Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID.64072] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64072, 2/3/2015

One station is located within the 9.75 miles of impaired waters. 4ANFA000.35 (Ambient)

4ANFA000.35 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_NFA01A06 / North Fork Aarons Creek / From its headwaters to the mouth on Aarons Creek	4A	Escherichia coli (E. coli)	2012	L	9.75

North Fork Aarons Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.75

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L73R-03-BAC** **Peter Creek**

Cause Location: Peter Creek from its headwaters to its confluence with the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID.35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 6.6 miles of impaired waters.4APET004.35 (Ambient)(2018)

4APET004.35 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_PET01A16 / Peter Creek / From its headwaters to its confluence with the Dan River (RD76).	4A	Escherichia coli (E. coli)	2016	L	6.61

Peter Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.61

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L73R-03-DO** **Peter Creek**

Cause Location: Peter Creek from its headwaters to its confluence with the Dan River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Dissolved Oxygen (DO) impairment initial 303(d) listing on Peter Creek is a result of exceedances of the Class III DO Water Quality Standard (WQS) of 4.0 mg/L.

4APET004.35 (Rt. 716) - The 2022 data window finds one excursion of the DO WQS at 3.7 mg/L (6/26/19). The 2016 data window finds three of 12 DO observations in exceedance of the 4.0 mg/L DO WQS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_PET01A16 / Peter Creek / From its headwaters to its confluence with the Dan River (RD76).	5A	Dissolved Oxygen	2016	L	6.61

Peter Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.61

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L74R-01-BAC Hyco River

Cause Location: Hyco River from the VA/NC state line to its mouth on the Dan River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID.64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 23.57 miles of impaired waters. 4AHYC016.70 (Ambient)(2018)

4AHYC016.70 (Ambient)(2018) Four of 36 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	4A	Escherichia coli (E. coli)	2008	L	6.12
VAW-L74R_HYC02A06 / Hyco River / From the VA/NC State Line downstream to the Route 738 Bridge.	4A	Escherichia coli (E. coli)	2006	L	17.48

Hyco River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.6

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L74R-03-BAC** Coleman Creek

Cause Location: Coleman Creek from its headwaters to its mouth on the Hyco River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID.64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

Two stations are located within the 8.49 miles of impaired waters. 4ACLB005.17 (Hog Farm Special Study & Follow-up)(2018) and 4ACLB007.78 (Hog Farm Special Study & Follow-up)

4ACLB005.17 (Hog Farm Special Study & Follow-up)(2018) One of 6 samples in excess of the instantaneous criterion.

4ACLB007.78 (Hog Farm Special Study & Follow-up) Three of 6 Insufficient Data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_CLB01A06 / Coleman Creek / From its headwaters to its mouth on the Hyco River (RD72).	4A	Escherichia coli (E. coli)	2008	L	8.49

Coleman Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.49

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-03-BEN** Coleman Creek

Cause Location: Coleman Creek from its headwaters to its mouth on the Hyco River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Coleman Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 2/3/2015 [Fed. ID.63928] and SWCB approval on 12/11/2014 for this 2008 303(d) Listed impairment to the benthic community.

Station IDs: 4ACLB001.90 (2006 Probmon) (2017 Probmon) Impaired Benthic Assessment - Lack of suitable habitat is negatively affecting the stream community. 4ACLB004.14 (2012 Bio) No new data since 2014 data window: IM - Beaver dam downstream. Very slow-moving water. Habitat rather lacking and livestock have access upstream of bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_CLB01A06 / Coleman Creek / From its headwaters to its mouth on the Hyco River (RD72).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	8.49

Coleman Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.49

Sources: Clean Sediments

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L74R-04-DO **Big Bluewing Creek**

Cause Location: Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID:
 4ABLU002.02 (Ambient) Dissolved Oxygen - 2/11 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_BLU01A08 / Big Bluewing Creek / Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River (RD73).	5A	Dissolved Oxygen	2008	L	11.24

Big Bluewing Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.24

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-05-BEN** **Bowes Branch**

Cause Location: Bowes Branch from the VA/NC State Line to its confluence with the Hyco River.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABOS000.13 (2004 FPM)

IM - Segment affected by beaver activity. Suitable habitat was limited for the maintenance of an adequate stream community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_BOS01A06 / Bowes Branch / From the VA/NC State Line to its confluence with the Hyco River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.44

Bowes Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.44

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-06-BAC** Mayo Creek

Cause Location: Mayo Creek from the VA/NC border to its confluence with Hyco River.

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 64076

The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID.64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 4.93 miles of impaired waters. 4AMYO001.48 (Ambient)(2018)

4AMYO001.48 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_MY001A04 / Mayo Creek / Mayo Creek from the VA/NC border to its confluence with Hyco River (RD71).	4A	Escherichia coli (E. coli)	2016	L	4.93

Mayo Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.93

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-07-BAC** **Powells Creek**

Cause Location: Powells Creek from its headwaters to the confluence with an unnamed tributary upstream of NC Route 1325. (Virginia Portion of Powells Creek)

Cause City/County: Halifax County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2016: 64076

The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID.64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 4.65 miles of impaired waters. 4APWL001.11 (Ambient)(2018)

4APWL001.11 (Ambient)(2018) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_PWL01A10 / Powells Creek / Powells Creek from its headwaters to the confluence with an unnamed tributary upstream of NC Route 1325 (RD69).	4A	Escherichia coli (E. coli)	2016	L	4.66

Powells Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.66

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-08-BEN** Little Bluewing Creek

Cause Location: Little Bluewing Creek mainstem from its mouth on Big Bluewing Cr. to its headwaters in Halifax Co.

Cause City/County: Halifax County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2018 data window produces this initial Aquatic Life Use listing for Little Bluewing Creek.

4ALWN000.08 (Rt. 740/Wilson Rd) Bio 'IM' from two 2015 VSCI surveys: Spring 41.5, Fall 50.6. The high numbers of Chironomids (blackfly larvae) and Chuematopsyche (net-spinning caddisfly larvae) in spring indicate a nutrient or organic pollution problem.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_LWN01A18 / Little Bluewing Creek / Little Bluewing Creek mainstem from its mouth on Big Bluewing Cr. to its headwaters in Halifax Co. (RD73).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	7.92

Little Bluewing Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.92

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L75L-01-PCB Kerr Reservoir

Cause Location: Kerr Reservoir from the John H. Kerr dam to its backwaters, excluding the Dan River portion.

Cause City/County: Halifax County; Mecklenburg County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: VDH Fish Advisory - PCBs: Issued 7/24/98 , revised 8/31/07 & Mercury: Issued 8/31/07 Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (State Route 695) near Rough Creek. 4AROA129.95 (near Bus Route 29 Bridge near Altavista Gage) 2019:5-sp. exceed DEQ's screening value (18ppb); Smallmouth Bass, Golden Redhorse Sucker, Carp, Blue Catfish, & Channel Catfish. Carp exceeds the VDH "Upper" (500ppb); 2013:3-sp. exceed VDH "lower" (50ppb); Flathead catfish, channel catfish, & Carp. 2006:Carp exceeds VDH "upper" (500ppb). 2006:6-sp exceeded VDH lower level of concern (50ppb); Smallmouth bass, Rock bass, Redbreast sunfish, Channel catfish, Carp, Redhorse sucker.

4AROA108.09 (near Long Island) 2018:2-sp.exceed the VDH "upper" (500ppb); Flathead Catfish and Carp. Golden Redhorse Sucker exceeds the VDH "lower" (100ppb); 3-sp. exceed (20ppb); Smallmouth Bass, Channel Catfish, & Spotted Bass. 2013 Flathead catfish exceeds VDH "upper"(500ppb); 4-sp. exceed VDH "lower"(50ppb); Channel catfish, Carp, Shorthead redhorse sucker, & gizzard shad. 2006: Carp exceeds VDH "upper" (500ppb). 3-sp.exceed VDH "lower" (50ppb); Smallmouth bass, Channel catfish, Carp, Redhorse sucker. 4AROA097.07 (Route 501 at Brookneal) - 2018: 4-sp.exceed the VDH "lower" (100ppb) Walleye, Carp, Channel Catfish, & Blue Catfish. Smallmouth Bass exceeds (20ppb); 2013: 2-sp.exceed VDH "upper" (500ppb); Blue catfish & Flathead catfish. 4-sps exceed VDH "lower" (50ppb); striped bass, Blue catfish, carp, & Channel catfish. 2006:Striped Bass exceeds VDH "upper" (500ppb); 5-sp.exceeds VDH "lower" (50ppb); Striped bass, Black crappie, Channel catfish, Carp, & Redhorse sucker. 4AROA067.91 (Route 746 Bridge) - 2018:5-sp. exceed WQS (20ppb); Smallmouth Bass, Walleye, Blue Catfish, Carp, & Channel Catfish. Carp and Channel Catfish exceed the VDH "lower" (100ppb); 2013: 4-sp. exceed VDH "lower" level (50ppb): Carp, Channel Catfish, Blue Catfish, & Golden Redhorse: 2006:Walleye, and Carp exceed VDH "upper"(500ppb); 5-sp. exceed VDH "lower" (50ppb); Blue catfish, Channel catfish, carp, Golden redhorse sucker, & Gizzard shad. 4AROA059.12 (Route 360 Bridge, east of Clover) - 2018:4-sp.exceed the VDH "lower" (100ppb); Freshwater Drum, Carp, Blue Catfish, & Golden Redhorse Sucker. Smallmouth Bass exceeds (20ppb); 2013:4-sp.exceed the VDH "lower" (100ppb); Flathead Catfish, Channel Catfish, Carp, & Blue Catfish; 2006: Striped Bass & Carp exceed VDH "upper" (500ppb); 7-sp. exceed VDH "lower" (50ppb); Striped bass, White bass, Largemouth bass, walleye, Channel catfish, carp, & Redhorse sucker. 4AROA036.59 (Station #B Buoy 18 Kerr Reservoir) - 2020:1 sp.exceeds PCB; Golden Redhorse Sucker. 2019:2 sp. exceed (18 ppb); Flathead Catfish and Channel Catfish. 2018: 2-sp. exceed the WQS TV of 20 ppb; Channel Catfish & Golden Redhorse Sucker 2006:2-sp.exceed VDH "lower" (50ppb); Carp & golden redhorse sucker.

4AROA028.04 (Station #B-9 Kerr Reservoir - Buoy 9) - 2006:2-sp. exceed VDH "lower" (50ppb); Largemouth bass & Longnose gar

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75L_BHB01A22 / Butcher Creek / Butcher Creek and Tribs included in the boundaries of Kerr Reservoir.	5A	PCBs in Fish Tissue	2002	L	2196.07
VAW-L75L_ROA05L98 / Kerr Reservoir / Kerr Reservoir from the John H. Kerr dam to ~ Long Grass Branch confluence.	5A	PCBs in Fish Tissue	2002	L	7018.24
VAW-L75L_ROA05M22 / Kerr Reservoir / Kerr Reservoir from ~Long Grass Branch confluence to about 2 miles upstream of the confluence with Grassy Creek..	5A	PCBs in Fish Tissue	2002	L	14828.39

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Appendix 4 - Fact Sheets for
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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75L_ROA05N22 / Kerr Reservoir / Kerr Reservoir from about 2 miles upstream of the confluence of Grassy Creek tot about 1 mile upstream of the confluence with Bluestone Creek.	5A	PCBs in Fish Tissue	2002	L	4182.41
VAW-L75L_ROA05O22 / Kerr Reservoir / Kerr Reservoir from about 1 mile upstream of the confluence of Bluestone Creek to the backwaters, excluding the Dan River, Bluestone Creek, Buffalo Creek, and Butcher Creek.	5A	PCBs in Fish Tissue	2002	L	2440.31
VAW-L76L_BMA01A06 / Buffalo Creek / Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir	5A	PCBs in Fish Tissue	2002	L	358.96
VAW-L77L_BST01A06 / Bluestone Creek / Bluestone Creek and Tribs included in the boundaries of Kerr Reservoir	5A	PCBs in Fish Tissue	2002	L	860.22

Kerr Reservoir

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		31884.6	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L75L-02-DO Kerr Reservoir

Cause Location: Kerr Reservoir from the John H. Kerr dam to about 2 miles upstream of the confluence of Grassy Creek, including Butcher Creek. Kerr Reservoir-Bluestone Creek.

Cause City/County: Halifax County; Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Dissolved oxygen exceeds the WQS in the following stations: 4ABHB004.40 Butcher Creek
 4ABST001.13 Bluestone Creek 4AROA018.36
 4AROA022.52
 4AROA028.04 4AROA032.42

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75L_BHB01A22 / Butcher Creek / Butcher Creek and Tribs included in the boundaries of Kerr Reservoir.	5A	Dissolved Oxygen	2022	L	2196.07
VAW-L75L_ROA05L98 / Kerr Reservoir / Kerr Reservoir from the John H. Kerr dam to ~ Long Grass Branch confluence.	5A	Dissolved Oxygen	2022	L	7018.24
VAW-L75L_ROA05M22 / Kerr Reservoir / Kerr Reservoir from ~Long Grass Branch confluence to about 2 miles upstream of the confluence with Grassy Creek..	5A	Dissolved Oxygen	2022	L	14828.39
VAW-L77L_BST01A06 / Bluestone Creek / Bluestone Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Dissolved Oxygen	2022	L	860.22

Kerr Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary
(Sq. Miles)

Reservoir
(Acres)
24902.92

River
(Miles)

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L75R-03-BAC** **Beech Creek**

Cause Location: Beech Creek from its headwaters to the VA/NC state line.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hyco River Bacteria TMDL Study (Beech Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID.64066] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64066, 2/3/2015

One station is located within the 4.7 miles of impaired waters. 4ABEE000.80 (Ambient)(2018)

4ABEE000.80 (Ambient)(2022) Zero of 12 samples in excess of the statistical threshold value, Insufficient Information. (2020) Two of 12 samples in excess of the instantaneous criterion. (2018) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75R_BEE01A98 / Beech Creek / Headwaters to North Carolina Border (RL01).	4A	Escherichia coli (E. coli)	2008	L	4.7

Beech Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.7

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L75R-03-BEN** **Beech Creek**

Cause Location: Beech Creek from its headwaters to the VA/NC state line.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABEE000.80 (Ambient) 2018 data window finds Bio 'IM' from four VSCI surveys (2014, 2016) averaging 52.5.

2010/2014 Bio - IM - Site exhibits seasonal variability. Further sampling indicates an unbalanced benthos community. Sedimentation and nutrient enrichment are probable stressors.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75R_BEE01A98 / Beech Creek / Headwaters to North Carolina Border (RL01).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.7

Beech Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.7

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L75R-04-BEN Rocky Branch, Upper

Cause Location: Rocky Branch mainstem (Upper) from the confluence with an unnamed tributary near Red Oak Ln upstream to its headwaters (RL07).

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The initial 303(d) General Standard listing is based on data collection at 4AROB001.36 (Rocky Branch at Rocky Mt. Rd. (Rt. 689)) - Bio 'IM'. The 2022 data window finds two 2020 VSCI survey scores averaging 41 (Spring: 43; Fall: 38). Biologist notes: Small stream that is incised. Riffles were somewhat embedded and the habitat was suboptimal.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75R_ROB02A22 / Rocky Branch, Upper / Rocky Branch mainstem (Upper) from the confluence with an unnamed tributary near Red Oak Ln upstream to its headwaters (RL07).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.08

Rocky Branch, Upper

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.08

Sources: Source Unknown; Streambank Erosion

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Roanoke and Yadkin River Basins

Cause Group Code: L76L-01-BAC Buffalo Creek

Cause Location: Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The initial 2020 303(d) Listing of these waters is a result of escherichia coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion in five of 36 samples. Excursions range from 328 to 1314 cfu/100ml. 2022: E.coli 5/35 Exceedance rate. Impaired- 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76L_BMA01A06 / Buffalo Creek / Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Escherichia coli (E. coli)	2020	L	358.96

Buffalo Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		358.96	

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L76R-01-BAC** **Little Buffalo Creek**

Cause Location: Little Buffalo Creek from its headwaters to its mouth on Kerr Reservoir.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Hyco River Bacteria TMDL Study (Little Buffalo Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID.64074] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for e.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64074, 2/3/2015

One station is located within the 2.51 miles of impaired waters. 4ALFF001.85 (Ambient)(2018)

4ALFF001.85 (Ambient)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_LFF01A00 / Little Buffalo Creek / Headwaters to Kerr Reservoir (RD77).	4A	Escherichia coli (E. coli)	2004	L	2.51

Little Buffalo Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.51

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L76R-01-BEN** **Little Buffalo Creek**

Cause Location: Little Buffalo Creek from its headwaters to its mouth on Kerr Reservoir.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ALFF001.85 (Bio) 2018 data window finds Bio 'IM' from two 2015 VSCI surveys greater than 60.0: Spring 30.0, Fall 38.7.

2010 Bio - IM - Sedimentation and STP effluent have negatively affected the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_LFF01A00 / Little Buffalo Creek / Headwaters to Kerr Reservoir (RD77).	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.51

Little Buffalo Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.51

Sources: Municipal Point Source Discharges

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Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: L76R-02-BAC Buffalo Creek

Cause Location: Buffalo Creek from its headwaters to the backwaters of Kerr Reservoir.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID: 4ABMA002.00 - The 2018 data window finds four of 36 Escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_BMA01A06 / Buffalo Creek / From its headwaters to the backwaters of Kerr Reservoir (RD77).	5A	Escherichia coli (E. coli)	2018	L	5.68

Buffalo Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.68

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L76R-02-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from its headwaters to the backwaters of Kerr Reservoir.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 4ABMA005.64 - The 2018 data window finds Aquatic Life Use impairment from two 2015 VSCI surveys: Spring 27.8 and Fall 57.1. There was a large beaver dam just upstream of the sampling reach, which may have affected the benthic community. Further sampling is required to accurately assess the waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_BMA01A06 / Buffalo Creek / From its headwaters to the backwaters of Kerr Reservoir (RD77).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	5.68

Buffalo Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.68

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L77R-01-BAC** **Little Bluestone Creek**

Cause Location: Little Bluestone Creek from a fork upstream of Route 696 to Kerr Reservoir.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ALNE006.56 (Ambient)(2018)

E. coli - 7/35 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_LNE01A98 / Little Bluestone Creek / Fork upstream of Route 696 to Kerr Reservoir.	4A	Escherichia coli (E. coli)	2006	L	9.39

Little Bluestone Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.39

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L77R-02-BAC** **Bluestone Creek**

Cause Location: Bluestone Creek from its headwaters to its confluence with Moody Creek.

Cause City/County: Charlotte County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ABST017.09 (Ambient)(2018)

E. coli - 5/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_BST02A06 / Bluestone Creek / From its headwaters to Moody Creek	4A	Escherichia coli (E. coli)	2006	L	8.26

Bluestone Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.26

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L77R-02-BEN** **Bluestone Creek**

Cause Location: Bluestone Creek from its confluence with Moody Creek to the backwaters of Kerr Reservoir.

Cause City/County: Charlotte County; Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ABST013.64 (2012/2015 Bio) Bio 'IM' from four VSCI surveys with an average score of 43.3.

IM - 4ABST013.64 has limited habitat due to scour and sedimentation. Riparian vegetation was suitable but bank scour was evident. Spring taxa list was dominated by Simuliidae and Chironomidae, bringing VSCI scores well below the impairment threshold.

4ABST014.94 (2007 FPM)

J Benthic Assessment - 4ABST014.94 exhibits significant seasonal variation. Additional data must be collected to accurately characterize the status of the stream community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_BST01A98 / Bluestone Creek / Moody Creek to the backwaters of Kerr Reservoir	5A	Benthic Macroinvertebrates Bioassessments	2014	L	13.73

Bluestone Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.73

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L77R-03-BEN** Devils Branch

Cause Location: Devils Branch from its headwaters to its mouth.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID: 4ADEV000.86 (2020 Bio) Bio 'IM' from two VSCI surveys Spring 46.9 and Fall 49.4
 Substrate mostly consists of broken up bedrock. Good riffles, but some sediment deposition occurring. Most rocks have obvious periphyton on surfaces.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_DEV01A14 / Devils Branch / Devils Branch from its headwaters to its mouth	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.57

Devils Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.57

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-02-BAC** **Unnamed Tributary to Allen Creek**

Cause Location: Entire tributary located just south of the intersection of Redlawn and Baskerville Roads in Mecklenburg County.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Station ID:

4AXUQ000.00 (Hog Farm SS)

Total Fecal Coliform - 2/4 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_XUQ01A04 / Allen Creek, Unnamed Tributary / Entire tributary located just south of the intersection of Redlawn and Baskerville Roads in Mecklenburg County (RL11).	4A	Fecal Coliform	2004	L	1.27

Unnamed Tributary to Allen Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			1.27

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-03-BAC** **Allen Creek**

Cause Location: Allen Creek from its headwaters to Cox Creek.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4AALN009.12 (Ambient)(2018)

E. coli - 7/36 Exceedance Rate

4AALN016.38 (Ambient)(2018)

E. coli - 3/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ALN03A04 / Allen Creek / Layton Creek downstream to Cox Creek (RL11).	4A	Escherichia coli (E. coli)	2006	L	8.97
VAW-L78R_ALN04A06 / Allen Creek / From its headwaters to Layton Creek (RL10).	4A	Escherichia coli (E. coli)	2012	L	15.28

Allen Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			24.25

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-03-BEN** **Allen Creek**

Cause Location: Allen Creek from its headwaters to Layton Creek.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4AALN016.38 (Ambient/2013 Bio)

J - 4AALN016.38 exhibits significant seasonal variability. Sedimentation is a potential stressor. Additional data needed to accurately characterize the benthic community

4AALN020.60 (2013 Bio)

IM - Sedimentation is a probable stressor to the benthic community. Silviculture is taking place within the nearby watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ALN04A06 / Allen Creek / From its headwaters to Layton Creek (RL10).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	15.28

Allen Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.28

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-04-BAC** Cox Creek

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2020 IR finds the Recreational Use impaired on Cox Creek. These waters are included in the Kerr Reservoir Tributaries Bacteria TMDLs, EPA approved 1/26/2017 and SWCB approved 12/7/2017.

4ACOX007.73 - The 2020 IR finds four of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek (RL11).	4A	Escherichia coli (E. coli)	2020	L	10.81

Cox Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.81

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-04-BEN** Cox Creek

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Cox Creek Aquatic Life Use initial 303(d) listing occurred during the 2008 data window and was based on benthic macroinvertebrate community data collected at DEQ station 4COX007.73.

4ACOX007.73 (2005 Probmon, upstr/North of Rt 668) Bio 'IM' from VSCI scores. Lack of suitable habitat is negatively affecting the stream community. Beaver activity has made the reach unwadeable. Accurate assessment depends on locating a suitably accessible site.

Additional collections find Bio 'IM' at 4COX007.50 (Rt. 668 Bridge). Bio 'IM' from two 2017 VSCI scores of 32.6 (spring) and 57.2 (fall) and two 2020 VSCI scores avg 36 (spring 30, fall 42). This stream has slow-moving water and a soft, mucky/silty bottom. Biologist noted poor habitat, mostly consisting of rootwads and undercut banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek (RL11).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	10.81

Cox Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.81

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L78R-04-DO Cox Creek

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID:

4ACOX000.38 (Ambient) No new data since 2006 data window:

Dissolved Oxygen - 3/11 Violation Rate

4ACOX003.23 (Ambient) No new data since 2010 data window:

Dissolved Oxygen - 4/12 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek (RL11).	5A	Dissolved Oxygen	2004	L	10.81

Cox Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.81

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-05-BAC** Cotton Creek

Cause Location: Cotton Creek from its headwaters to its mouth on the Roanoke River

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ACTT000.70 (Ambient)(2018)

E. coli - 8/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_CTT01A08 / Cotton Creek / Cotton Creek from its headwaters to its mouth on the Roanoke River (RL12).	4A	Escherichia coli (E. coli)	2008	L	4.4

Cotton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.4

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-06-BAC** Layton Creek

Cause Location: Form its headwaters to its confluence with Allen Creek

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ALYT003.77 (Ambient)(2018)

E. coli - 11/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_LYT01A06 / Layton Creek / From its headwaters to its confluence with Allen Creek (RL10).	4A	Escherichia coli (E. coli)	2012	L	8.65

Layton Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.65

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-06-BEN** Layton Creek

Cause Location: Form its headwaters to its confluence with Allen Creek

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station ID:

4ALYT003.77 (Bio)

IM - 2005-2012/2014 Bio

4ALYT003.77 was negatively affected by drought in 2007-2008, with periods of very low flow. Logging in the up gradient watershed appears to have negatively affected the benthic community with sedimentation. Current monitoring (2014) has yielded similar results.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_LYT01A06 / Layton Creek / From its headwaters to its confluence with Allen Creek (RL10).	5A	Benthic Macroinvertebrates Bioassessments	2012	H	8.65

Layton Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			8.65

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-07-BAC** **Kettles Creek**

Cause Location: Kettles Creek from its headwaters to the mouth

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4AKTT001.15 (Ambient)(2018)

E. coli - 1/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_KTT01A12 / Kettles Creek / Kettles Creek from its headwaters to the mouth (RL11).	4A	Escherichia coli (E. coli)	2012	L	5.48

Kettles Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.48

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L78R-07-DO** **Kettles Creek**

Cause Location: Kettles Creek from its headwaters to the mouth

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID:

4AKTT001.15 (Ambient) No new data beyond 2016 data window:

DO - 9/22 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_KTT01A12 / Kettles Creek / Kettles Creek from its headwaters to the mouth (RL11).	5A	Dissolved Oxygen	2012	L	5.48

Kettles Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.48

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L79L-02-CHLA** **Lake Gordon**

Cause Location: Lake Gordon

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: Station ID:

4AMES007.54

2022: Only one year of monitoring during this IR window, Impairment carries. 2020: Chlorophyll a - 2/2 Samples (90% Calculated over 1 Sample Yr) Note: The 2020 IR was based on 2/2 Samples .

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_MES01L00 / Lake Gordon / On Miles Creek.	5A	Chlorophyll-a	2016	L	107.48

Lake Gordon

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		107.48	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L79L-02-HG Lake Gordon

Cause Location: Lake Gordon

Cause City/County: Mecklenburg County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Station ID:

4AMES007.54 (2006 FT/Sed)

Hg 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_MES01L00 / Lake Gordon / On Miles Creek.	5A	Mercury in Fish Tissue	2010	L	107.48

Lake Gordon

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	107.48	

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L79R-01-BAC** Flat Creek

Cause Location: Flat Creek from its headwaters to its mouth on the Roanoke River.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)

E. coli - 3/7 Exceedance Rate

4AFLT008.80 (2004 Flat Creek TMDL)

E. coli - 3/6 Exceedance Rate

4AFLT008.79 (Ambient, Benthic, 2002 FT/Sed, Flat Creek TMDL Station)

E. coli - 1/7 Exceedance Rate (No New Bacteria Data for 2010)

4AFLT002.60 (Ambient)(2018)

E. coli - 5/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	1.69
VAW-L79R_FLT02A96 / Flat Creek / From the South Hill STP discharge to the Belfield Road crossing.	4A	Escherichia coli (E. coli)	2006	L	6.24
VAW-L79R_FLT03A08 / Flat Creek / From the Belfield Road crossing to its mouth on the Roanoke River	4A	Escherichia coli (E. coli)	2016	L	1.42

Flat Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.35

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L79R-01-BEN** Flat Creek

Cause Location: Flat Creek from its headwaters to its mouth on the Roanoke River.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Station ID:

4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)

The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.

2008/2010-2011 Bio

IM - 4AFLT009.17 is in the headwater segment of Flat Creek with several small channels.

Flow regime related sedimentation seems to be negatively affecting the stream community.

4AFLT008.79 (Ambient, Benthic, 2002 FT/Sed, Flat Creek TMDL Station)

The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.

2008 Bio

IM - 4AFLT008.79 has sparse habitat, effluent affected flow, and is subject to occasionally significant storm flows.

4AFLT002.60 (Ambient, Bio)

2008/2010-2011 Bio

IM - Flat Creek is a very slow moving stream at river mile 2.60. Habitat was adequate with abundant leaf packs. Field measurements indicate a slight depression of dissolved oxygen in the warmest summer months. August dissolved oxygen values around 6 mg/L since 2003. No DO measurements exceeded the standard of 4 mg/L.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	1.69
VAW-L79R_FLT02A96 / Flat Creek / From the South Hill STP discharge to the Belfield Road crossing.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	6.24
VAW-L79R_FLT03A08 / Flat Creek / From the Belfield Road crossing to its mouth on the Roanoke River	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.42

Flat Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.35

Sources: Clean Sediments; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L79R-01-DO** Flat Creek

Cause Location: Flat Creek from upstream of the South Hill STP discharge to its headwaters.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID:

4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)

Dissolved Oxygen - 2/8 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	5A	Dissolved Oxygen	2006	L	1.69

Flat Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.69

Sources: Clean Sediments; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **L79R-02-BAC** **Smith Creek**

Cause Location: Smith Creek from the VA/NC state line to its mouth on Kerr Reservoir

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ASMI003.58 (Ambient)(2018)

E. coli - 4/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_SMI01A08 / Smith Creek / Smith Creek from the VA/NC state line to its mouth (RL16)	4A	Escherichia coli (E. coli)	2008	L	1.91

Smith Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.91

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Roanoke and Yadkin River Basins

Cause Group Code: **L79R-03-BAC** Miles Creek

Cause Location: Lake Gordon to the Roanoke River.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

4AMES004.78 (Ambient)(2018)

E coli - 2/11 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_MES01A98 / Miles Creek / Lake Gordon to the Roanoke River (RL13).	5A	Escherichia coli (E. coli)	2016	L	5.98

Miles Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.98

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L80L-01-HG** **Lake Gaston**

Cause Location: Roanoke River from the John H. Kerr Dam into Lake Gaston within Virginia.

Cause City/County: Mecklenburg County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue data are reviewed by the VDH in making an advisory determination. The VDH Advisory information is also available via the web at <http://www.vdh.virginia.gov>. 4AROA004.54 (Lake Gaston, off Point (Mecklenburg County) - 2019 (Hg) Collections: two species exceed the Mercury (Hg) WQS based tissue value (TV) of 0.3ppm; Largemouth Bass (2 fish) at .55ppm, (3 fish) at .32ppm and Redear Sunfish (5 fish) at .31ppm, one of the species (largemouth bass) was above the VDH level of concern (.50 ppm). 2018 (Hg) collections: one species exceeds (Hg) WQS (TV) of 0.3 ppm and the VDH screening value of 0.5 ppm; largemouth Bass (5 Fish) at 0.52ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ROA06A98 / Roanoke River / Kerr Dam to Route 1 bridge (RL12).	5A	Mercury in Fish Tissue	2022	L	5.69
VAW-L79L_ROA07A98 / Lake Gaston / Upper portion of Lake Gaston - Route 1 to the confluence of Smith Creek.	5A	Mercury in Fish Tissue	2022	L	1369.25
VAW-L80L_ROA08A04 / Lake Gaston / Lower Portion of Lake Gaston on the Roanoke River- Smith Creek confluence downstream to the VA/NC State Line, including coves that enter the mainstem within VA.	5A	Mercury in Fish Tissue	2022	L	3071.70

Lake Gaston

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		4440.95	5.69

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: L80L-01-PCB Lake Gaston

Cause Location: Roanoke River from the John H. Kerr Dam into Lake Gaston within Virginia.

Cause City/County: Mecklenburg County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: 4AROA004.54 (near NC-VA State line): 2020 one species exceeds PCB (TV) of 18 ppb for PCB - Channel Catfish exceeds ; (3 fish composite [46.1-51.8 cm]) at 18 ppb. 2019 One species exceeds PCB (TV) of 18 ppb - Channel Catfish (3 fish composite [44.7-54.2 cm]) at 43.23 ppb; 2018 two species exceed PCBs (2006 FT/Sed) PCB 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ROA06A98 / Roanoke River / Kerr Dam to Route 1 bridge (RL12).	5A	PCBs in Fish Tissue	2004	L	5.69
VAW-L79L_ROA07A98 / Lake Gaston / Upper portion of Lake Gaston - Route 1 to the confluence of Smith Creek.	5A	PCBs in Fish Tissue	2004	L	1369.25
VAW-L80L_ROA08A04 / Lake Gaston / Lower Portion of Lake Gaston on the Roanoke River- Smith Creek confluence downstream to the VA/NC State Line, including coves that enter the mainstem within VA.	5A	PCBs in Fish Tissue	2004	L	3071.70

Lake Gaston

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		4440.95	5.69

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L80L-02-DO** **Lake Gaston**

Cause Location: Upper portion of Lake Gaston - Route 1 to the confluence of Smith Creek.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Station ID: 4AROA008.66 exceeds the WQS of 4.0 mg/l; 31 out of 179 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_ROA07A98 / Lake Gaston / Upper portion of Lake Gaston - Route 1 to the confluence of Smith Creek.	5A	Dissolved Oxygen	2022	L	1369.25

Lake Gaston

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1369.25	

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L80R-01-BAC** Great Creek

Cause Location: Great Creek from its headwaters to Lake Gaston.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID.33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

Three stations are located within the 6.69 miles of impaired waters. 4AGRT003.82 (Ambient/Bio)(2018), 4AGRT004.70 (Great Creek Bacteria TMDL), and 4AGRT008.49 (Great Creek Bacteria TMDL)

4AGRT003.82 (Ambient/Bio)(2018) Three of 12 samples in excess of the instantaneous criterion.

4AGRT004.70 (Great Creek Bacteria TMDL) Seven of 9 samples in excess of the instantaneous criterion.

4AGRT008.49 (Great Creek Bacteria TMDL) Two of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_GRT01A00 / Great Creek / Headwaters to Lake Gaston (RL18).	4A	Escherichia coli (E. coli)	2006	L	6.69

Great Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.69

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L80R-01-BEN** Great Creek

Cause Location: Great Creek from its headwaters to Lake Gaston.

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2020 data window finds the Aquatic Life Use impaired on Great Creek based on Benthic Macroinvertebrate community collections.

4AGRT003.82 (Rt. 619) - Bio 'IM' from four VSCI scores (2014, 2018) averaging 33.2 and 59.4 in spring and fall, respectively. This station exhibits significant seasonal variation. The water is slow-moving and the stream bottom is very sandy. Habitat consists of good undercut banks and limited snags.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_GRT01A00 / Great Creek / Headwaters to Lake Gaston (RL18).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	6.69

Great Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.69

Sources: Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: L80R-02-BAC Hagood Creek

Cause Location: Hagood Creek from its headwaters to its mouth on Great Creek.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33313

The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID.33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

One station is located within the 6.8 miles of impaired waters. 4AHAG002.95 (TMDL Monitoring)

4AHAG002.95 (TMDL Monitoring) Three of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_HAG01A06 / Hagood Creek / From its headwaters to the mouth on Great Creek	4A	Escherichia coli (E. coli)	2008	L	6.8

Hagood Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.8

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **L80R-03-BAC** **Long Branch**

Cause Location: Long Branch from its headwaters to its mouth on Great Creek.

Cause City/County: Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 33313

The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID.33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

One station is located within the 2.08 miles of impaired waters. 4ALYA000.60 (TMDL Monitoring)

4ALYA000.60 (TMDL Monitoring) Five of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_LYA01A06 / Long Branch / From its headwaters to the mouth on Great Creek	4A	Escherichia coli (E. coli)	2008	L	2.08

Long Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.08

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Roanoke and Yadkin River Basins

Cause Group Code: **L81R-02-BAC** **Lizard Creek**

Cause Location: Lizard Creek from its headwaters to Lake Gaston.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station ID:

4ALIZ003.42 (Ambient)(2018)

E. coli - 4/12 Exceedance Rate

*Segment was shortened in 2014 to only include VA Portion of Lizard Creek

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LIZ01A10 / Lizard Creek / Lizard Creek from its headwaters to Lake Gaston (RL22).	4A	Escherichia coli (E. coli)	2010	L	2.73

Lizard Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.73

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Unspecified Urban Stormwater

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L81R-02-DO** **Lizard Creek**

Cause Location: Lizard Creek from its headwaters to Lake Gaston.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The 2022 data window finds the initial dissolved oxygen (DO) 303(d) listing for the entire length of Lizard Creek. 4ALIZ003.42 (Rt. 667 Br.) - The 2022 data window finds two DO observations exceed the 4.0 mg/L WQS at 3.4 (7/21/20) and 2.2 mg/L (8/26/20) out of 10 total samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LIZ01A10 / Lizard Creek / Lizard Creek from its headwaters to Lake Gaston (RL22).	5A	Dissolved Oxygen	2022	L	2.73

Lizard Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.73

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L81R-03-BAC** **Little Poplar Creek**

Cause Location: Little Poplar Creek from its headwaters to its mouth on Poplar Creek.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

4ALPP002.66 (ProbAmbient)

E coli - 2/12 Exceedance Rate

4ALPP004.46 (2013 Probambient)(2018)

E coli - 2/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LPP01A16 / Little Poplar Creek / Little Poplar Creek from its headwaters to its mouth on Poplar Creek (RL20).	5A	Escherichia coli (E. coli)	2016	L	6.51

Little Poplar Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.51

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L81R-03-BEN** **Little Poplar Creek**

Cause Location: Little Poplar Creek from its headwaters to its mouth on Poplar Creek.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2020 data window finds the initial Aquatic Life Use impairment on Little Poplar Creek based on Virginia Stream Condition Index information.

4ALPP004.46 (Little Poplar @ Dr. Purdy Rd) - Bio 'IM' from one 2017 VSCI score of 30.8 (Spring). This site serves as a follow-up to the probabilistic monitoring site 4ALPP004.52, which is on private property and will not be revisited. This stream has gravelly, embedded riffles and incised clay banks. Habitat measures indicate a high probability of stress to aquatic life.

Additional Information:

4ALPP004.52 (Little Poplar Creek east of Route 659) - Bio 'J' based on 2016 data window VSCI Scores of 46 (Spring 2013) and 66.1 (Fall 2013). This station exhibits significant seasonal variation. 4ALPP004.52 is on private property and was sampled as part of the Probabilistic Monitoring program; therefore it will not be revisited.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LPP01A16 / Little Poplar Creek / Little Poplar Creek from its headwaters to its mouth on Poplar Creek (RL20).	5A	Benthic Macroinvertebrates Bioassessments	2020	L	6.51

Little Poplar Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			6.51

Sources: Loss of Riparian Habitat; Silviculture Harvesting

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **L82R-01-BAC** **Pea Hill Creek**

Cause Location: Pea Hill Creek from its headwaters to Lake Gaston.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID:

4APHC006.38 (Ambient)(2018)

E coli - 4/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L82R_PHC01A00 / Pea Hill Creek / Headwaters to Lake Gaston (RL23).	5A	Escherichia coli (E. coli)	2016	L	4.86

Pea Hill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.86

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **M02L-01-DDD** Lovills Creek Lake

Cause Location: The Lovills Creek flood control impoundment east of Cana.

Cause City/County: Carroll County

Use(s): Fish Consumption

Causes(s)/VA Category: DDD (Dichlorodiphenyldichloroethane)/5A

Cause Description: Fish tissue collected at 4BLOV009.45 on 8/8/2007 show levels of dichlorodiphenyldichloroethane (DDD), dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT) above tissue values in two samples of carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County.	5A	DDD (Dichlorodiphenyldichloroethane)	2010	L	42.46

Lovills Creek Lake

Fish Consumption

DDD (Dichlorodiphenyldichloroethane) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	42.46	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **M02L-01-DDE** Lovills Creek Lake

Cause Location: The Lovills Creek flood control impoundment east of Cana.

Cause City/County: Carroll County

Use(s): Fish Consumption

Causes(s)/VA Category: DDE (Dichlorodiphenyldichloroethylene)/5A

Cause Description: Fish tissue collected at 4BLOV009.45 on 8/8/2007 show levels of dichlorodiphenyldichloroethane (DDD), dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT) above tissue values in two samples of carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County.	5A	DDE (Dichlorodiphenyldichloroethylene)	2010	L	42.46

Lovills Creek Lake

Fish Consumption

DDE (Dichlorodiphenyldichloroethylene) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	42.46	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **M02L-01-DDT** Lovills Creek Lake

Cause Location: The Lovills Creek flood control impoundment east of Cana.

Cause City/County: Carroll County

Use(s): Fish Consumption

Causes(s)/VA Category: DDT in Fish Tissue/5A

Cause Description: Fish tissue collected at 4BLOV009.45 on 8/8/2007 show levels of dichlorodiphenyldichloroethane (DDD), dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT) above tissue values in two samples of carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County.	5A	DDT in Fish Tissue	2010	L	42.46

Lovills Creek Lake

Fish Consumption

DDT in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	42.46	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **M02L-01-HG** **Lovills Creek Lake**

Cause Location: The Lovills Creek flood control impoundment east of Cana.

Cause City/County: Carroll County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected on 9/16/2020 show mercury levels above the tissue value of 300 ppb in two composite samples of largemouth bass. Previous fish tissue samples collected on 8/8/2007 show elevated levels of mercury in 6 samples. In 2008, VDH issued a fish consumption advisory limiting consumption of largemouth bass to no more than two meals per month.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County.	5A	Mercury in Fish Tissue	2010	L	42.46

Lovills Creek Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	42.46	

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Roanoke and Yadkin River Basins

Cause Group Code: **M02R-01-BAC** **Lovills Creek, Stewarts Creek and Pauls Creek**

Cause Location: Lovills Creek mainstem from the North Carolina state line upstream to just above the Route 686 crossing. Stewarts Creek from the North Carolina state line upstream near Route 696 at Lambsburg. Pauls Creek mainstem parallel to Rt. 52 from the VA/NC line upstream to Rt. 691 just downstream of the Garner Creek confluence.

Cause City/County: Carroll County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The ambient water quality monitoring station 4BPAU007.19 had 2 STV exceedances in one or multiple 90-day periods. Station 4BLOV007.92 had 1 STV exceedance in one or multiple 90-day periods and station 4BSTE007.99 had 0 STV exceedances but insufficient data to analyze a geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02R_LOV01A02 / Lovills Creek / Lovills Creek mainstem southeast of Cana, from the NC state line upstream to Lovills Lake dam.	5A	Escherichia coli (E. coli)	2008	L	2.16
VAS-M02R_PAU01A02 / Pauls Creek Lower / Pauls Creek mainstem parallel Rt. 52, from the VA / NC state line upstream to Rt. 691 just downstream of the Garner Creek confluence on Pauls Creek.	5A	Escherichia coli (E. coli)	2020	L	4.27
VAS-M02R_STE01A02 / Stewarts Creek / Stewarts Creek mainstem from the VA / NC state line upstream to near Rt. 696 south of Lambsburg.	5A	Escherichia coli (E. coli)	2010	L	2.06

Lovills Creek, Stewarts Creek and Pauls Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.49

Sources: Source Unknown; Unrestricted Cattle Access

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Roanoke and Yadkin River Basins

Cause Group Code: **M03R-01-BAC** **Ararat River**

Cause Location: Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing.

Cause City/County: Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Ararat River is 303(d) listed the Recreational Use due to Escherichia coli (E.coli) data collections.

4BARA035.13 (Rt. 739 Bridge, near VA/NC State Line)- No additional data. The 2008 and 2010 assessments find escherichia E.coli exceeds the WQS instantaneous criterion of 235 cfu/100 ml in three of nine samples. Exceeding values range from 250 to 950 cfu/100 ml. There are no additional data within the 2012, 2014, 2016, 2018, 2020, or 2022 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_ARA01A00 / Ararat River / Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing Class IV sec. 1 PWS (YA03).	5A	Escherichia coli (E. coli)	2010	L	6.14

Ararat River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.14

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Roanoke and Yadkin River Basins

Cause Group Code: **M03R-01-HG** **Ararat River**

Cause Location: Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing.

Cause City/County: Patrick County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards (WQS) effective 2/01/10. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit <http://www.deq.virginia.gov> for more information about mercury contamination and <http://www.vdh.virginia.gov>

4BARA035.07 (Rt. 739 Bridge near VA/NC State Line)- 2007 fish tissue analysis finds mercury (Hg) exceeds the WQS based tissue value (TV) of 0.30 ppm in three species; yellow bullhead catfish (1 fish 27.7 cm) at 0.495 ppm; white sucker (4 fish composite 31.0-39.1 cm) at 0.369 ppm; and two groups of redhorse sucker (6 fish composite 36.5 - 38.6 cm) at 0.535 ppm and (7 fish composite 28.5 - 34.6 cm) at 0.412 ppm. A 2002 golden redhorse sucker collection (4 fish 25.7-34.3 cm) exceeds the WQS TV at 0.35 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_ARA01A00 / Ararat River / Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing Class IV sec. 1 PWS (YA03).	5A	Mercury in Fish Tissue	2010	L	6.14

Ararat River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.14

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Roanoke and Yadkin River Basins

Cause Group Code: **M03R-02-BAC** **Johnson Creek**

Cause Location: Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V.

Cause City/County: Carroll County; Patrick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This 2014 initial 303(d) Listing results in impairment of the Recreational Use.

4BJOH004.45 (Rt. 672 Bridge, Johnson Creek Rd.) There is no additional data since the 2014 data window. The 2014 assessment finds two escherichia coli (E.coli) observations exceed the WQS 235 cfu/100 ml instantaneous criterion from 12 observations at 350 and 475 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_JOH01A02 / Johnson Creek / Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V sec. 1 PWS (YA04).	5A	Escherichia coli (E. coli)	2014	L	9.16

Johnson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.16

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K01R-01-BAC** Middle Meherrin River

Cause Location: Middle Meherrin River from its headwaters to mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Middle Meherrin River from Crupper Run to its mouth was first impaired for the Recreation Use in the 2004 cycle due to a fecal coliform exceedance rate of 2/19 at 5AMMR000.69. It converted to E. coli in the 2010 cycle. The segment was extended upstream during the 2014 cycle due to E. coli exceedance rates of 3/12 at 5AMMR000.69 and 2/12 at 5AMMR008.77.

The impairment was nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 04/12/2010 and by the SWCB on 9/30/2010.

During the 2018 cycle, the exceedance rate at 5AMMR008.77 was 2/12; additional monitoring at 5AMMR015.22 showed an exceedance rate of 4/12.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 3/12 at station 5AMMR000.69. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K01R_MMR01A98 / Middle Meherrin River / Crupper Run to mouth	4A	Escherichia coli (E. coli)	2010	L	7.15
VAP-K01R_MMR02A08 / Middle Meherrin River / Middle Meherrin River from its headwaters to its confluence with Crupper Run	4A	Escherichia coli (E. coli)	2014	L	11.26

Middle Meherrin River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.41

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K01R-01-BEN** Middle Meherrin River

Cause Location: Middle Meherrin River from its headwaters to its confluence with Crupper Run.

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Middle Meherrin River from its headwaters to Crupper Run was initially impaired of the Aquatic Life Use in the 2014 cycle due to an altered benthic community at freshwater probabilistic monitoring station 5AMMR008.77. The BMI community in this reach is dominated by the filterer FFG which indicates nutrient enrichment. Habitat scores for sediment were also low suggesting another probable stressor.

The station is located on private property; therefore, sampling continued at new station 5AMMR014.21 in the 2018 cycle instead; monitoring there was inconclusive.

During the 2020 cycle the segment remained impaired for benthics with new data collected in 2018 at station 5AMMR008.77. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K01R_MMR02A08 / Middle Meherrin River / Middle Meherrin River from its headwaters to its confluence with Crupper Run	5A	Benthic Macroinvertebrates Bioassessments	2014	L	11.26

Middle Meherrin River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.26

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K01R-03-BEN** **Finneywood Creek**

Cause Location: Finneywood Creek from its headwaters to its mouth on the South Meherrin River

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, Finneywood Creek was impaired of the Aquatic Life Use due to an altered benthic community at 5AFNY004.78, which was a 2005 Probmon site.

The stream runs through a pasture with active cattle access. Flow was minimal, sedimentation was extensive, and organic solids were abundant in channel. Minimal habitat was present.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K01R_FNY01A08 / Finneywood Creek / Finneywood Creek from its headwaters to its mouth on the South Meherrin River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	5.12

Finneywood Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.12

Sources: Grazing in Riparian or Shoreline Zones; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K01R-04-BEN** Blackstone Creek

Cause Location: Blackstone Creek from its headwaters to its mouth

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Blackstone Creek was impaired of the Aquatic Life Use in the 2018 cycle due to an altered benthic community at 5ABKS001.60. During the 2020 cycle no new data was collected. During the 2022 cycle the segment had new benthic data that remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K01R_BKS01A16 / Blackstone Creek / Blackstone Creek from its headwaters to its mouth	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.47

Blackstone Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.47

Sources: Source Unknown; Streambank Erosion

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K01R-05-BEN** **Kitts Creek**

Cause Location: Kitts Creek from its headwaters to its mouth

Cause City/County: Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle Kitts Creek was impaired for Aquatic Life Use due to an altered benthic community at 5AKTS002.63. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K01R_KTS01A14 / Kits Creek / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.76

Kitts Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.76

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-01-BAC** North Meherrin River

Cause Location: North Meherrin River from Couches Creek to Reedy Creek.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, the North Meherrin River from Couches Creek to Reedy Creek was impaired of the Recreation Use due to an E.coli exceedance rate of 2/9 at 5ANMR013.95.

The impairment was addressed in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

It was delisted in 2012 and relisted in 2014.

The exceedance rate was 5/35 in the 2018 cycle.

The segment was mistakenly listed as nested in previous assessments. This was corrected in the 2018 cycle. The impairment is Category 4A.

During the 2020 cycle the segment remained impaired for E.coli at station 5ANMR013.95 with an exceedance rate of 4/34.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_NMR01A98 / North Meherrin River / Couches Creek to Reedy Creek.	4A	Escherichia coli (E. coli)	2014	L	7.55

North Meherrin River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.55

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-01-BEN** North Meherrin River

Cause Location: North Meherrin River from Couches Creek to unnamed tributary below unimproved road.

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: In the 2010 cycle, the North Meherrin River from Couches Creek to Reedy Creek was impaired of the Aquatic Life Use due to an altered benthic community at 5ANMR013.95 during 2008 sampling. This section of the North Meherrin River had incised banks and a high rate of sedimentation. Cobble surfaces in riffles were dominated by periphyton.

The impairment was extended downstream to an unnamed tributary in the 2014 cycle based on additional monitoring at 5ANMR007.90.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_NMR01A98 / North Meherrin River / Couches Creek to Reedy Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	7.55
VAP-K02R_NMR02B04 / North Meherrin River / Confluence with Reedy Creek to unnamed tributary below unimproved road.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.64

North Meherrin River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.19

Sources: Erosion and Sedimentation; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-02-BAC** **Big Juniper Creek**

Cause Location: Big Juniper Creek from Little Juniper Creek to the mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2006 cycle, Big Juniper Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/9 at 5ABJC001.00.

In the 2014 cycle, the impairment was nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

The exceedance rate was 5/12 in the 2018 cycle. During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_BJC01A98 / Big Juniper Creek / Little Juniper Creek to mouth.	4A	Escherichia coli (E. coli)	2006	L	6.69

Big Juniper Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.69

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-03-BAC** Kits Creek

Cause Location: Kits Creek from its headwaters to the mouth

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, Kits Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/3 at 5AKIT002.65. The exceedance rate at 5AKIT000.67 is acceptable (0/12); therefore, continued monitoring is recommended.

The impairment is proposed for nesting in the North Meherrin River Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_KIT01A06 / Kits Creek / Kits Creek from its headwaters to the mouth	4A	Escherichia coli (E. coli)	2018	L	4.83

Kits Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.83

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-03-BEN** Kits Creek

Cause Location: Kits Creek from its headwaters to the mouth

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Kits Creek was impaired of the Aquatic Life Use in the 2008 cycle due to an altered benthic community at 5AKIT002.65.

Monitoring at station 5AKIT000.67 is inconclusive.

During the 2020 cycle the segment remained impaired for benthics at both stations. During the 2022 cycle the segment remained impaired, no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_KIT01A06 / Kits Creek / Kits Creek from its headwaters to the mouth	4A	Benthic Macroinvertebrates Bioassessments	2008	L	4.83

Kits Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.83

Sources: Agriculture; Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-04-BAC** Reedy Creek

Cause Location: Reedy Creek from its headwaters to its mouth on the North Meherrin River

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Reedy Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/9 at 5ARYK002.34.

The impairment was subsequently nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

The exceedance rate was 2/12 in the 2018 cycle.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_RYK01A08 / Reedy Creek / Reedy Creek from its headwaters to its mouth on the North Meherrin River	4A	Escherichia coli (E. coli)	2008	L	10.41

Reedy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.41

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-04-BEN** Couches Creek

Cause Location: Couches Creek from its headwaters to its mouth on the North Meherrin River

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Couches Creek has been impaired of the Aquatic Life Use since the 2010 cycle due to altered benthic communities at 5ACHS003.42 and 5ACHS006.33. During the 2020 cycle both stations remain impaired for Benthics. During the 2022 cycle new data was collected and the segment remains impaired for benthics at both stations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_CHS01A08 / Couches Creek / Couches Creek from its headwaters to its mouth on the North Meherrin River	5A	Benthic Macroinvertebrates Bioassessments	2010	L	7.38

Couches Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.38

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-05-BAC** Ledbetter Creek

Cause Location: Ledbetter Creek from its headwaters to its mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2010 cycle, Ledbetter Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 8/12 at 5ALDB000.03.

The impairment was later nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

The exceedance rate was 8/12 in the 2018 cycle.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_LDB01A10 / Ledbetter Creek / Ledbetter Creek from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2010	L	9.08

Ledbetter Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.08

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-06-BAC** Couches Creek

Cause Location: Couches Creek from its headwaters to its mouth on the North Meherrin River.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 2014 cycle, Couches Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 5ACHS003.42.

The impairment was nested in the North Meherrin River Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

The exceedance rate remained 4/12 in the 2018 cycle.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 3/12 at station 5ACHS003.42. During the 2022 cycle new data was collected but was insufficient due to new bacteria standards and will remain impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_CHS01A08 / Couches Creek / Couches Creek from its headwaters to its mouth on the North Meherrin River	4A	Escherichia coli (E. coli)	2014	L	7.38

Couches Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.38

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-07-BAC** Little Tussekiah Creek

Cause Location: Headwaters to the mouth

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020: 38418, 4/12/2010

In the 2020 cycle, Little Tussekiah Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5ALLT000.32. The impairment was nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_LL01C20 / Little Tussekiah Creek / Headwaters to the mouth	4A	Escherichia coli (E. coli)	2020	L	1.82

Little Tussekiah Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.82

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K02R-08-BAC** North Meherrin River

Cause Location: Confluence with Spring Creek to the confluence with Ledbetter Creek

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2020: 38418, 4/12/2010

In the 2020 cycle, North Meherrin River was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5ANMR024.14. The impairment was later nested in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. During the 2022 cycle no new data was collected and the E.coli impairment remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K02R_NMR01C20 / North Meherrin River / Confluence with Spring Creek to the confluence with Ledbetter Creek	4A	Escherichia coli (E. coli)	2020	L	0.58

North Meherrin River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.58

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-01-BAC** Flat Rock Creek

Cause Location: Flat Rock from the first confluence downstream of the Route 647 bridge downstream to the mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2002 cycle, Flat Rock Creek from the first confluence downstream of the Route 647 bridge downstream to the mouth was impaired of the Recreation Use due to fecal coliform exceedances at 5AFRC002.98. The impairment converted to E. coli in the 2008 cycle. The Flat Rock Creek and Broad Branch Bacterial TMDL was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

Station 5AFRC007.54 later had E. coli exceedances as well.

The segment extent was mistakenly altered and the downstream most portion was delisted in previous cycles. As of the 2016 cycle, a merged impairment (VAC-K03R-01 and VAC-K03R-02) extended from the headwaters to Kettlesticks Creek. The segmentation was corrected in the 2018 cycle and the applicable portions were nested.

During the 2018 cycle, the E. coli exceedance rate was 2/12 at 5AFRC002.98.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_FRC01A98 / Flat Rock Creek / First confluence downstream of Route 647 to the mouth. Segment extent corrected and merged in the 2018 cycle.	4A	Escherichia coli (E. coli)	2008	L	9.76

Flat Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.76

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-01-BEN** Flat Rock Creek

Cause Location: Flat Rock Creek from its headwaters to its mouth.

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Flat Rock Creek from its headwaters to Kettlesticks Creek was impaired of the Aquatic Life Use in the 2014 cycle due to 2012 monitoring at freshwater probabilistic monitoring station 5AFRC011.93.

Additional monitoring at 5AFRC013.25 in 2015 also indicated impairment.

The segment was extended to the mouth in the 2018 cycle.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_FRC01A98 / Flat Rock Creek / First confluence downstream of Route 647 to the mouth. Segment extent corrected and merged in the 2018 cycle.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	9.76
VAP-K03R_FRC01B18 / Flat Rock Creek / Kenbridge WTP intake to the first confluence downstream of the Route 647 bridge AU split off in the 2018 cycle to correct segmentation. Segment extent corrected and merged in the 2018 cycle.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	4.70
VAP-K03R_FRC02A06 / Flat Rock Creek / Route 652 to Kenbridge PWS intake. Segment split in the 2018 cycle.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.74
VAP-K03R_FRC02B18 / Flat Rock Creek / Headwaters to Route 652. Segment split in the 2018 cycle.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.89

Flat Rock Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		20.09

Sources: Erosion and Sedimentation; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-02-BAC** Flat Rock Creek

Cause Location: Flat Rock Creek from Route 652 downstream to the Kenbridge PWS intake.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Flat Rock Creek from the Route 652 bridge downstream to the Kenbridge WTP intake was impaired of the Recreation Use due to an E. coli exceedance rate of 2/3 at 5AFRC013.25. The Flat Rock Creek and Broad Branch Bacterial TMDL, which was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009, addressed the original segment.

Note: In the 2008 cycle, the impairment was extended upstream to the headwaters based on an exceedance rate of 4/12 at 5AFRC014.70. In addition, it was mistakenly merged with the bacterial impairment at the mouth of Flat Rock Creek (K03R-01-BAC). In the 2018 cycle, the segmentation was corrected and the upstream extension was split off and nested in the 2018 cycle because the upstream-most impairment was not specifically addressed in the TMDL.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_FRC02A06 / Flat Rock Creek / Route 652 to Kenbridge PWS intake. Segment split in the 2018 cycle.	4A	Escherichia coli (E. coli)	2006	L	1.74

Flat Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.74

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-03-BAC** Broad Branch

Cause Location: Broad Branch from its headwaters to the mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Broad Branch was initially impaired of the Recreation Use in the 2006 cycle based on an E. coli exceedance rate of 2/3 at 5ABRD002.09.

Additional monitoring was later conducted.

The Flat Rock Creek and Broad Branch Bacterial TMDL was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_BRD01A06 / Broad Branch / From its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	3.54

Broad Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.54

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-04-BAC** Meherrin River

Cause Location: Meherrin River from its confluence with the North Meherrin River to its confluence with Flat Rock Creek.

Cause City/County: Lunenburg County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 38419, 4/12/2010

The Meherrin River from Crooked Creek to Flat Rock Creek was impaired of the Recreation Use in the 2008 cycle due to an E. coli exceedance rate of 3/9 at 5AMHN012.61.

The impairment was extended upstream to the confluence with the North Meherrin River in the 2012 cycle (8/12 at 5AMHN102.61 and 3/14 at 5AMHN108.37.)

It was nested in the Meherrin River and Tributaries Bacterial TMDL in the 2014 cycle. The TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

In the 2018 cycle, exceedance rates in the segment were: 4/12 at 5AMHN102.61 3/12 at 5AMHN105.36 0/1 at 5AMHN104.32

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_MHN01A00 / Meherrin River / Meherrin River from the South Hill raw water intake to a point 5 miles upstream.	4A	Escherichia coli (E. coli)	2012	L	5.04
VAP-K03R_MHN01B06 / Meherrin River / Meherrin River from the confluence with North Meherrin River to a point 5 miles upstream of the South Hill Intake.	4A	Escherichia coli (E. coli)	2012	L	1.94
VAP-K03R_MHN02A04 / Meherrin River / From South Hill's raw water intake to the confluence with Crooked Creek.	4A	Escherichia coli (E. coli)	2012	L	1.29
VAP-K03R_MHN03A08 / Meherrin River / Meherrin River from its confluence with Crooked Creek to its confluence with Flat Rock Creek.	4A	Escherichia coli (E. coli)	2008	L	3.17

Meherrin River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.44

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-05-BAC** **XFH - Flat Rock Creek, UT**

Cause Location: An unnamed tributary to Flat Rock Creek from its headwaters to its mouth.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 36046, 12/29/2008

XFH was impaired of the Recreation Use in the 2008 cycle due to E. coli exceedances at 5AXFH0.74.

In the 2014 cycle, the impairment was nested in the Flat Rock Creek and Broad Branch Bacterial TMDL, which was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_XFH01A06 / XFH - Flat Rock Creek, Unnamed Tributary / From its headwaters to the mouth	4A	Escherichia coli (E. coli)	2008	L	3.44

XFH - Flat Rock Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.44

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-06-BEN** Mason Creek

Cause Location: Mason Creek from its headwaters to the mouth.

Cause City/County: Lunenburg County; Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Masons Creek was impaired in the 2014 cycle due to an altered benthic community at 5AMSC002.30.

This reach may be a future delist candidate due to beaver impacts to the 2011 samples. More recent sampling in 2016 indicate better habitat though slight nutrient and sedimentation stressors are present. Monitoring should continue to accurately characterize the BMI community in this reach.

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_MSC01A10 / Mason Creek / Mason Creek from a point 5 miles upstream of PWS intake to its mouth on the Meherrin River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.07
VAP-K03R_MSC01B14 / Mason Creek / Mason Creek from its headwaters to a point 5 miles upstream of the PWS intake Segment adjusted in the 2018 cycle.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.98

Mason Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.05

Sources: Erosion and Sedimentation; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-07-BAC** Flat Rock Creek

Cause Location: Flat Rock from the Kenbridge WTP intake downstream to the first confluence below the Route 647 bridge.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2002 cycle, Flat Rock Creek from the first confluence downstream of the Route 647 bridge downstream to the mouth was impaired of the Recreation Use due to fecal coliform exceedances at 5AFRC002.98. The impairment converted to E. coli in the 2008 cycle. The Flat Rock Creek and Broad Branch Bacterial TMDL was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009.

It was mistakenly extended upstream in the 2008 cycle due to an E. coli exceedance rate of 3/12 at 5AFRC009.53 and merged with the upstream impairment K03R-02-BAC. As this portion was first listed in 2008 cycle, the due date should be 2020. The segmentation was corrected in the 2018 cycle. Since this portion was not specifically addressed in the TMDL, it will be nested.

During the 2020 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_FRC01B18 / Flat Rock Creek / Kenbridge WTP intake to the first confluence downstream of the Route 647 bridge AU split off in the 2018 cycle to correct segmentation. Segment extent corrected and merged in the 2018 cycle.	4A	Escherichia coli (E. coli)	2008	L	4.7

Flat Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.7

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K03R-08-BAC** Flat Rock Creek

Cause Location: Flat Rock Creek from its headwaters to the Route 652 bridge.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Flat Rock Creek from the Route 652 bridge downstream to the Kenbridge WTP intake was impaired of the Recreation Use due to an E. coli exceedance rate of 2/3 at 5AFRC013.25. The Flat Rock Creek and Broad Branch Bacterial TMDL, which was approved by the EPA on 12/29/2008 and by the SWCB on 4/28/2009, addressed the original segment.

Note: In the 2008 cycle, the impairment was extended upstream to the headwaters based on an exceedance rate of 4/12 at 5AFRC014.70. In addition, it was mistakenly merged with the bacterial impairment at the mouth of Flat Rock Creek (K03R-01-BAC). In the 2018 cycle, the segmentation was corrected and the upstream extension was split off and nested in the 2018 cycle because the upstream-most impairment was not specifically addressed in the TMDL.

During the 2020 and 2022 cycle there was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K03R_FRC02B18 / Flat Rock Creek / Headwaters to Route 652. Segment split in the 2018 cycle.	4A	Escherichia coli (E. coli)	2008	L	3.89

Flat Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.89

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K04R-01-BAC** **Stony Creek**

Cause Location: Stony Creek from its headwaters to it mouth

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2004 cycle, Stony Creek was assessed not supporting of the Recreation Use support goal based on a fecal coliform violation rate of 3/19 at the Rt. 602 bridge (5ASNY000.65).

Additional monitoring was conducted during the 2010 cycle. Stony Creek remained impaired due to an E. coli violation rate of 3/12 at 5ASNY000.65. The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K04R_SNY01A96 / Stony Creek / Headwaters to mouth.	4A	Escherichia coli (E. coli)	2010	L	14.24

Stony Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.24

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **K04R-02-BAC** **Shining Creek**

Cause Location: Shining Creek from its headwaters to its mouth

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Shining Creek was assessed not supporting of the Recreation Use support goal based on an E. coli violation rate of 8/32 at the Rt. 637 bridge (5ASHN000.77).

The impairment is within the study area for the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and 9/30/2010. The TMDL states that this segment will be considered nested (Category 4A).

The violation rate was 12/23 during the 2014 cycle, and no new data was collected during the 2016 cycle.

Additional monitoring was conducted at 5AMHN004.25 in the 2018 cycle (4/12.)

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K04R_SHN01A06 / Shining Creek / The mainstem of Shining Creek	4A	Escherichia coli (E. coli)	2010	L	7.74

Shining Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.74

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K04R-03-BAC** **Taylor's Creek**

Cause Location: Taylor's Creek from its headwaters to its mouth

Cause City/County: Brunswick County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Taylor's Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/12 at the Route 657 bridge (5ATLR001.85).

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K04R_TLR01A10 / Taylor's Creek / Headwaters to mouth at the Meherrin River	4A	Escherichia coli (E. coli)	2010	L	10.35

Taylor's Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.35

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K04R-04-BAC** Meherrin River

Cause Location: The Meherrin River from Stony Creek downstream to Taylors Creek.

Cause City/County: Brunswick County; Lunenburg County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the Meherrin River from Stony Creek to Taylors Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 5/12 at 5AMHN093.07, which is located at the Route 1 bridge.

The impairment is within the study area for the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and 9/30/2010. The TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K04R_MHN01B10 / Meherrin River / Stony Creek to Taylors Creek	4A	Escherichia coli (E. coli)	2010	L	6.95

Meherrin River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.95

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-01-BAC** Genito Creek

Cause Location: Mainstem from its headwaters to its mouth

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Genito Creek was originally assessed as impaired of the Recreation Use in 2006 due to E. coli exceedances at the Route 623 bridge (5AGTO001.16). During the 2010 cycle the violation rate was 9/23. The impairment was addressed in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is considered Category 4A.

During the 2016 cycle the segment remained impaired for E.coli with a violation rate of 2/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_GTO01A94 / Genito Creek / Headwaters to mouth.	4A	Escherichia coli (E. coli)	2006	L	8.14

Genito Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.14

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-02-BAC** Meherrin River

Cause Location: Meherrin River from Taylors Creek downstream to Reedy Creek

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Meherrin River from Taylors Creek to Reedy Creek was originally considered fully supporting but threatened during the year 1998 cycle, but was downgraded during the 2002 cycle. During the 2006 cycle, the segment was assessed as not supporting of the Recreation Use support goal based on fecal coliform exceedances at 5AMHN068.30, 5AMHN073.98, and 5AMHN082.13 and E. coli exceedances at 5AMHN082.13.

During the 2010 cycle, the E. coli exceedance rate was 13/38 at 5AMHN082.13, 4/11 at 5AMHN075.24, 7/18 at 5AMHN073.98, and 4/18 at 5AMHN068.30. In addition, monitoring at 5AMHN060.95 indicated impairment (3/12 for E. coli); therefore, the segment was extended downstream to Douglas Run. In the 2014 cycle, the exceedance rate was 17/41 at 5AMHN082.13; no additional monitoring was conducted at the other stations.

During the 2012 cycle, the Meherrin River and Tributaries bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010.

Although the upper portion was addressed in the TMDL, the expansion downstream to Douglas Run was not. The original portion of the Meherrin River is considered Category 4A. The extension was split into a separate impairment which will be due in 2022 (see K08R-01-BAC).

During the 2016 cycle the segment was still impaired for E.coli with an exceedance rate of 12/35 at station 5AMHN082.13 and 4/12 at 5AMHN068.30.

The exceedance rate was 8/35 at 5AMHN082.13 in the 2018 cycle.

During the 2020 cycle the E.coli exceedance rate was 9/35 at station 5AMHN082.13 and 7/23 at 5AMHN068.30. During the 2022 cycle the segment remained impaired for E.coli due to exceedances rates of 9/30 at 5AMHN082.13

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_MHN01B98 / Meherrin River / Taylors Creek to Hicks Creek.	4A	Escherichia coli (E. coli)	2006	L	6.99
VAP-K05R_MHN02B98 / Meherrin River / Hicks Creek to Lawrenceville PWS Intake.	4A	Escherichia coli (E. coli)	2006	L	5.00
VAP-K05R_MHN03B98 / Meherrin River / Lawrenceville PWS intake to Reedy Creek.	4A	Escherichia coli (E. coli)	2006	L	14.23

Meherrin River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			26.22

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-03-BAC** Briery Branch

Cause Location: The mainstem of Briery Branch.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Briery Branch was assessed in 2004 as not supporting of the Recreation Use support goal based on a fecal coliform exceedance rate of 4/12 at 5A-PL-GR-B, a Confined Animal Feeding Operation special study station.

Additional monitoring was conducted during the 2010 cycle. The segment remained impaired due to an E. coli exceedance rate of 6/12 at 5ABRY001.88, which was renamed from 5A-PL-GR-B. The impairment converted to E. coli, but the original TMDL due date was maintained.

The Briery Branch impairment was addressed in the Meherrin River and Tributaries Bacterial TMDL, which was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is considered Category 4A.

No new data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_BRY01A02 / Briery Branch / Headwaters to mouth	4A	Escherichia coli (E. coli)	2010	L	4.01

Briery Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.01

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-04-BAC** Hicks Creek

Cause Location: Headwaters to mouth at the Meherrin River.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Hicks Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/12 at the Route 623 bridge (5AHIC001.35).

The Meherrin River and Tributaries bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_HIC01A10 / Hicks Creek / Headwaters to mouth at Meherrin River	4A	Escherichia coli (E. coli)	2010	L	7.37

Hicks Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.37

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Cause Group Code: **K05R-05-DO** Hays Creek

Cause Location: The mainstem of Hayes Creek.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Hays Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/11 at 5AHAY000.38, which is located at the Route 686 bridge.

During the 2016 cycle, Hays Creek remained impaired due to a dissolved oxygen exceedance rate of 2/12 at 5AHAY000.38. Dissolved oxygen was acceptable at station 5AHAY003.23 (1/12) and 5AHAY004.92 (0/9.)

During the 2020 cycle the segment remained impaired for DO with an exceedance rate of 3/24 at station 5AHAY000.38. During the 2022 cycle no new data was collected the segment remains impaired for DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_HAY01A10 / Hays Creek / Headwaters to mouth at Meherrin River	5C	Dissolved Oxygen	2010	L	6.39

Hays Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.39

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-06-BEN** Little Genito Creek

Cause Location: Headwaters to mouth at Genito Creek.

Cause City/County: Brunswick County; Mecklenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2010 cycle, Little Genito Creek was assessed as not supporting of the Aquatic Life Use due to benthic impairment at 2008 probabilistic monitoring station 5ALTG001.50.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_LTG01A10 / Little Genito Creek / Headwaters to mouth at Genito Creek	5A	Benthic Macroinvertebrates Bioassessments	2010	L	12.06

Little Genito Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.06

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-07-BAC** Evans Creek

Cause Location: Headwaters to mouth at the Meherrin River.

Cause City/County: Brunswick County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Evans Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 4/12 at the Route 623 bridge (5AEVN000.96).

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

During the 2016 cycle, the segment remained impaired for E.coli with an exceedance rate of 2/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_EVN01A10 / Evans Creek / Headwaters to mouth at the Meherrin River.	4A	Escherichia coli (E. coli)	2010	L	11.73

Evans Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.73

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-08-BAC** Totaro Creek

Cause Location: Headwaters to mouth at the Meherrin River.

Cause City/County: Brunswick County; Mecklenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Totaro Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 10/12 at the Route 58 bridge (5ATRO002.00).

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_TRO01A10 / Totaro Creek / Start of PWS 5 miles above the Town of Lawrenceville's intake to its mouth at the Meherrin River.	4A	Escherichia coli (E. coli)	2010	L	4.86
VAP-K05R_TRO01B10 / Totaro Creek / Headwaters to start of PWS segment 5 miles above Town of Lawrenceville's intake	4A	Escherichia coli (E. coli)	2010	L	0.47

Totaro Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.33

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K05R-09-BAC** Allen Creek

Cause Location: Headwaters to mouth

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Allen Creek was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 4/23 at 5AALN001.00.

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area so is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K05R_ALN01A08 / Allen Creek / Headwaters to mouth	4A	Escherichia coli (E. coli)	2016	L	6.96

Allen Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.96

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K06R-02-BAC** Great Creek

Cause Location: The mainstem of Great Creek from Powell Creek downstream to its mouth, excluding Great Creek Reservoir.

Cause City/County: Brunswick County; Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Portions of Great Creek have been impaired since the 2002 cycle. During the year 2006 cycle, the previous bacteria impairments (VAP-K06R-01, -02, and -03) in Great Creek were combined based on fecal coliform exceedances at 5AXEA000.04, 5A-PL-GR-A, and 5AGTC005.40, and E. coli exceedances at 5AGTC017.75. 5AXEA000.04 and 5A-PL-GR-A are confined animal feeding operation (CAFO) special study stations that were discontinued in 2002.

During the 2008 cycle, the entire mainstem of Great Creek, excluding Great Creek Reservoir, remained impaired and converted to E. coli based on an E. coli exceedance rate of 2/11 at station 5AGTC017.75.

Monitoring was conducted throughout the segment during the 2010 cycle to characterize the extent of the impairment. The upstream and downstream stations had acceptable exceedance rates; therefore the segment was shortened and parts of the creek were partially delisted.

5AGTC025.70 - Rt. 602 - 0/11

5AGTC023.89 - Rt. 617 - 1/11

5AGTC022.59 - Rt. 620 - 0/12

5AGTC020.71 - Rt. 653 - 7/19

5AGTC017.75 - Rt. 644 - 8/19

5AGTC015.20 - Rt. 1 - 1/12

5AGTC013.62 - Rt. 763 - 3/12

5AGTC006.97 - RR bridge - 5/12

5AGTC005.40 - Rt. 713 - 1/18

5AGTC004.82 - opposite Lawrenceville STP - 1/12

5AGTC000.38 - above Buford Branch - 1/12

In the 2018 cycle, the segment from the Lawrenceville PWS intake to the mouth was relisted based on an E. coli exceedance rate of 3/12 at 5AGTC005.40. The impairment is extended to re-incorporate this portion.

The Meherrin River Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The TMDL addressed the entire riverine portion of Great Creek. The segments are considered Category 2C/3A/4A as appropriate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K06R_GTC01C10 / Great Creek / Powell Creek to upstream extent of PWS Section 5a-3b.	4A	Escherichia coli (E. coli)	2006	L	6.44
VAP-K06R_GTC02B00 / Great Creek / Upstream extent of PWS Section 5a-3b to extent of backwater at Great Creek Reservoir.	4A	Escherichia coli (E. coli)	2006	L	2.19

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K06R_GTC04B00 / Great Creek / Great Creek Reservoir dam to the Lawrenceville PWS intake (PWS Section 5a-3b).	4A	Escherichia coli (E. coli)	2008	L	2.75
VAP-K06R_GTC05B00 / Great Creek / Lawrenceville PWS intake to its mouth.	4A	Escherichia coli (E. coli)	2018	L	7.57

Great Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.95

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K06R-03-BAC** Stevens Branch

Cause Location: The mainstem of Stevens Branch from its headwaters to its mouth at Great Creek.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Stevens Branch was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 5/10 at 5ASTV000.62, which is located at a private road off of Rt. 700.

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K06R_STV01A10 / Stevens Branch / Headwaters to mouth at Great Creek	4A	Escherichia coli (E. coli)	2010	L	4.31

Stevens Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.31

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K06R-04-BAC** Tea Branch

Cause Location: The mainstem of Tea Branch from its headwaters to its mouth at Great Creek.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Tea Branch was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 9/11 at 5ATEA001.47, which is located at Rt. 652.

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K06R_TEA01A10 / Tea Branch / Headwaters to mouth at Great Creek	4A	Escherichia coli (E. coli)	2010	L	3.24

Tea Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.24

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K06R-05-BAC** **XHQ - Great Creek, UT**

Cause Location: Headwaters to its mouth at Great Creek.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Tributary XHQ was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/12 at 5AXHQ000.38, which is located at Rt. 603.

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area and the TMDL states that this segment will be considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K06R_XHQ01A10 / Great Creek, UT / Headwaters to mouth at Great Creek	4A	Escherichia coli (E. coli)	2010	L	2.12

XHQ - Great Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.12

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K07R-03-BAC Rocky Run**

Cause Location: Rocky Run and its tributaries, including Sandy Branch.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Rocky Run was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 4/11 at 5ARYR000.62, which is located at Rt. 642.

Rocky Run drains to Roses Creek, which has a completed bacterial TMDL that was adopted by the EPA on 7/6/2004 and by the SWCB on 12/2/2004. The TMDL requires extensive reductions in the watershed; therefore, this segment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K07R_RYR01A08 / Rocky Run / Rocky Run and its tributaries downstream to its mouth at Roses Creek.	4A	Escherichia coli (E. coli)	2010	L	21.28

Rocky Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.28

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K07R-03-BEN** **Rocky Run**

Cause Location: Rocky Run and its tributaries, including Sandy Branch.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, Rocky Run was assessed as impaired of the Aquatic Life Use due to a benthic impairment at freshwater probabilistic monitoring station 5ARYR001.23.

Additional monitoring occurred during the 2014 cycle, both at station 5ARYR001.23 and at station 5ARYR000.62, which is located at Rt. 642. There is severe impairment at both stations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K07R_RYR01A08 / Rocky Run / Rocky Run and its tributaries downstream to its mouth at Roses Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	21.28

Rocky Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		21.28

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K07R-04-BAC** **Roses Creek**

Cause Location: From its headwaters downstream to the Alberta Sewage Treatment Plant discharge.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the portion of Roses Creek upstream of the sewage treatment plant outfall was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/9 at 5ARSE009.87.

Although this station is upstream of the original impaired segment, it was included in the Roses Creek Bacterial TMDL, which was adopted by the EPA on 7/6/2004 and by the SWCB on 12/2/2004. The TMDL requires extensive reductions in the watershed; therefore, this segment is considered nested. During the 2022 cycle new data was collected and the segment remains impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K07R_RSE01B10 / Roses Creek / Headwaters to Town of Alberta's STP discharge	4A	Escherichia coli (E. coli)	2010	L	1.96

Roses Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.96

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K07R-05-BAC** Soloman Creek

Cause Location: Headwaters to mouth at Roses Creek.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, Soloman Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/11 at 5ASMN001.97, which is located at Rt. 634.

The creek drains to Roses Creek, which has a completed bacterial TMDL that was adopted by the EPA on 7/6/2004 and by the SWCB on 12/2/2004. The TMDL requires extensive reductions in the watershed; therefore, this segment is considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K07R_SMN01A18 / Soloman Creek / Headwaters to mouth at Roses Creek	4A	Escherichia coli (E. coli)	2018	L	4.98

Soloman Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.98

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08L-01-HGFT** Emporia Lake (Meherrin Reservoir)

Cause Location: Emporia Lake

Cause City/County: Greenville County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: In 2007 the lake had fish tissue monitoring with Mercury in 3 species (Chain Pickerel, Largemouth Bass and Redear Sunfish.

During the 2020 cycle new fish tissue data was collected and Mercury in Fish tissue was in 1 species (largemouth bass) (OE). Fish Tissue and Sediment PCB were within acceptable limits at station 5AMHN053.00.

A VDH Fish Consumption Advisory is in effect for Emporia Reservoir for Mercury, no more than two meals per month for Largemouth Bass (9/16/2008).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08L_MHN02C98 / Emporia Lake (Meherrin Reservoir) / On Meherrin River in Emporia	5A	Mercury in Fish Tissue	2014	L	263.68

Emporia Lake (Meherrin Reservoir)

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	263.68	

Sources: Atmospheric Deposition - Toxics

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08L-02-CHLA** Brunswick Lake

Cause Location: Brunswick Lake

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Chlorophyll-a/5A

Cause Description: During the 2016 cycle the segment became impaired for Chlorophyll a with 2/3 exceedances.

no new data has been collected. new Chlorophyll a data was collected but is insufficient to determine status.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08L_RDC01A98 / Brunswick Lake (County Pond) / VDGIF (now DWR) lake on Reedy Creek.	5A	Chlorophyll-a	2016	L	160.33

Brunswick Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		160.33	

Sources: Agriculture; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08L-02-DO** Brunswick Lake

Cause Location: Brunswick Lake

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: In 2006 Brunswick Lake was assessed as not supporting the Aquatic Life Use due to low dissolved oxygen in bottom waters. The low DO only occurred during periods of stratification, however the TSIs for the lake were above 60: TSI(TP) = 64 TSI(CA) = 69 TSI(SD) = 66

Therefore the low dissolved oxygen was considered to be exacerbated by excessive nutrients and a TMDL was required. In addition, both total phosphorus and chlorophyll a were considered observed effects b/c of screening level exceedances. The lake should be reevaluated once nutrient criteria are established.

For the 2008 cycle nutrient criteria was developed for lakes and DO was no longer impaired. Only pH was impaired at 5ARDC007.30 with an exceedance rate of 5/36.

In the 2012 cycle the segment was listed as impaired for aquatic life use with a DO exceedance rate of 7/37 at station 5ARDC007.30.

During the 2014 cycle there was no new data so the impairments remain.

During the 2016 cycle the segment was impaired for DO with an exceedance rate of 7/56 at 5ARDC007.30 and 9/47 at 5ARDC008.50. no new data has been collected. During the 2022 cycle new data was collected at station 5ARDC007.30. The station remained impaired for DO with an exceedance rate of 3/18.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08L_RDC01A98 / Brunswick Lake (County Pond) / VDGIF (now DWR) lake on Reedy Creek.	5A	Dissolved Oxygen	2006	L	160.33

Brunswick Lake

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		160.33	

Sources: Agriculture; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-02-BAC** **Robinson Creek**

Cause Location: Robinson Creek from its headwaters to its mouth.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Robinson Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/11 at 5ARNS000.94, which is located at a private road east of Rt. 670.

The Meherrin River and Tributaries Bacterial TMDL was approved by the EPA on 4/12/2010 and by the SWCB on 9/30/2010. The impairment is within the study area; therefore, this segment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_RNS01A10 / Robinson Creek / Headwaters to mouth at the Meherrin River	4A	Escherichia coli (E. coli)	2010	L	6.08

Robinson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.08

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-03-BAC** **Wilson Creek**

Cause Location: Wilson Creek from its beginning at the confluence of Dukes Branch and Huckleberry Branch to its mouth at Brunswick Lake.

Cause City/County: Brunswick County; Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, Wilson Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5AWIL002.42, which is located at the Route 712 bridge.

The exceedance rate was 5/12 during the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_WIL01A10 / Wilson Creek / Start of Wilson Creek at the confluence of Dukes Branch and Huckleberry Branch to its mouth at Brunswick Lake	5A	Escherichia coli (E. coli)	2012	L	2.75

Wilson Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.75

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-03-BEN** Wilson Creek

Cause Location: Wilson Creek from its beginning at the confluence of Dukes Branch and Huckleberry Branch to its mouth at Brunswick Lake.

Cause City/County: Brunswick County; Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2010 cycle, Wilson Creek was assessed as not supporting of the Aquatic Life Use due to impairment of the benthic community at 5AWIL002.42, which is located at Rt. 712. Additional monitoring during the 2014 cycle showed an acceptable benthic community; therefore, the stream was delisted.

During the 2016 cycle, the segment was relisted and impaired for Benthics.

The station has been discontinued due to safety concerns.

During the 2020 cycle new benthic data was collected but remained impaired. During the cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_WIL01A10 / Wilson Creek / Start of Wilson Creek at the confluence of Dukes Branch and Huckleberry Branch to its mouth at Brunswick Lake	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.75

Wilson Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.75

Sources: Non-Point Source

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-04-BAC XII - UT to Dukes Branch**

Cause Location: Headwaters to the mouth at Dukes Branch

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the segment was impaired of the Recreation use due to an E.coli exceedance rate of 3/10 at 5AXII000.38.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_XII01A16 / UT to Dukes Branch / Headwaters to mouth	5A	Escherichia coli (E. coli)	2016	L	1.71

XII - UT to Dukes Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.71

Sources: Non-Point Source; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-05-BAC** **Dukes Branch**

Cause Location: Headwaters to the mouth

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Dukes Branch was impaired of the Recreation use due to an E.coli exceedance rate of 4/12 at 5ADUK001.42.

No new data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_DUK01A16 / Dukes Branch / Headwaters to the mouth	5A	Escherichia coli (E. coli)	2016	L	2.58

Dukes Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.58

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K08R-06-BAC** **Greensville Creek**

Cause Location: Headwaters to mouth at Meherrin

Cause City/County: Brunswick County; Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment was impaired for E.coli with an exceedance rate of 2/12. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K08R_GRS01C20 / Greensville Creek / Headwaters to mouth at Meherrin	5A	Escherichia coli (E. coli)	2020	L	3.78

Greensville Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.78

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K09R-01-BAC** Meherrin River

Cause Location: The Meherrin River from the Emporia Reservoir Dam to the Route 730 bridge

Cause City/County: Emporia; Greensville County; Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the Meherrin River from the Emporia Reservoir dam downstream to Route 730 became impaired for the Recreation Use. Station 5AMHN026.54 had a 2/12 exceedance rate and station 5AMHN052.34 had a 4/36 exceedance rate for E.coli.

The E. coli exceedance rate was 5/36 at 5AMHN052.34 during the 2018 cycle. In addition, the impairment was extended downstream to Fontaine Creek.

During the 2020 cycle the segment remains impaired from E.coli with exceedance rates of 8/23 at station 5AMHN026.54 and 8/36 at station 5AMHN052.34.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K09R_MHN01D98 / Meherrin River / Emporia Reservoir Dam to the Route 730 bridge	5A	Escherichia coli (E. coli)	2016	L	26.76
VAP-K09R_MHN02D00 / Meherrin River / Route 730 bridge to Fontaine Creek (CM21/CM29 watershed boundary).	5A	Escherichia coli (E. coli)	2018	L	2.27

Meherrin River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			29.03

Sources: Non-Point Source; Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: K09R-01-HGFT Meherrin River, Fontaine Creek, Mill Swamp

Cause Location: Meherrin River below Emporia Reservoir Dam to the state line, including its tributaries Fontaine Creek up to I-95 bridge crossing and Mill Creek up to I-95 bridge crossing

Cause City/County: Emporia; Greensville County; Southampton County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: On 12/13/2004, the Virginia Department of Health issued a fish consumption advisory due to mercury in gizzard shad. The advisory includes the Meherrin River from below the Emporia dam downstream ~28 miles to the Route 730 bridge. In addition, on 9/16/2008, they issued an advisory for bowfin and largemouth bass from Emporia Reservoir dam to the state line, including the tributaries Fontaine Creek and Mill Swamp up to the I-95 bridge crossings.

The segments will be considered impaired of the Fish Consumption Use. The advisory was based on mercury exceedances at DEQ monitoring stations 5AMHN026.54, 5AMHN051.43, 5AFON006.07, and 5AMLS001.42.

During the 2020 cycle new Fish Tissue data was analyzed at station 5AMHN051.43 Mercury in 2 species (Golden Redhorse, Largemouth Bass)(IM)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K09R_MHN01D98 / Meherrin River / Emporia Reservoir Dam to the Route 730 bridge	5A	Mercury in Fish Tissue	2010	L	26.76
VAP-K09R_MHN02D00 / Meherrin River / Route 730 bridge to Fontaine Creek (CM21/CM29 watershed boundary).	5A	Mercury in Fish Tissue	2010	L	2.27
VAP-K11R_FON03A98 / Fontaine Creek (aka Fountains Creek) / I-95 bridge to the Route 301 bridge.	5A	Mercury in Fish Tissue	2010	L	7.30
VAP-K11R_FON04A00 / Fontaine Creek (aka Fountains Creek) / Route 301 bridge to the Meherrin River in K12	5A	Mercury in Fish Tissue	2010	L	14.48
VAP-K12R_MLS01A00 / Mill Swamp / I-95 bridge to mouth at Fontaine Creek.	5A	Mercury in Fish Tissue	2010	L	11.53
VAT-K09R_MHN02D08 / Meherrin River / CM21/CM29 watershed boundary at Fontaine Cr to North Carolina border at NC Hwy 186	5A	Mercury in Fish Tissue	2010	L	5.42

Meherrin River, Fontaine Creek, Mill Swamp

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		67.76

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K09R-01-PCBFT** Meherrin River

Cause Location: The Meherrin River from the Emporia Reservoir Dam to the Route 730 bridge

Cause City/County: Emporia

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2004 cycle, the Meherrin River from the Emporia Reservoir dam downstream approximately 5 miles was assessed as not supporting the Fish Consumption Use due to PCBs in fish tissue in two samples at station 5AMHN051.43.

During the 2006 cycle, VDH issued a fish consumption advisory for PCBs from the Emporia dam to the Route 730 bridge (12/13/2004). The segment was extended to match the advisory. The TMDL due date for PCBs is 2016.

During the 2020 cycle new Fish Tissue data was analyzed at station 5AMHN051.43 PCB 1species (gizzard shad)(OE); 2017 SED PCB ok.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K09R_MHN01D98 / Meherrin River / Emporia Reservoir Dam to the Route 730 bridge	5A	PCBs in Fish Tissue	2004	L	26.76

Meherrin River

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		26.76

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-01-DO** **Rattlesnake Creek**

Cause Location: Rattlesnake Creek mainstem from headwaters to its mouth at Fontaine Creek

Cause City/County: Brunswick County; Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Rattlesnake Creek from Edwards Creek to its mouth was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances at several stations in the segment. The impairment was extended upstream in the 2012 cycle. During the 2014 cycle, the exceedance rates were as follows:

1/10 at 5ARSK000.23 4/24 at 5ARSK003.08 6/12 at 5ARSK006.97 4/12 at 5ARSK009.28 2/10 at 5ARSK011.59

During the 2016 cycle the segment remained impaired for Aquatic Life Use due to dissolved oxygen exceedances at stations 5ARSK006.97 and 5ARSK009.28 (3/12 and 4/12, respectively.) Monitoring at station 5ARSK003.08 and 5ARSK011.59 was acceptable.

During 2020 cycle new data was collected at station 5ARSK003.08. This data was acceptable but follow up monitoring at the other stations is recommended. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_RSK01A00 / Rattlesnake Creek / Headwaters to its mouth at Fontaine Creek.	5C	Dissolved Oxygen	2010	L	17.19

Rattlesnake Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		17.19

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-02-BAC** Fontaine Creek (Fountains Creek)

Cause Location: Fontaine Creek mainstem from Quarrel Creek to Rocky Run.

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Fontaine Creek from Quarrel Creek to Rocky Run was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 4/24 at 5AFON037.89, which is located at Rt. 603.

The segment is located with the study area for the Fontaine Creek Bacterial TMDL, which was approved by the EPA on 1/13/2011 and by the SWCB on 8/4/2011. All bacterial impairments within the watershed will be addressed during the implementation phase; therefore, the segment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_FON01B10 / Fontaine Creek / Fontaine Creek from the confluence of Quarrel Creek to the end of the watershed at Rocky Run.	4A	Escherichia coli (E. coli)	2010	L	0.57

Fontaine Creek (Fountains Creek)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.57

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-02-DO** Fontaine Creek (Fountains Creek)

Cause Location: Fontaine Creek mainstem from Rattlesnake Creek Quarrel Creek and from Rocky Run to the confluence with tributary XGV

Cause City/County: Greenville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Fontaine Creek from Rattlesnake to the confluence with tributary XGV was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances throughout the segment.

3/9 at 5AFON039.47 3/25 at 5AFON037.89 5/12 at 5AFON033.05 3/12 at 5AFON027.33

During the 2016 cycle, the portion from Rattlesnake Run to Quarrel Creek remained impaired for Aquatic life use due to a DO exceedance rate of 2/12 at station 5AFON039.47. The portion from Quarrel Creek to Rocky Run was partially delisted (1/12 at 5AFON037.89). Rocky Run to XGV also remained listed (3/12 at 5AFON033.05, 0/12 at 5AFON027.33)

No additional monitoring was conducted during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_FON01A04 / Fontaine Creek / Fontaine Creek from the confluence of Rattlesnake Creek to Quarrel Creek.	5C	Dissolved Oxygen	2010	L	4.60
VAP-K11R_FON01A02 / Fontaine Creek / Rocky Run to tributary XGV	5C	Dissolved Oxygen	2010	L	12.04

Fontaine Creek (Fountains Creek)

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		16.64

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-03-BAC** Quarrel Creek

Cause Location: Quarrel Creek mainstem from White Oak Creek to its mouth.

Cause City/County: Brunswick County; Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Quarrel Creek became impaired for the Recreation Use due to E.coli exceedances with a violation rate of 3/11 and was nested into the Fontaine Creek Bacteria TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_QRL01A10 / Quarrel Creek / Confluence with White Oak Creek to mouth at Fontaine Creek	4A	Escherichia coli (E. coli)	2016	L	3.34

Quarrel Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.34

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-03-DO** Quarrel Creek

Cause Location: Quarrel Creek mainstem from White Oak Creek to its mouth.

Cause City/County: Brunswick County; Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Quarrel Creek from White Oak Creek to its mouth was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances at 5AQRL000.54, which is located at Rt. 602. The exceedance rate was 5/12 during the 2012 cycle.

During the 2016 cycle, the segment remained impaired for the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/24 at 5AQRL000.54.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_QRL01A10 / Quarrel Creek / Confluence with White Oak Creek to mouth at Fontaine Creek	5C	Dissolved Oxygen	2010	L	3.34

Quarrel Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-03-PH** Quarrel Creek

Cause Location: Quarrel Creek mainstem from White Oak Creek to its mouth.

Cause City/County: Brunswick County; Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, Quarrel Creek from White Oak Creek to its mouth was impaired for the Aquatic Life Use due to a pH exceedance rate of 3/24.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_QRL01A10 / Quarrel Creek / Confluence with White Oak Creek to mouth at Fontaine Creek	5C	pH	2016	L	3.34

Quarrel Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-04-DO** **Beddingfield Creek**

Cause Location: Beddingfield Creek from Mason Branch to its mouth at Fontaine Creek.

Cause City/County: Brunswick County; Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Beddingfield Creek was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 5ABDD000.69, which is located at Rt. 600. The violation rate was 5/11 during the 2012 cycle.

During the 2016 cycle, the segment was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen violations at 5ABDD000.69 with a violation rate of 5/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_BDD01A10 / Beddingfield Creek / Mason Branch to mouth at Fontaine Creek	5C	Dissolved Oxygen	2010	L	4.18

Beddingfield Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.18

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K10R-06-PH** **Rocky Run**

Cause Location: Rocky Run from the Doyle Lake dam to its mouth at Fontaine Creek.

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Rocky Run was assessed as not supporting of the Aquatic Life Use in the 2010 cycle due to a pH exceedance rate of 2/12 at 5ARCY000.90, which is located at Route 604.

During the 2016 cycle, the segment remained impaired for the Aquatic Life Use due to a pH exceedance rate of 2/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K10R_RCY01A10 / Rocky Run / Doyle Lake dam to mouth at Fontaine Creek	5C	pH	2010	L	0.87

Rocky Run

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.87

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-03-BAC** Cattail Creek

Cause Location: Cattail Creek upstream of Collier Branch.

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Beginning in the 2004 cycle, the segment was assessed as not supporting of the Recreation Use goal based on fecal coliform exceedances at 5ACTT005.89 and 5ACTT002.73. These stations are confined animal feeding operation (CAFO) special study stations and are located at the Route 633 and Route 622 bridges.

Additional monitoring at 5ACTT002.73 was conducted during the 2010 cycle. The bacterial impairment converted to E. coli due to an exceedance rate of 2/12.

The Fontaine Creek Bacterial TMDL was developed during the 2012 cycle. It was approved by the EPA on 1/13/2011 and by the SWCB on 8/4/2011. Cattail Creek is within the study area for the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_CTT01A02 / Cattail Creek / Headwaters at Smith Pond dam to Collier Branch	4A	Escherichia coli (E. coli)	2010	L	5.34

Cattail Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.34

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-05-BAC** Beaverpond Creek

Cause Location: VA-NC state line to mouth at Fontaine Creek

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 2/11 at station 5ABVC000.48, this segment will be nested in the Fontaine Creek TMDL (39701) approved on 1/13/2011.

The Fontaine Creek Bacterial TMDL was developed during the 2012 cycle. It was approved by the EPA on 1/13/2011 and by the SWCB on 8/4/2011. Cattail Creek is within the study area for the TMDL; therefore, it is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_BVC01A04 / Beaverpond Creek / VA-NC state line to mouth at Fontaine Creek	4A	Escherichia coli (E. coli)	2020	L	3.35

Beaverpond Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.35

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-05-DO** Beaverpond Creek

Cause Location: The mainstem of Beaverpond Creek within Virginia.

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Beaverpond Creek was assessed as not supporting of the Aquatic Life Use due to dissolved oxygen exceedances. The exceedance rates during the 2012 cycle were as follows:

3/12 at 5ABVC000.48

2/12 at 5ABVC002.31

During the 2016 cycle, the segment remained impaired with a DO exceedance rate of 3/12 at 5ABVC002.31. Monitoring at station 5ABVC000.48 was acceptable (1/12).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_BVC01A04 / Beaverpond Creek / VA-NC state line to mouth at Fontaine Creek	5C	Dissolved Oxygen	2010	L	3.35

Beaverpond Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.35

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-06-PH** XGV - Fontaine Creek, UT

Cause Location: Headwaters to mouth

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: XGV was assessed as not supporting of the Aquatic Life Use in the 2010 cycle due to a pH exceedance rate of 3/7 at 5AXGV000.92.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_XGV01A10 / XGV - Fontaine Creek, UT / Headwaters to mouth at Fontaine Creek	5C	pH	2010	L	1.96

XGV - Fontaine Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-08-DO** XGU - Fontaine Creek, UT

Cause Location: Headwaters to mouth

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: XGU was assessed as not supporting of the Aquatic Life Use in the 2010 cycle due to a dissolved oxygen exceedance rate of 9/12 at 5AXGU000.35, which is located at frontage road F-128.

During the 2016 cycle, the segment remained impaired due to a dissolved oxygen exceedance rate of 4/11 at 5AXGU000.35

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_XGU01A10 / XGU - Fontaine Creek, UT / Headwater to mouth at Fontaine Creek	5C	Dissolved Oxygen	2010	L	1.83

XGU - Fontaine Creek, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K11R-08-PH** XGU - Fontaine Creek, UT

Cause Location: Headwaters to mouth

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: XGU was assessed as not supporting of the Aquatic Life Use in the 2010 cycle due to a pH exceedance rate of 6/12 at 5AXGU000.35, which is located at frontage road F-128.

During the 2016 cycle, the segment remained impaired due to a pH exceedance rate of 9/11 at 5AXGU000.35.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_XGU01A10 / XGU - Fontaine Creek, UT / Headwater to mouth at Fontaine Creek	5C	pH	2010	L	1.83

XGU - Fontaine Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K12R-01-BAC** Fontaine Creek

Cause Location: From the Route 301 bridge to its mouth at the Meherrin River. Nested within segment VAP-K11R-03.

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 2002 the segment of Fontaine Creek from Mill Creek to the Meherrin River was assessed as not supporting of the Recreation Use based on fecal coliform exceedances at the Route 625 bridge (5AFON006.07). During the year 2006 cycle, the segment was amended from the Route 301 bridge to the Meherrin River and E. coli was added as an impairment.

During the 2008 cycle, the segment remained impaired for bacteria due to E. coli exceedances and the impairment converted to E. coli. The violation rates during the 2010 cycle were 3/8 at 5AFON001.46 and 4/23 at 5AFON006.07.

The Fontaine Creek Bacterial TMDL was developed during the 2012 cycle and was approved by the EPA on 1/13/2011 and by the SWCB on 8/4/2011. The impairment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K11R_FON04A00 / Fontaine Creek (aka Fountains Creek) / Route 301 bridge to the Meherrin River in K12	4A	Escherichia coli (E. coli)	2006	L	14.48

Fontaine Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.48

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K13R-01-BAC** Tarrara Creek

Cause Location: This cause encompasses the entirety of Tarrara Creek located northeast of Boykins.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E.coli is impaired with 5 exceedances out of 35 observations at station 5ATTR002.50 due to having 2 or more STV hits in the same 90-day period with < 10 samples.. A TMDL was established for E. Coli on 9/28/2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K13R_TRR01A00 / Tarrara Creek / Located northeast of Boykins. All of Tarrara Creek. Flat, marshy with low flow swamp characteristics.	4A	Escherichia coli (E. coli)	2008	L	14.5

Tarrara Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.5

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K13R-04-BAC** Flat Swamp

Cause Location: This cause encompasses the area downstream of the confluence of Bellyache Swamp and Frank's Branch extending downstream to its confluence with Tarrara Creek.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli data at station 5AFTS002.93 marks 6 exceedances out of 12 samples. This creates the impaired status due to 2 or more STV hits in the same 90-day period with < 10 samples. Recreation Use was first listed as impaired in 2004 for Fecal Coliform. A Bacteria TMDL for Flat Swamp was EPA approved 9/28/2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K13R_FTS01A04 / Flat Swamp / North of White Head Hall. Downstream of the confluence of Bellyache Swamp and Frank's Branch extending downstream to its confluence with Tarrara Creek.	4A	Escherichia coli (E. coli)	2016	L	8.48

Flat Swamp

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 8.48

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K13R-05-BAC** Meherrin River (Lower)

Cause Location: Two miles upstream (33.40) and 2.07 miles downstream (13.40) of station @ 5AMHN023.40.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli is impaired at station 5AMHN023.40 (4 exceedances/ 25 samples) for the 2020 IR cycle. The 2022 IR cycle lists E. coli with 3 exceedances out of 32 samples and a status of insufficient due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean.. The AU retains the impaired status.

Probabilistic monitoring station 5AMHN003.95 has E. coli data with 0 exceedances out of 1 sample and is insufficient as there are no STV exceedances but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K13R_MHN01A00 / Meherrin River (Lower) / Two miles upstream (33.40) and 2.07 miles downstream (13.40) of station @ 5AMHN023.40.	5A	Escherichia coli (E. coli)	2020	L	4.53

Meherrin River (Lower)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.53

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14L-02-HGFT** Nottoway Falls Lake

Cause Location: Nottoway Falls Lake

Cause City/County: Lunenburg County; Nottoway County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Station ID: 5ANTW143.06 (2007 FT Sampling) During the 2016 Fish tissue monitoring had results of Hg in 2 Species. During the 2018, 2020 and 2022 cycle it was no new data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14L_NTW01L00 / Nottoway Falls Lake / Nottoway River	5A	Mercury in Fish Tissue	2010	L	32.2

Nottoway Falls Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	32.2	

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-01-BAC** **Nottoway River**

Cause Location: Headwaters to the backwater of Nottoway Falls Lake

Cause City/County: Lunenburg County; Nottoway County; Prince Edward County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 1998, Nottoway River from its headwaters to The Falls was assessed as fully supporting but threatened of the Recreation Use due to fecal coliform exceedances at 5ANTW155.06. It was included on EPA's Attachment B "Waters to be Identified to Virginia for Listing Consideration During Development of Next List." It was downgraded to impaired in the 2002 cycle.

It converted to E. coli in the 2006 cycle due to an exceedance rate of 3/21 at 5ANTW155.06.

The Non-Tidal Chowan River Watershed Bacterial TMDL was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006.

In the 2018 cycle, the E. coli exceedance rate is 8/36 at DEQ station 5ANTW155.06. In the 2020 cycle, the E. coli exceedance rate is 9/35 at DEQ station 5ANTW155.06. During the 2022 cycle the segment remained impaired for E.coli with an exceedance rate of 8/34 at station 5ANTW155.06.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_NTW01A98 / Nottoway River / Headwaters to a point 5 miles upstream of Victoria's PWS intake 200 feet upstream of Route 49.	4A	Escherichia coli (E. coli)	2006	L	13.53
VAP-K14R_NTW02A98 / Nottoway River / From a point 5 miles upstream of Victoria's intake to the backwaters of Nottoway Falls Lake, excluding tributaries.	4A	Escherichia coli (E. coli)	2006	L	4.03

Nottoway River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.56

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-02-BAC** **Big Hounds Creek**

Cause Location: Big Hounds Creek from the Lunenburg Lake dam to its mouth on the Nottoway River.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 1998 cycle, Big Hounds Creek was fully supporting but threatened of the Recreation Use due to a fecal coliform exceedance rate of 4/19 recorded at 5ABHC003.73. It was included on EPA’s Attachment B “Waters to be Identified to Virginia for Listing Consideration During Development of Next List.” It was downgraded to impaired in the 2002 cycle with a TMDL due date of 2010.

The impairment was addressed in the Non-Tidal Chowan River Bacterial TMDL report, which was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006.

It was subsequently shortened to end at the Lunenburg Lake dam.

In the 2014 cycle, the exceedance rate at 5ABHC003.73 was 2/12. Level II citizen monitoring was as follows: 6/34 at 5A-BHC-LUN01-SSWCD 3/36 at 5A-BHC-LUN02-SSWCD 4/36 at 5A-BHC-LUN03-SSWCD

In the 2018 cycle, no additional monitoring has been conducted; therefore, the segment remains impaired (Category 4A).

During the 2020 cycle the segment remains impaired for E.coli with an exceedance rate of 3/12 at station 5ABHC003.73. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_BHC01B98 / Big Hounds Creek / From Lunenburg Lake dam to the Nottoway River.	4A	Escherichia coli (E. coli)	2006	L	10.34

Big Hounds Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.34

Sources: Agriculture; Livestock (Grazing or Feeding Operations); Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-02-BEN** **Big Hounds Creek**

Cause Location: From Lunenburg Lake dam to the Nottoway River.

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle the segment was Impaired for Benthics at station 5ABHC006.57. Bio sampling was also performed at 5ABHC006.59 but was insufficient and referenced to use station 6.57 instead. High levels of Nutrients and periphyton growth during certain times of the year. During the 2022 cycle no new data was collected, the segment remained impaired for Benthics.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_BHC01B98 / Big Hounds Creek / From Lunenburg Lake dam to the Nottoway River.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	10.34

Big Hounds Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.34

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-03-BAC** Modest Creek

Cause Location: Modest Creek Reservoir to the mouth at the Nottoway River

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, Modest Creek below Modest Creek Reservoir was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5AMDT001.20.

The stream is located within the study area for Nottoway River bacterial TMDL, which was part of the Non-Tidal Chowan River Watershed TMDL report. The report was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006. The impairment is proposed for nesting (Category 4A.)

During the 2020 and 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_MDT01C06 / Modest Creek / Modest Creek from Modest Creek Reservoir to its mouth at the Nottoway River.	4A	Escherichia coli (E. coli)	2018	L	4.86

Modest Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.86

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-04-BAC** **Nottoway River**

Cause Location: Big Hounds Creek to a point 5 miles upstream of Fort Pickett's raw water intake.

Cause City/County: Lunenburg County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 5/12 at station 5ANTW132.93. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_NTW01C98 / Nottoway River / Big Hounds Creek to a point 5 miles upstream of Fort Pickett's raw water intake.	5A	Escherichia coli (E. coli)	2020	L	6.38
VAP-K14R_NTW01D04 / Nottoway River / Nottoway River from a point five miles upstream of Fort Pickett's raw water intake to the Little Nottoway River.	5A	Escherichia coli (E. coli)	2020	L	0.89

Nottoway River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.27

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-05-BAC** Falls Creek

Cause Location: Falls Creek, Headwaters to the mouth

Cause City/County: Lunenburg County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 3/12.
 During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_FLS01A20 / Falls Creek / Headwaters to the mouth	5A	Escherichia coli (E. coli)	2020	L	5.29

Falls Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.29

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K14R-06-BEN** UT to Big Hounds Creek

Cause Location: Headwaters to the Mouth at Big Hounds Creek

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2020 cycle the segment became impaired for Benthics. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K14R_XIV01B20 / UT to Big Hounds Creek / Headwaters to the mouth at Big Hounds Creek	5A	Benthic Macroinvertebrates Bioassessments	2020	L	3.58

UT to Big Hounds Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.58

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K15L-01-HGFT** Nottoway Pond

Cause Location: Nottoway Pond

Cause City/County: Nottoway County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Station ID: 5ALZT000.12 (2007 FT Sampling) Hg 2 Species

No new data during the 2018, 2020 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15L_LZT01L00 / Nottoway Pond / Lazaretto Creek	5A	Mercury in Fish Tissue	2010	L	50.7

Nottoway Pond

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	50.7	

Sources: Source Unknown

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Cause Group Code: **K15R-01-BAC** Little Nottoway River

Cause Location: Little Nottoway River from its confluence with Lazaretto Creek to its mouth on the Nottoway River.

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 1998 cycle, the Little Nottoway River below Lazaretto Creek was assessed as fully supporting but threatened for the Recreation Use due to a fecal coliform exceedance rate of 4/20 at 5ALNT004.68. It was included on EPA’s Attachment B, the “Waters to be Identified to Virginia for Listing Consideration During Development of Next List.” It was downgraded to impaired in the 2002 cycle.

The impairment converted to E. coli in the 2006 cycle.

The TMDL was addressed in the Non-Tidal Chowan River Watershed Bacterial TMDL report, which was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006.

In the 2016 cycle, the exceedance rate at upstream station 5ALNT009.80 was also impaired (3/12.)

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 5/12 at station 5ALNT004.68. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_LNT01A00 / Little Nottoway River / From Lazaretto Creek to a point 5 miles upstream of Fort Pickett’s raw water intake.	4A	Escherichia coli (E. coli)	2006	L	9.09
VAP-K15R_LNT02A04 / Little Nottoway River / Little Nottoway River from a point 5 miles upstream from Fort Pickett’s raw water intake to its confluence with Nottoway River.	4A	Escherichia coli (E. coli)	2006	L	0.89

Little Nottoway River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.98

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K15R-02-BAC** Carys Creek

Cause Location: Carys Creek from its headwaters to the mouth

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2010: 24384, 10/14/2005

During the 2006 cycle, Carys Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5ACRY001.10.

Carys Creek is located within the study area for the Little Nottoway Bacterial TMDL, which was addressed as part of the Non-Tidal Chowan River Watershed Bacterial TMDL report. The TMDL was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006. The impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_CRY01A06 / Carys Creek / Carys Creek from its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	6.35

Carys Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.35

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K15R-03-BAC** Lazaretto Creek

Cause Location: Lazaretto Creek from its headwaters to the backwater of Crystal Lake.

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2010: 24384, 10/14/2005

During the 2010 cycle, Lazaretto Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at station 5ALZT001.39.

The stream is located within the study area for the Little Nottoway Bacterial TMDL, which was addressed as part of the Non-Tidal Chowan River Watershed Bacterial TMDL report. The TMDL was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006. The impairment is considered nested (Category 4A.)

The exceedance rate was 2/12 in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_LZT01A10 / Lazaretto Creek / Lazaretto Creek from a point five miles upstream of the Crewe WTP intake to the backwater of Crystal Lake.	4A	Escherichia coli (E. coli)	2010	L	3.92
VAP-K15R_LZT01B18 / Lazaretto Creek / Lazaretto Creek from its headwaters to a point five miles upstream of the Crewe WTP intake.	4A	Escherichia coli (E. coli)	2010	L	1.06

Lazaretto Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.98

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K15R-04-BEN** Mallorys Creek

Cause Location: Mallorys Creek from its headwaters to the mouth

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle, Mallorys Creek was impaired of the Aquatic Life Use based on 2012 freshwater probabilistic monitoring at 5AMLL000.03. Sediment metrics scored moderate to low with the presence of beaver activity and filamentous algae.

Additional monitoring occurred in 2014 at station 5AMLL001.27. This also indicated impairment. This is a small stream with eroded clay banks and excessive sedimentation. There is cattle access downstream of the bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_MLL01A06 / Mallorys Creek / Mallorys Creek from its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2014	L	7.12

Mallorys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.12

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K15R-05-BAC** Whetstone Creek

Cause Location: Whetstone Creek from its headwaters to its mouth on the Little Nottoway River.

Cause City/County: Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: NESTED 2014: 24384, 10/14/2005

During the 2014 cycle, Whetstone Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/11 at station 5AWSN000.48.

The stream is located within the study area for the Little Nottoway Bacterial TMDL, which was addressed as part of the Non-Tidal Chowan River Watershed Bacterial TMDL report. The TMDL was approved by the EPA on 10/14/2005 and by the SWCB on 9/27/2006. The impairment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_WSN01A08 / Whetstone Creek / Whetstone Creek from its headwaters to its mouth on the Little Nottoway River	4A	Escherichia coli (E. coli)	2014	L	8.42

Whetstone Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.42

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Cause Group Code: **K15R-06-BEN** Little Nottoway River

Cause Location: Little Nottoway River from its confluence with Lazaretto Creek to 5 miles above the Town of Blackstone's raw water intake.

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 cycle, this segment of the Little Nottoway River was impaired of the Aquatic Life Use due to a poor benthic community during 2013 monitoring at 5ALNT009.80, which is located at the Route 625 bridge. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K15R_LNT01A00 / Little Nottoway River / From Lazaretto Creek to a point 5 miles upstream of Fort Pickett's raw water intake.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	9.09

Little Nottoway River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.09

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Cause Group Code: **K16L-01-DO** **Fort Pickett Reservoir**

Cause Location: Fort Pickett Reservoir

Cause City/County: Brunswick County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2018 cycle the segment became impaired for DO at station 5ANTW127.14 with an exceedance rate of 5/46. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16L_NTW01L04 / Fort Pickett Reservoir / Fort Pickett Reservoir	5A	Dissolved Oxygen	2018	L	318.95

Fort Pickett Reservoir

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		318.95	

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16L-01-TP** **Fort Pickett Reservoir**

Cause Location: Fort Pickett Reservoir

Cause City/County: Brunswick County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Phosphorus, Total/5A

Cause Description: Station IDs: 5ANTW127.14 (Lake Station) During the 2016 cycle the Lake was treated with algaecides and was impaired for Total Phosphorus - 2/3 exceedance Rate (Median calculated from 3 sample years)

During the 2018 cycle the segment remained impaired for TP with 1/2 exceedances. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16L_NTW01L04 / Fort Pickett Reservoir / Fort Pickett Reservoir	5A	Phosphorus, Total	2012	L	318.95

Fort Pickett Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Phosphorus, Total - Total Impaired Size by Water Type:		318.95	

Sources: Natural Sources; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-01-BEN** XBL - Hurricane Branch, UT

Cause Location: Hurricane Branch, UT from the Town of Blackstone STP to its mouth on Hurricane Branch.

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Hurricane Branch below the Town of Blackstone Municipal STP was initially impaired in the 1994 cycle based on benthic monitoring gat 5AXBL000.80 in comparison to reference station 5AXBL001.18, which is located upstream of the discharge.

The TMDL was approved by the EPA on 9/30/2004 and by the SWCB on 3/15/2005.

Additional monitoring in 2008 and 2010-2012 confirmed the impairment.

Note: The impairment was extended upstream to the headwaters in the 2008 cycle based on an impaired community at 5AXBL000.80. This section was considered nested; however, it was mistakenly included in the same fact sheet. The impairment will remain nested in the 2018 cycle, but the fact sheets will be separated (see K16R-03-BEN).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_XBL01A94 / Hurricane Branch, Unnamed Tributary / From Blackstone STP discharge to mouth at Hurricane Branch.	4A	Benthic Macroinvertebrates Bioassessments	1994	L	1.08

XBL - Hurricane Branch, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.08

Sources: Non-Point Source; Unspecified Urban Stormwater

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-02-BAC** Beaver Pond Creek

Cause Location: Beaver Pond Creek from its headwaters to its mouth on the Nottoway River

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Beaverpond Creek was assessed as fully supporting but threatened for the Recreation Use in the 1998 cycle to a fecal coliform exceedance rate of 6/12 at 5ABPC000.12. It was included on EPA's Attachment B list - "Waters Identified to Virginia for Listing Consideration During Development of Next List." It was downgraded in the 2002 cycle with a TMDL due date of 2010.

The impairment converted to E. coli in the 2006 cycle due to an exceedance rate of 4/12.

The TMDL for Beaver Pond Creek was included in the Non-Tidal Chowan River Watershed Bacterial TMDL, which was approved by the EPA on 10/15/2005 and by the SWCB on 9/27/2006.

The exceedance rate was 13/24 in the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_BPC01A00 / Beaver Pond Creek / Beaver Pond Creek from its headwaters to its mouth on the Nottoway River	4A	Escherichia coli (E. coli)	2004	L	7.44

Beaver Pond Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.44

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Urban Runoff/Storm Sewers; Wastes from Pets; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: K16R-03-BEN XBL - Hurricane Branch, UT

Cause Location: Hurricane Branch, UT from its headwaters to the Town of Blackstone outfall

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Hurricane Branch below the Town of Blackstone Municipal STP was initially impaired in the 1994 cycle based on benthic monitoring at 5AXBL000.80 in comparison to reference station 5AXBL001.18, which is located upstream of the discharge. The TMDL was approved by the EPA on 9/30/2004 and by the SWCB on 3/15/2005.

The impairment was extended upstream to the headwaters in the 2008 cycle based on an impaired community at 5AXBL000.80 during monitoring in 2008 and 2010-2012. This section is considered nested; however, it was mistakenly included in the same fact sheet. The impairment will remain nested in the 2018 cycle, but the fact sheets will be separated.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_XBL02A02 / Hurricane Branch, Unnamed Tributary / An unnamed tributary of Hurricane Branch from its headwaters to the Town of Blackstone STP outfall.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.1

XBL - Hurricane Branch, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.1

Sources: Non-Point Source; Unspecified Urban Stormwater

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-03-DO** **Hurricane Branch**

Cause Location: Hurricane Branch from Gettysburg Road crossing to its confluence with Nottoway River

Cause City/County: Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2020 cycle the segment became impaired again for Dissolved Oxygen with an exceedance rate of 4/24. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_HUR01A04 / Hurricane Branch / Hurricane Branch from Gettysburg Road crossing to its confluence with Nottoway River	5C	Dissolved Oxygen	2020	L	2

Hurricane Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2

Sources: Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-06-BAC** **Tommeheton Creek**

Cause Location: Tommeheton Creek from its headwaters to the backwaters of Tommeheton Lake.

Cause City/County: Brunswick County; Dinwiddie County; Lunenburg County; Nottoway County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, upper Tommeheton Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5ATMT006.63.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 3/24. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_TMT01A10 / Tommeheton Creek / Tommeheton Creek from its headwaters to the backwaters of Tommeheton Lake.	5A	Escherichia coli (E. coli)	2016	L	7.63

Tommeheton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.63

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-06-DO** **Tommeheton Creek**

Cause Location: Tommeheton Creek from its headwaters to the backwaters of Tommeheton Lake.

Cause City/County: Brunswick County; Dinwiddie County; Lunenburg County; Nottoway County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, upper Tommeheton Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/12 at 5ATMT006.63.

The exceedance rate was 3/12 in the 2016 cycle.

During the 2020 cycle the segment remained impaired for DO with an exceedance rate of 8/24. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_TMT01A10 / Tommeheton Creek / Tommeheton Creek from its headwaters to the backwaters of Tommeheton Lake.	5C	Dissolved Oxygen	2010	L	7.63

Tommeheton Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.63

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-07-BAC** Seay Creek

Cause Location: Seay Creek from its headwaters to its mouth on Crooked Creek.

Cause City/County: Lunenburg County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment is impaired for E.coli with an exceedance rate of 2/12. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_SYC01A14 / Seay Creek / From its headwaters to a point 5 miles above Fort Pickett's raw water intake.	5A	Escherichia coli (E. coli)	2020	L	6.99
VAP-K16R_SYC02B14 / Seay Creek / Seay Creek from a point 5 miles above Fort Pickett's raw water intake to its mouth on Crooked Creek	5A	Escherichia coli (E. coli)	2020	L	0.51

Seay Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.5

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K16R-07-BEN** Seay Creek

Cause Location: Seay Creek from its headwaters to it mouth on Crooked Creek.

Cause City/County: Lunenburg County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle, Seay Creek was impaired of the Aquatic Life Use based on benthic monitoring at 5A5ASYC003.90 in 2012. Additional monitoring occurred in 2013.

Seay Creek and its benthic community is limited by available habitat. Hardpan clay is dominant and banks show signs of frequent scouring events. Algae and brown floc observed in slower reached of the stream, indicating a potential for nutrient enrichment.

During the 2020 cycle the segment remained impaired for Benthics, new data was collected in 2017 and appears to be negatively affected by sedimentation. Riffles consisted of sand and gravel while banks had erosion scars. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K16R_SYC01A14 / Seay Creek / From its headwaters to a point 5 miles above Fort Pickett's raw water intake.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	6.99
VAP-K16R_SYC02B14 / Seay Creek / Seay Creek from a point 5 miles above Fort Pickett's raw water intake to its mouth on Crooked Creek	5A	Benthic Macroinvertebrates Bioassessments	2014	L	0.51

Seay Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.5

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-01-BAC** **Nottoway River**

Cause Location: The Nottoway River from Turkey Egg Creek to Sturgeon Creek.

Cause City/County: Brunswick County; Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2010 cycle, the Nottoway River from Turkey Egg Creek to Sturgeon Creek was assessed as not supporting of the Recreation Use due to E. coli exceedances at the Route 1 bridge (5ANTW109.02). The exceedance rate was 7/36 during the 2014 cycle.

During the 2016 and 2018 cycles, the segment remained impaired due to exceedance rates of 3/12 at station 5ANTW0113.13 and 9/41 at 5ANTW109.02. During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 7/12 at station 5ANTW109.02. During the 2022 cycle the segment remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_NTW01A00 / Nottoway River / Turkey Egg Creek to Sturgeon Creek	5A	Escherichia coli (E. coli)	2010	L	9.99

Nottoway River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.99

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-02-BAC** **Waqua Creek**

Cause Location: Waqua Creek - headwaters to the Masons Mill Pond dam.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Waqua Creek from its headwaters to the Route 46 bridge was initially assessed as not supporting of the Recreation Use goal during the 2002 cycle. In 2004, the impairment was based on fecal coliform exceedances at 5AWAQ020.52 (Route 617) and at 5AWAQ022.17 (private road). These stations were confined animal feeding operation (CAFO) special study stations.

Additional monitoring was conducted during the 2012 cycle. The impairment was confirmed due to an E. coli violation rate of 3/12 at 5AWAQ020.52 and the impairment was converted to E. coli.

In the 2016 cycle, Waqua Creek from Route 46 to one mile downstream was not supporting for the Recreation use due to an E.coli violation rate of 2/12 (2016 fact sheet K16R-07-BAC). The impairment was merged with the existing upstream impairment during the 2018 cycle and was extended downstream to Masons Mill Pond.

During the 2020 cycle the segment remained impaired for E.coli with exceedance rates at 5AWAQ019.29 (7/24), 5AWAQ020.52(6/12), 5AWAQ022.17(4/10). During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_WAQ01B00 / Waqua Creek / Headwaters to Masons Mill Pond.	5A	Escherichia coli (E. coli)	2012	L	9.62

Waqua Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.62

Sources: Source Unknown

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Cause Group Code: **K17R-03-BAC** **Waqua Creek**

Cause Location: Waqua Creek from the confluence with Great Branch to the mouth

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Waqua Creek from Great Branch to the mouth was impaired for the Recreation Use due to an E.coli violation rate of 2/12 at 5AWAQ001.40.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 3/23. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_WAQ03A16 / Waqua Creek / Confluence of Great Branch to the mouth at the Nottoway River.	5A	Escherichia coli (E. coli)	2016	L	5.59

Waqua Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.59

Sources: Agriculture; Non-Point Source; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-04-BAC** Great Creek

Cause Location: Great Creek from the headwaters to the mouth

Cause City/County: Brunswick County; Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Great Creek was impaired of the Recreation Use due to exceedances of E.coli. The exceedance rate was 7/12 at 5AGRC002.46.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_GRC01A16 / Great Creek / From the headwaters to the mouth at the Nottoway River	5A	Escherichia coli (E. coli)	2016	L	5.45

Great Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 5.45
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Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-05-BAC** Reedy Creek

Cause Location: Reedy Creek from the headwaters to the mouth

Cause City/County: Brunswick County; Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Reedy Creek was assessed as not supporting the Recreation use due to an E.coli exceedance rate of 10/24 at 5ARYC002.31.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_RYC01A16 / Reedy Creek / From its headwaters to the mouth at the Nottoway River	5A	Escherichia coli (E. coli)	2016	L	6.03

Reedy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.03

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-05-DO** Reedy Creek

Cause Location: Reedy Creek from the headwaters to the mouth

Cause City/County: Brunswick County; Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle, Reedy Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/25 at 5ARYC002.31.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_RYC01A16 / Reedy Creek / From its headwaters to the mouth at the Nottoway River	5C	Dissolved Oxygen	2016	L	6.03

Reedy Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 6.03

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-06-BAC** Turkey Egg Creek

Cause Location: Turkey Egg Creek from the headwaters to the mouth

Cause City/County: Brunswick County; Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Turkey Egg Creek was impaired of the Recreation use due to exceedances of E.coli at 5ATEG001.77. The exceedance rate was 6/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_TEG01A16 / Turkey Egg Creek / From its headwaters to the mouth at the Nottoway River	5A	Escherichia coli (E. coli)	2016	L	5.64

Turkey Egg Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 5.64
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Sources: Non-Point Source; Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-07-DO** **Hickory Run**

Cause Location: Hickory Run from its headwaters to its mouth.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle, Hickory Run was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/12 at station 5AHCK000.96.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_HCK01A16 / Hickory Run / From its headwaters to its mouth	5C	Dissolved Oxygen	2016	L	4.95

Hickory Run

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.95

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K17R-07-PH** **Hickory Run**

Cause Location: Hickory Run from its headwaters to its mouth.

Cause City/County: Brunswick County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, Hickory Run was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at station 5AHCK000.96.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K17R_HCK01A16 / Hickory Run / From its headwaters to its mouth	5C	pH	2016	L	4.95

Hickory Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.95

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-01-BAC** Masons Branch

Cause Location: Masons Branch from Headwaters to RM 2.77.

Cause City/County: Brunswick County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, Masons Branch was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/17 at 5AMSN001.62, which is located at the Route 633 bridge.

During the 2016 cycle, the segment remained impaired due to an E.coli exceedance rate of 2/11 at station 5AMSN003.24. Monitoring at the original listing station, 5AMSN001.62, was acceptable (0/10.)

During the 2020 cycle this segment was split from VAP-K19R_MSN01A10 and includes the upper station 5AMSN003.24. The new segment remained impaired for E.coli with an exceedance rate of 3/22 at station 5AMSN003.24.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_MSN01B20 / Masons Branch / Headwaters to RM 2.77	5A	Escherichia coli (E. coli)	2012	L	2.12

Masons Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.12

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-03-BAC** Buckskin Creek

Cause Location: Buckskin Creek from RM 3.46 to its mouth at the Nottoway River.

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Buckskin Creek was previously assessed as not supporting the Recreation Use goal based on a fecal coliform violations at the Route 609 bridge (5ABSK004.32).

Additional monitoring was conducted during the 2010 cycle. The impairment was confirmed and converted to E. coli due to a violation rate of 2/10. During the 2012 cycle, the violation rates were as follows:

2/12 at 5ABSK000.60

5/22 at 5ABSK004.32

3/12 at 5ABSK006.52

4/12 at 5ABSK007.40

2/12 at 5ABSK008.75

4/11 at 5ABSK011.17

Additional sampling occurred in the 2016 cycle. Data indicated impairment at all monitored stations.

During the 2020 cycle this segment was split off VAP-K19R_BSK01A00 and only has station 5ABSK000.60. This segment remains impaired for E.coli with an exceedance rate of 5/12 at 5ABSK000.60.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_BSK01C20 / Buckskin Creek / From the mouth to rivermile 6.65 (at the 4th UT from the mouth)	5A	Escherichia coli (E. coli)	2010	L	3.46

Buckskin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.46

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-03-DO** Buckskin Creek

Cause Location: Buckskin Creek from the confluence with XHW to the second downstream tributary.

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, the portion of Buckskin Creek immediately downstream of tributary XHW was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 6/12 at 5ABSK008.75, which is located at Rt. 692.

During the 2016 cycle, the segment was extended slightly further downstream to include station 5ABSK007.40. Both stations are impaired for the Aquatic Life Use due to DO violations with exceedance rates of 3/24 at station 5ABSK007.40 and 9/24 at station 5ABSK008.75.

During the 2020 cycle the segment remained impaired for DO with exceedances at 5ABSK007.40(6/23) and 5ABSK008.75(9/24). The segment will be delisted for E.coli with exceedance rates at 5ABSK007.40(0/11) and 5ABSK008.75(1/11). During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_BSK01B12 / Buckskin Creek / Confluence with XHW to a downstream confluence	5C	Dissolved Oxygen	2012	L	1.96

Buckskin Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.96

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: K19R-04-HGFT Nottoway River and Tributaries

Cause Location: The Nottoway River from the confluence with the Blackwater River at the Virginia-North Carolina state line upstream to State Route 619 near Purdy, including its tributaries Assamoosick Swamp, Three Creek up to I-95, Rowanty Creek and tributaries, Hatcher Run to I-85, and Arthur Swamp to I-85.

Cause City/County: Brunswick County; Dinwiddie County; Emporia; Greensville County; Prince George County; Southampton County; Sussex County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: During the 2008 cycle, the Nottoway River from the confluence with the Blackwater River at the Virginia-North Carolina state line upstream to State Route 619 near Purdy, including its tributary Assamoosick Swamp, was considered impaired of the Fish Consumption Use due to a VDH fish consumption advisory for mercury. Three Creek up to I-95, Rowanty Creek and its tributaries, Hatcher Run up to I-85, and Arthur Swamp up to I-85 were added to the advisory during the 2010 cycle. No more than two meals/mouth of Blue Catfish, largemouth bass, smallmouth bass, bowfin, redhorse sucker species, longnose gar, channel catfish, chain pickerel, or sunfish species are recommended.

The advisory was based on exceedances of TSVs and TVs at several DEQ fish tissue monitoring stations, including 5ANTW091.70, 5ANTW075.48, 5ANTW077.95, 5ANTW045.45, 5AASM013.36, 5AROW002.41, 5AATH006.56, and 5AHRA004.16.

Fish Tissue samples at station 5ANTW005.07 (18-IM-Hg, 2 exceedances) Blue Catfish .

Fish Tissue samples at station 5ANTW011.18 (18-IM-Hg, 2 exceedances) Blue Catfish.

Fish tissue samples at station 5ANTW003.30 (07-IM-FT_Met Hg (8 exceedances - Largemouth Bass, Bowfin, Pickerel, Yellow Perch, Sunfish & Catfish)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_NTW01A00 / Nottoway River / 5 miles upstream of the Town of Jarrett PWS Intake (approximately Hardwood Creek) to Route 619 near Purdy.	5A	Mercury in Fish Tissue	2020	L	0.49
VAP-K19R_NTW01B00 / Nottoway River / Town of Jarrett intake to Stony Creek	5A	Mercury in Fish Tissue	2008	L	13.84
VAP-K19R_NTW01C08 / Nottoway River / Rt. 619 near Purdy to the Town of Jarrett PWS Intake	5A	Mercury in Fish Tissue	2008	L	4.51
VAP-K19R_NTW02A06 / Nottoway River / The Nottoway River from Sturgeon Creek to Buckskin Creek	5A	Mercury in Fish Tissue	2020	L	5.38
VAP-K19R_NTW02B08 / Nottoway River / The Nottoway River from Buckskin Creek to an UT at approx the Dinwiddie/Sussex Co. line	5A	Mercury in Fish Tissue	2020	L	1.04
VAP-K19R_NTW02C08 / Nottoway River / The Nottoway River from the UT at approx the Dinwiddie/Sussex Co. line to 5 miles above the Jarratt PWS intake	5A	Mercury in Fish Tissue	2020	L	3.85
VAP-K23R_ATH01A08 / Arthur Swamp / I-85 bridge to RM 4.66	5A	Mercury in Fish Tissue	2010	L	3.72

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Appendix 4 - Fact Sheets for
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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_ATH01C20 / Arthur Swamp / RM 4.669 to the mouth	5A	Mercury in Fish Tissue	2010	L	4.67
VAP-K23R_HRA01A04 / Hatcher Run / Hatcher Run from rivermile 19.27 (I-85) to the pond below Rt. 627.	5A	Mercury in Fish Tissue	2010	L	3.90
VAP-K23R_HRA01B10 / Hatcher Run / Pond at Rt. 627 to mouth at Rowanty Creek	5A	Mercury in Fish Tissue	2010	L	16.22
VAP-K23R_NTW02B00 / Nottoway River / Stony Creek to Nebletts Mill Run. State Scenic River (9 VAC 25-260-320)	5A	Mercury in Fish Tissue	2008	L	16.66
VAP-K23R_ROW03B10 / Rowanty Creek / Rowanty Creek downstream of Gravelly Run.	5A	Mercury in Fish Tissue	2010	L	14.08
VAP-K24R_NTW04B00 / Nottoway River / Nebletts Mill Run downstream to Three Creek State Scenic River Merged in the 2018 cycle	5A	Mercury in Fish Tissue	2008	L	19.17
VAP-K26R_TRE01B98 / Three Creek / I-95 to Otterdam Swamp.	5A	Mercury in Fish Tissue	2010	L	5.11
VAP-K26R_TRE02B98 / Three Creek / Otterdam Swamp to Browns Branch.	5A	Mercury in Fish Tissue	2010	L	5.44
VAP-K29R_ASM01A98 / Assamoosick Swamp / Headwaters to Route 607 bridge.	5A	Mercury in Fish Tissue	2008	L	15.41
VAP-K29R_ASM02A02 / Assamoosick Swamp / Start of PWS at river mile 2.5 to mouth.	5A	Mercury in Fish Tissue	2008	L	2.44
VAP-K29R_ASM02A98 / Assamoosick Swamp / Route 607 bridge to river mile 2.5.	5A	Mercury in Fish Tissue	2008	L	5.59
VAT-K27R_TRE01A00 / Three Creek - Upper / From confluence of Chatman Branch (RM 19.26) downstream to above Southampton Correctional Farm at Rt 308 crossing (RM 10.4).	5A	Mercury in Fish Tissue	2010	L	9.17
VAT-K27R_TRE02A00 / Three Creek - Lower / Lower portion of Three Creek. From area of Southampton Correctional Center at Rt 308 crossing (RM 10.4) downstream to confluence with Nottoway River (RM 0.00).	5A	Mercury in Fish Tissue	2010	L	10.68
VAT-K28R_NTW01A00 / Nottoway River - Upper / From upstream intersection with watershed boundary (near Three Cr. confluence, RM 36.50) downstream to 5 miles upstream of Courtland (RM 32.00, end of PWS area - downstream of confluence with Buckhorn Swamp at Vicks Isl.).	5A	Mercury in Fish Tissue	2008	L	4.45
VAT-K28R_NTW02A00 / Nottoway River - Middle (PWS area) / Middle portion of Nottoway River, 5 miles above Norfolk's intake @ Courtland (RM 32.0) at Vicks Island downstream to Norfolk and Western RR crossing @ Courtland (RM 27.00). PWS due to Norfolk raw water intake upstream of Courtland.	5A	Mercury in Fish Tissue	2008	L	5.54

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_NTW03A00 / Nottoway River - Lower / Lower portion of Nottoway River, beginning near Courtland (Norfolk and Western RR crossing, above Rt 58) downstream to end of watershed K28 (NW of Delaware).	5A	Mercury in Fish Tissue	2008	L	10.06
VAT-K30R_NTW01A08 / Nottoway River - Upper / Upper portion of Nottoway River in watershed K30. Segment begins at upstream intersection with watershed boundary (NW of Delaware) downstream below Route 671.	5A	Mercury in Fish Tissue	2008	L	0.46
VAT-K30R_NTW02A08 / Nottoway River -Lower Middle / Middle portion of Nottoway River in watershed K30. Segment starts below Route 671 downstream just below Point Beach.	5A	Mercury in Fish Tissue	2008	L	10.96
VAT-K30R_NTW02B14 / Nottoway River - Lower / Lower portion of Nottoway River in watershed K30. Segment starts below Mill Creek near Point Beach to VA/NC state line.	5A	Mercury in Fish Tissue	2008	L	4.54

Nottoway River and Tributaries

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		197.38

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-05-BEN** XEJ - Nottoway River, UT

Cause Location: An unnamed tributary (XEJ) of the Nottoway River in its entirety.

Cause City/County: Greensville County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, the tributary was assessed as impaired of the Aquatic Life Use due to an impaired benthic community at station 5AXEJ001.73 in 2001.

Additional benthic monitoring occurred in 2013; however, the results were inconclusive (insufficient information to assess).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_XEJ01A04 / UT to Nottoway River / Headwaters to mouth at Nottoway River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.88

XEJ - Nottoway River, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.88

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-06-BAC** Nottoway River

Cause Location: Town of Jarrett intake to Stony Creek

Cause City/County: Greensville County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 5/30 at station 5ANTW078.20. During the 2022 cycle the segment remained impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_NTW01B00 / Nottoway River / Town of Jarrett intake to Stony Creek	5A	Escherichia coli (E. coli)	2020	L	13.84

Nottoway River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.84

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-07-DO** XAD - Buckskin Creek, UT

Cause Location: Tributary XAD from its headwaters to its mouth at Buckskin Creek.

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, the tributary XAD was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/12 at 5AXAD001.59, which is located at the Rt. 1 bridge. In the 2022 cycle no new data was collected. During the 2016 cycle the segment remained impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 5/24 at 5AXAD001.59.

During the 2020 cycle the segment remained impaired for DO with an exceedance rate of 5/24at 5AXAD001.59.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_XAD01A12 / XAD - Buckskin Creek, UT / Headwaters to mouth at Buckskin Creek.	5C	Dissolved Oxygen	2012	L	2.91

XAD - Buckskin Creek, UT

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.91

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-08-DO** XHW - Buckskin Creek, UT

Cause Location: Tributary XHW from its headwaters to its mouth at Buckskin Creek.

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, the tributary XHW was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 5/11 at 5AXHW000.38, which is located at the Rt. 692 bridge.

During the 2016 cycle, the segment remained impaired due to a dissolved oxygen exceedance rate of 5/19 at 5AXHW000.38.

During the 2020 cycle the segment had exceedance rates for DO 1/12(S). This was due to 4 new samples collected. It should remain impaired for DO due to the violation rate being so close to exceeding and not a lot of new data to analyze. Follow up monitoring recommended. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_XHW01A12 / XHW - Buckskin Creek, UT / Headwaters to mouth	5C	Dissolved Oxygen	2012	L	1.63

XHW - Buckskin Creek, UT

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.63

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-09-BAC** XHX - Buckskin Creek, UT

Cause Location: Tributary XHX from its headwaters to its mouth at Buckskin Creek.

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, the tributary XHX was impaired of the Recreation Use due to an E. coli exceedance rate of 2/9 at 5AXHX001.19, which is located at the Rt. 709 bridge.

During the 2016 cycle, the segment remained impaired due to an E. coli exceedance rate of 5/21 at 5AXHX001.19.

During the 2020 cycle, the segment remained impaired due to an E. coli exceedance rate of 3/23 at 5AXHX001.19.

During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_XHX01A12 / XHX - Buckskin Creek, UT / Headwaters to mouth at Buckskin Creek	5A	Escherichia coli (E. coli)	2012	L	2.66

XHX - Buckskin Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.66

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-10-BAC** XHY - Buckskin Creek, UT

Cause Location: Tributary XHY from its headwaters to its mouth at Buckskin Creek.

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, the tributary XHY was impaired of the Recreation Use due to an E. coli exceedance rate of 3/11 at 5AXHY001.08, which is located south of Route 40.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_XHY01A12 / XHY - Buckskin Creek, UT / Headwaters to mouth at Buckskin Creek	5A	Escherichia coli (E. coli)	2012	L	1.62

XHY - Buckskin Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 1.62
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K19R-11-BAC** **Moores Swamp**

Cause Location: Headwaters to mouth

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the segment of Moores Swamp from its headwaters to the start of PWS was impaired for the Recreation Use due to an E.coli impairment at station 5AMRS002.31 with an exceedance rate of 6/12.

The impairment was extended to the mouth in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K19R_MRS01A08 / Moores Swamp / Headwaters to start of PWS	5A	Escherichia coli (E. coli)	2016	L	4.98

Moores Swamp

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.98

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K20R-01-DO** **White Oak Swamp**

Cause Location: The headwaters of White Oak Swamp downstream to its uppermost tributary

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The mainstems of White Oak Swamp and Butterwood Swamp were initially listed as fully supporting but threatened for dissolved oxygen in the 1998 cycle. Station 5ABTR002.80 (Route 646 bridge) was identified to Virginia for listing consideration because of dissolved oxygen.

During the 2002 cycle, the segment was assessed as partially supporting of the Aquatic Use because of pH exceedances (5ABTR002.80). The DO exceedance rate at this station was acceptable (3/38), but due to DO exceedances throughout the watershed (see below) the segment was extended to include Reedy Creek and Rocky Run Creek. The entire segment was listed for both pH and dissolved oxygen. The impairment was continued in the 2004 cycle.

During the 2006 cycle, two Natural Conditions Assessment studies were performed. The results of the monitoring and study indicated that all creeks should be delisted except for:

Butterwood Creek (DO) from rivermile 14.59 to 4.65; recommended for Class VII

Cooks Branch (pH) from rivermile 1.08 to 0.00; recommended for Class VII

White Oak Swamp (DO/pH) at the headwaters; recommended for cat 4C

Butterwood Creek from river mile 4.65 (near Route 622) upstream to river mile 14.59 (near Route 643) was reclassified as Class VII swampwaters during the 2010 cycle. The segments remained Category 4C for dissolved oxygen until the swampwater WQS could be developed.

DO violations were documented in this water in 2002. It has since been formally re-classified as a swamp water (Class VII). Per Virginia's Water Quality Standards (9VAC25-260-50), numeric dissolved oxygen standards only apply to Class VII waters when there is sufficient evidence the narrative criterion is not protective of aquatic life uses. To date, this Class VII water has not exhibited a need for a site-specific DO criterion, so the DO impairments for Butterwood Creek and Cooks Branch have been removed.

The headwaters of White Oak Swamp will remain Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K20R_WOK02A06 / White Oak Swamp / The headwaters of White Oak Swamp downstream to its uppermost tributary	4C	Dissolved Oxygen	NA	NA	2.21

White Oak Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.21

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Reduced Freshwater Flows

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: K20R-01-PH White Oak Swamp

Cause Location: Headwaters of White Oak Swamp

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: The mainstems of White Oak Swamp and Butterwood Swamp were initially listed as fully supporting but threatened for dissolved oxygen in the 1998 cycle. Station 5ABTR002.80 (Route 646 bridge) was identified to Virginia for listing consideration because of dissolved oxygen.

During the 2002 cycle, the segment was assessed as partially supporting of the Aquatic Use because of pH exceedances (5ABTR002.80). The DO exceedance rate at this station was acceptable (3/38), but due to DO exceedances throughout the watershed (see below) the segment was extended to include Reedy Creek and Rocky Run Creek. The entire segment was listed for both pH and dissolved oxygen.

During the 2006 cycle, two Natural Conditions Assessment studies were performed. The results of the monitoring and study indicated that all creeks should be delisted for pH except for Cooks Branch (pH) from rivermile 1.08 to 0.00 which was recommended for reclassification as a Class VII swampwater an the headwaters of White Oak Swamp which was considered Category 4C.

During the 2010 cycle, Cooks Branch from river mile 1.08 to its mouth was reclassified as Class VII swampwater. The pH values at 5ACKS000.58 now met the Class VII WQS (0/22) and the segment was delisted. The White Oak Swamp segment remains Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K20R_WOK02A06 / White Oak Swamp / The headwaters of White Oak Swamp downstream to its uppermost tributary	4C	pH	NA	NA	2.21

White Oak Swamp

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.21

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Reduced Freshwater Flows

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K20R-02-BAC** **White Oak Swamp**

Cause Location: The lower portion of White Oak Swamp

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2018 cycle, the segment of White Oak Swamp was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 5AWOK012.08.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K20R_WOK01A00 / White Oak Swamp / Uppermost tributary to mouth	5A	Escherichia coli (E. coli)	2018	L	14.83

White Oak Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		14.83

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K20R-02-DO** **White Oak Swamp**

Cause Location: The lower portion of White Oak Swamp

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The segment of White Oak Swamp was impaired of the Aquatic Life Use in the 2018 cycle due to a dissolved oxygen exceedance rate of 3/24 at 5AWOK000.54.

Monitoring at 5AWOK006.54 and 5AWOK012.08 was acceptable with exceedance rates of 1/12 and 0/14, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K20R_WOK01A00 / White Oak Swamp / Uppermost tributary to mouth	5C	Dissolved Oxygen	2018	L	14.83

White Oak Swamp

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			14.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K20R-02-PH** **White Oak Swamp**

Cause Location: The lower portion of White Oak Swamp

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The segment of White Oak Swamp was impaired of the Aquatic Life Use in the 2018 cycle due to a pH exceedance rate of 2/14 at 5AWOK012.08.

Monitoring at 5AWOK000.54 and 5AWOK006.54 was acceptable with exceedance rates of 0/24 and 0/12, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K20R_WOK01A00 / White Oak Swamp / Uppermost tributary to mouth	5C	pH	2018	L	14.83

White Oak Swamp

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			14.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-03-HGFT** **Stony Creek**

Cause Location: Stony Creek from Mortar Branch downstream to its mouth.

Cause City/County: Dinwiddie County; Sussex County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: During the 2010 cycle, Stony Creek from Mortar Branch to its mouth was assessed as not supporting of the Fish Consumption Use due to mercury exceedances in flier sunfish and spotted bass during DEQ's 2007 fish tissue sampling.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_STO01B00 / Stony Creek / Mortar Branch to mouth Merged in the 2018 cycle.	5A	Mercury in Fish Tissue	2010	L	8.36

Stony Creek

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.36

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-05-BAC** Mortar Branch

Cause Location: Headwaters to mouth at Stony Creek

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2014 cycle, Mortar Branch was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 4/11 at station 5AMTR001.65, which is located at the Route 626 bridge.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 8/12 at station 5AMTR001.65. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_MTR01A14 / Mortar Branch / Headwaters to mouth at Stony Creek	5A	Escherichia coli (E. coli)	2014	L	6.13

Mortar Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.13

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-06-BAC** **Stony Creek**

Cause Location: Stony Creek from Mortar Branch downstream to its mouth.

Cause City/County: Dinwiddie County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the segment from Mortar Branch to Snake became impaired for the Recreation Use due to E.coli exceedances of 3/12 at 5ASTO06.99.

The impairment was expanded to the mouth in the 2018 cycle based on an E. coli exceedance rate of 4/36 at 5ASTO001.20.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 7/36 at station 5ASTO001.20. During the 2022 cycle the segment remained impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_STO01B00 / Stony Creek / Mortar Branch to mouth Merged in the 2018 cycle.	5A	Escherichia coli (E. coli)	2016	L	8.36

Stony Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			8.36

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-07-PH** Chamberlains Bed

Cause Location: Start of unnamed pond to the mouth at Stony Creek

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, the segment was impaired for the Aquatic Life Use due to a pH exceedance rate of 2/12 at 5ACBC000.58.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_CBC01A16 / Chamberlains Bed / start of the pond to mouth at Stony Creek	5C	pH	2016	L	1.33

Chamberlains Bed

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.33

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-08-DO** Chamberlains Bed

Cause Location: Headwaters to Wheelers Pond

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle, the segment was impaired for the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/11 at 5ACBC005.79.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_CBC03A16 / Chamberlains Bed / From the headwaters to Wheelers Pond	5C	Dissolved Oxygen	2016	L	2.83

Chamberlains Bed

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K21R-08-PH** Chamberlains Bed

Cause Location: Headwaters to Wheelers Pond

Cause City/County: Dinwiddie County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, the segment was impaired for the Aquatic Life Use due to a pH exceedance rate of 3/11 at 5ACBC005.79.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K21R_CBC03A16 / Chamberlains Bed / From the headwaters to Wheelers Pond	5C	pH	2016	L	2.83

Chamberlains Bed

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.83

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K22R-03-BAC** **Sappony Creek**

Cause Location: Sappony Creek from UT at powerline downstream to Spiers Pond.

Cause City/County: Dinwiddie County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Sappony Creek from the headwaters to Spiers Pond was assessed as impaired of the Recreation Use during the 2006 due to an E. coli violation rate of 3/12 at 5ASAP005.54. In the 2010 cycle, the impairment was shortened to begin at Mill Run Branch because the E. coli rate at 5ASAP013.69 was acceptable (1/20). The violation rate was 3/13 during the 2012 cycle; therefore, the segment was returned to its original length.

During the 2016 cycle, the segment was shortened and split to exclude the headwaters portion which was no longer impaired for E.coli (VAP-K22R-SAP01C16); the upper portion of Sappony Creek was partially delisted. The portion from the UT at the power line downstream to Spiers Pond remained impaired for Recreation Use due to an E.coli violation of 5/23 at station 5ASAP013.69. 5ASAP005.54 was fully supporting for all that it was monitored for.

During the 2020 cycle the segment remained impaired for E.coli at station 5ASAP007.77(4/12) and 5ASAP013.69(8/24). During the 2022 cycle new data was collected and the segment remains impaired for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K22R_SAP01A00 / Sappony Creek / UT at powerline to Spiers Pond.	5A	Escherichia coli (E. coli)	2006	L	11.87

Sappony Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.87

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K22R-04-BAC** **Sappony Creek**

Cause Location: Spiers Pond Dam to mouth at Stony Creek

Cause City/County: Dinwiddie County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the segment became impaired for the Recreation Use due to an E.coli exceedance rate of 4/23 at 5ASAP001.46.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K22R_SAP01B00 / Sappony Creek / Spiers Pond dam to mouth at Stony Creek	5A	Escherichia coli (E. coli)	2016	L	4.35

Sappony Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.35

Sources: Agriculture; Non-Point Source; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-01-BAC** Arthur Swamp

Cause Location: Arthur Swamp from its RM 4.66 to its mouth

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Arthur Swamp from the I-85 bridge to its mouth was listed for Recreation Use due to E.coli exceedances (2/12).

The impairment was extended to its mouth in the 2018 cycle.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 2/12 at station 5AATH003.28. This cycle the segment was shortened to exclude the upper portion of Arthur Swamp. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_ATH01C20 / Arthur Swamp / RM 4.669 to the mouth	5A	Escherichia coli (E. coli)	2016	L	4.67

Arthur Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.67

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-03-BAC** XDV - Nebletts Mill Run, UT

Cause Location: An unnamed tributary (XDV) of Nebletts Mill Run.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Nebletts Run from the Millpond downstream to the mouth and Tributary XDV had been considered not supporting of the Recreation Use. During the 2006 cycle, the fecal coliform exceedance rate at 5ANBT001.26 was acceptable (2/19); therefore, Nebletts Mill Run was delisted. Tributary XDV continued to be impaired with a fecal coliform instantaneous exceedance rate of 10/17 and an E. coli exceedance rate of 2/2 at station 5AXDV000.46. The bacteria TMDL was due in 2016.

The impairment converted to E. coli during the 2008 cycle. The exceedance rate was 7/13 during the 2010 cycle. The TMDL was developed during the 2012 cycle and was approved by the EPA on 9/20/2010; therefore, the stream is Category 4A.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 8/12. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_XDV01A02 / UT to Nebletts Mill Run / An unnamed tributary (XDV) of Nebletts Mill Run from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2006	L	1.78

XDV - Nebletts Mill Run, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.78

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-04-BAC** Jones Hole Swamp/Moores Swamp and all tributaries

Cause Location: Lower Jones Hole Swamp/Moores Swamp and tributaries

Cause City/County: Dinwiddie County; Prince George County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2010 cycle, the Jones Hole Swamp watershed was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 5/22 at 5AJNH001.73, which is located at the Route 637 bridge.

The violation rate was 6/24 during the 2014 cycle.

During the 2016 cycle, the segment was split to partially delist the headwaters portion of Jones Hole Swamp (VAP-K23R_JNH01B16 and VAP-K23R_JNH01C16.) The lower portion remains impaired for the Recreation use due to E.coli exceedances: 5ACOB000.92 - 2/12 5AJNH001.73 - 11/24 5AJNH004.42 - 2/12

During the 2020 cycle the segment remained impaired for E.coli at all stations. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_JNH01A98 / Jones Hole Swamp/Moores Swamp watershed / Lower Jones Hole Swamp / Moores Swamp and tributaries.	5A	Escherichia coli (E. coli)	2010	L	70.68

Jones Hole Swamp/Moores Swamp and all tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			70.68

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-05-BAC** **Gosee Swamp and Tributaries**

Cause Location: Gosee Swamp/Indian Creek and all of its tributaries below rivermile 6.88

Cause City/County: Prince George County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2014 cycle, lower Gosee Swamp was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5AGSE001.35, which is located at the Rt. 602 bridge.

No new data since 2014 cycle.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 6/12 at station 5AGSE003.12. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_GSE01A98 / Gosee Swamp and tributaries / Gosee Swamp/Indian Swamp and all its tributaries below rivermile 6.88.	5A	Escherichia coli (E. coli)	2014	L	27.72

Gosee Swamp and Tributaries

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		27.72

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-09-BAC** Fox Branch

Cause Location: Fox Branch mainstem

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2018 cycle, Fox Branch was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5AFXB001.27, which is located at the Route 667 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_FXB01A18 / Fox Branch / Headwaters to mouth at Rowanty Creek	5A	Escherichia coli (E. coli)	2018	L	3.46

Fox Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.46

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-10-BAC** **Rowanty Creek**

Cause Location: Rowanty Creek mainstem downstream of Gravelly Run.

Cause City/County: Dinwiddie County; Prince George County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, Rowanty Creek from Little Cattail Creek to the mouth was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 5AROW004.72, which is located at the Route 618 bridge. Continued monitoring was recommended to confirm the impairment because all other stations in the segment were acceptable.

Additional monitoring was conducted in the 2014 cycle at station 5AROW013.14, which is located at the Route 605 bridge. The exceedance rate was unacceptable (3/24); therefore, the segment was extended upstream to Gravelly Run.

During the 2016 cycle E.coli monitoring continued to be impaired: 5AROW002.41 - 4/12 5AROW004.72 - 8/24 5AROW008.64 - 0/12 (S) 5AROW013.14 - 2/12 During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_ROW03B10 / Rowanty Creek / Rowanty Creek downstream of Gravelly Run.	5A	Escherichia coli (E. coli)	2012	L	14.08

Rowanty Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			14.08

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: K23R-11-BAC Hatcher Run

Cause Location: Pond at Rt. 627 to mouth at Rowanty Creek

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 5/24 at station 5AHRA002.92. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_HRA01B10 / Hatcher Run / Pond at Rt. 627 to mouth at Rowanty Creek	5A	Escherichia coli (E. coli)	2020	L	16.22

Hatcher Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 16.22
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-12-BAC** **Warren Swamp**

Cause Location: Mainstem of Warren Swamp

Cause City/County: Dinwiddie County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment became impaired for E.coli with an exceedance rate of 5/24 at station 5AWRN000.42. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_WRN01A18 / Warren Swamp / Mainstem of Warren Swamp	5A	Escherichia coli (E. coli)	2020	L	1.22

Warren Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.22

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K23R-13-BAC** **Joseph Swamp, UT**

Cause Location: Headwaters to mouth at Joseph Swamp

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2020 cycle the segment was Impaired due to E.coli exceedances at station 5AXFZ000.38 (4/10). During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K23R_XFZ01A08 / Joseph Swamp, UT / Headwaters to mouth at Joseph Swamp	5A	Escherichia coli (E. coli)	2020	L	1.39

Joseph Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.39

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K24R-03-BAC** **Hunting Quarter Swamp**

Cause Location: The mainstem of Hunting Quarter Swamp.

Cause City/County: Southampton County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2018 cycle, Hunting Quarter Swamp was assessed as impaired of the Recreation Use due to an E. coli exceedance rates of 4/24 at station 5AHQS006.22 and 5/12 at station 5AHQS009.57. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K24R_HQS01A98 / Hunting Quarter Swamp / Headwaters to mouth	5A	Escherichia coli (E. coli)	2008	L	16.68
VAP-K24R_HQS01B08 / Hunting Quarter Swamp Tributaries / All tributaries to Hunting Quarter Swamp. Includes Thweatt Branch, Anderson Branch, and Lees Branch	5A	Escherichia coli (E. coli)	2020	L	56.97

Hunting Quarter Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		73.65

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K24R-04-BAC** **Nottoway River**

Cause Location: Nottoway River from Nebletts Mill Run downstream to Three Creek

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, the Nottoway River from Nebletts Mill Run to Three Creek was impaired of the Recreation Use due to an E.coli exceedance rate of 3/12 at station 5ANTW052.83. During the 2022 cycle no new data was collected.

The impairment was extended upstream to Nebletts Mill Run in the 2018 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K24R_NTW04B00 / Nottoway River / Nebletts Mill Run downstream to Three Creek State Scenic River Merged in the 2018 cycle	5A	Escherichia coli (E. coli)	2016	L	19.17

Nottoway River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.17

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K24R-05-BAC** **Thweatt Branch and Tributaries**

Cause Location: Thweatt Branch watershed

Cause City/County: Southampton County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2016 cycle, Thweatt Branch and its tributaries was impaired for the Recreation Use due to an E.coli exceedance rate of 4/11 at station 5ATWT001.19. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K24R_TWT01A16 / Thweatt Branch Tributaries / Headwaters to the mouth	5A	Escherichia coli (E. coli)	2016	L	7.27

Thweatt Branch and Tributaries

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 7.27
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Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K25R-02-BAC** **Raccoon Creek**

Cause Location: The entire mainstem of Raccoon Creek.

Cause City/County: Southampton County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Raccoon Creek was initially listed as fully supporting but threatened of the Recreation use goal during the 1998 303(d) cycle. It was then identified to Virginia for listing consideration. During the 2002 303(d) cycle, the segment was downgraded to impaired; therefore, the TMDL was due in 2010.

The TMDL was completed as part of the Chowan River Bacteria TMDL. The TMDL was approved by the EPA on 10/14/2005 and the segment is considered Category 4A.

During the 2008 cycle, the impairment converted to E. coli. However, an upstream station at 5ARCN012.80 had an acceptable exceedance rate (1/12.)

The exceedance rate at 5ARCN003.36 was 7/32 in the 2010 cycle.

During the 2016 cycle, the segment remained impaired for E.coli exceedances at station 5ARCN014.72 (2/12).

During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K25R_RCN01A02 / Raccoon Creek / The entire mainstem of Raccoon Creek.	4A	Escherichia coli (E. coli)	2008	L	19.91

Raccoon Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			19.91

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K26R-01-BAC** **Three Creek**

Cause Location: Three Creek from its start at the confluence of Cooks Branch and Tryall Creek downstream to Cattail Creek.

Cause City/County: Greenville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, upper Three Creek was impaired of the Recreation Use due to an E.coli exceedance rate of 2/12 at 5ATRE044.66, which is located at the Route 605 bridge. During the 2022 cycle no new data was collected. The stream is located within the study area for the downstream Three Creek Bacterial TMDL (K26R-03-BAC), which was approved by the EPA on 9/28/2012 and by the SWCB on 3/25/2013. The impairment is proposed for nesting.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K26R_TRE01C18 / Three Creek / Start of Three Creek downstream to Cattail Creek	4A	Escherichia coli (E. coli)	2018	L	6.55

Three Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.55

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K26R-01-DO** **Three Creek**

Cause Location: Three Creek from its start at the confluence of Cooks Branch and Tryall Creek downstream to Cattail Creek.

Cause City/County: Greenville County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2018 cycle, upper Three Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/12 at 5ATRE044.66, which is located at the Route 605 bridge. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K26R_TRE01C18 / Three Creek / Start of Three Creek downstream to Cattail Creek	5C	Dissolved Oxygen	2018	L	6.55

Three Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			6.55

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K26R-02-BAC** **Three Creek**

Cause Location: From Otterdam Swamp downstream to Browns Branch.

Cause City/County: Greensville County; Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Three Creek from Otterdam Swamp to Browns Branch was assessed as not supporting of the Recreation Use support goal based on E. coli exceedances at the Route 615 bridge (5ATRE022.05). The exceedance rate was 3/23 during the 2010 cycle.

During the 2022 cycle no new data was collected. The Three Creek TMDL was completed and was approved by the EPA on 9/28/2012 and by the SWCB on 3/25/2013. The AU is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K26R_TRE02B98 / Three Creek / Otterdam Swamp to Browns Branch.	4A	Escherichia coli (E. coli)	2006	L	5.44

Three Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.44

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K26R-04-BAC** Maclins Creek

Cause Location: Maclins Creek in its entirety.

Cause City/County: Greensville County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Maclins Creek was impaired of the Recreation Use due to an E.coli exceedance rate of 2/15 at 5AMCC000.08, which is located at the Route 610 bridge.

The stream is located within the study area for the Three Creek Bacterial TMDL, which was approved by the EPA on 9/28/2012 and by the SWCB on 3/25/2013. Maclins Creek is within the study watershed for K26R-02-BAC and the impairment is considered nested.

The E. coli exceedance rate was 6/12 in the 2018 cycle. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K26R_MCC01A00 / Maclins Creek / Headwaters to mouth at Three Creek	4A	Escherichia coli (E. coli)	2012	L	8.8

Maclins Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.8

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K27R-02-BAC** **Three Creek - Lower and Upper and UT to Angelico Cr**

Cause Location: This cause encompasses the area from the confluence of Chatman Branch (RM 20.95) downstream to the confluence with Nottoway River (RM 0.00), to include UT to Angelico Creek.

Cause City/County: Southampton County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E.coli is insufficient for the 2022 IR cycle based on data collected at station 5ATRE016.02 with 4 exceedances out of 33 samples, as there was one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. E. coli remains impaired based on previous IR cycle data. 2018 nested new impairment at station 5AXEE001.44 with 3 exceedances out of 11 samples. A Bacteria Total Maximum Daily Load was developed for Three Creek, Flat Swamp, Tarrara Creek, Mill Swamp, and Darden Mill Run in Southampton, Sussex, Greensville, Brunswick Counties and the City of Emporia, Virginia for E. coli on 9/28/2012

E. coli data is insufficient with 7 exceedances out of 33 samples at station 5ATRE008.48 due to there being one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. E. coli retains the Not Supporting status based on previous IR cycles. Probabilistic monitoring station 5ATRE003.38 also insufficient with 0 exceedances out of 1 sample.

E. coli is impaired based on data collected from station 5AXEE001.44 with 2 exceedances out of 11 samples, as there were 2 or more STV hits in the same 90-day period with < 10 samples. Station 5AXEE000.93 has 1 exceedance out of 1 samples. This is marked observed effect due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K27R_ANG01A12 / Angelico Creek / Lower portion of Angelico Creek south of Highway 58 near Drewryville.	4A	Escherichia coli (E. coli)	2020	L	1.90
VAT-K27R_TRE01A00 / Three Creek - Upper / From confluence of Chatman Branch (RM 19.26) downstream to above Southampton Correctional Farm at Rt 308 crossing (RM 10.4).	4A	Escherichia coli (E. coli)	2006	L	9.17
VAT-K27R_TRE02A00 / Three Creek - Lower / Lower portion of Three Creek. From area of Southampton Correctional Center at Rt 308 crossing (RM 10.4) downstream to confluence with Nottoway River (RM 0.00).	4A	Escherichia coli (E. coli)	2002	L	10.68
VAT-K27R_XEE01A18 / Unnamed Tributary to Angelico Creek / Evaluated UT along Angelico Cr south of Route 658 crosses Pinopolis Rd (Rt 653).	4A	Escherichia coli (E. coli)	2018	L	4.06

Three Creek - Lower and Upper and UT to Angelico Cr

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 25.81		

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K27R-03-BEN** **Applewhite Swamp**

Cause Location: This cause encompasses the area from the start of swamp (near Harrells Mill) downstream to confluence with Three Creek. Located south of Mason & northeast of Arringdale.

Cause City/County: Southampton County; Sussex County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained based on the Benthic population rating from the Benthic ProbMon-Benthic IM [MI:S&F-'01, S&F-'02]. No data within Assessment window. Impairment retained until new data collected.

No new data to assess in the 2022 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K27R_APW01A04 / Applewhite Swamp / Located south of Mason & northeast of Arringdale. Segment extends from start of swamp (near Harrells Mill) downstream to confluence with Three Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	8.17

Applewhite Swamp

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.17

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K27R-05-BEN** **Three Creek - Upper**

Cause Location: This cause encompasses the area from the confluence of Chatman Branch (RM 19.26) downstream to above Southampton Correctional Farm at Rt 308 crossing (RM 10.4).

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained from the 2004 Assessment based on benthic monitoring assessment which indicates impairment (MI in Fall-'04] based on data at DEQ (AQM & Bio) station @ 5ATRE016.02.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K27R_TRE01A00 / Three Creek - Upper / From confluence of Chatman Branch (RM 19.26) downstream to above Southampton Correctional Farm at Rt 308 crossing (RM 10.4).	5A	Benthic Macroinvertebrates Bioassessments	2006	L	9.17

Three Creek - Upper

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.17

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-01-BAC** Mill Swamp

Cause Location: This cause encompasses the Main stem of Mill Swamp only, from headwaters downstream to the confluence with the Nottoway River. Tributary to Nottoway R, downstream of PWS. W of Delaware.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreation Use is impaired based on E. coli data from Station 5AMSP000.16 with 6 exceedances out of 12 samples due to 2 or more STV hits in the same 90-day period with < 10 samples. A TMDL was established for E. Coli for Three Creek, Flat Swamp, Tarrara Creek, Mill Swamp, and Darden Mill Run in Southampton, Sussex, Greensville, Brunswick Counties and the City of Emporia, Virginia on 9/28/2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_MSP01A06 / Mill Swamp / Tributary to Nottoway R, downstream of PWS. W of Delaware. Main stem Mill Swamp only, from headwaters downstream to the confluence with the Nottoway River.	4A	Escherichia coli (E. coli)	2006	L	10.49

Mill Swamp

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.49

Sources: Agriculture; Crop Production (Crop Land or Dry Land); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-01-PH** Mill Swamp

Cause Location: Tributary to Nottoway R, downstream of PWS. W of Delaware. Main stem Mill Swamp only, from headwaters downstream to the confluence with the Nottoway River.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: pH is impaired with 4 exceedances out of 23 samples at Station 5AMSP000.16. pH was delisted in 2016 IR: K28R-01-PH (2012). pH was being relisted in the 2020 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_MSP01A06 / Mill Swamp / Tributary to Nottoway R, downstream of PWS. W of Delaware. Main stem Mill Swamp only, from headwaters downstream to the confluence with the Nottoway River.	5C	pH	2012	L	10.49

Mill Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10.49

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: K28R-02-BEN Buckhorn Swamp

Cause Location: This cause encompasses the segment of Buckhorn Swamp that is near Pope Count, segment is located between State Hwy 652 and US Hwy 58. Segment ends below State Hwy 657.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on the Benthic population rating from the Benthic ProbMon-sample events [MI:F-'06, VI:S-'06] at Station 5ABKH005.16.

No new data to assess in the 2022 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_BKH01A08 / Buckhorn Swamp / Segment of Buckhorn Swamp that is near Pope Count, segment is located between State Hwy 652 and US Hwy 58. Segment ends below State Hwy 657.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	5.68

Buckhorn Swamp

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.68

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: K28R-04-BEN Unnamed Tributary to Mill Swamp

Cause Location: This cause encompasses the tributary running S / SE from Mill Swamp. To the east of Darden Pond and crosses RT 749 perpendicular.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Benthic data is impaired at station 5AXEC000.76 (X-Trib to Mill Swamp). Spring Score 2012 = 17.1, Fall Score 2012 = 37.5. This was a 2012 probabilistic monitoring site. This stream has very steep banks but is very shallow with loosely packed sediment and little habitat available for benthic organisms to colonize. Assessed with VCPMI score.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_XEC01A14 / Unnamed Tributary To Mill Swamp / Tributary running S / SE from Mill Swamp. To the east of Darden Pond and crosses RT 749 perpendicular.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.86

Unnamed Tributary to Mill Swamp

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.86

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-05-BAC** **Buckhorn Swamp**

Cause Location: This cause encompasses the segment of Buckhorn Swamp near Pope that crosses over Route 652.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E.coli data impaired with 6 exceedances out of 12 samples at Station 5BKH003.89 due to having 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_BKH01B12 / Buckhorn Swamp / Segment of Buckhorn Swamp near Pope that crosses over Route 652.	5A	Escherichia coli (E. coli)	2012	L	4.23

Buckhorn Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.23

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-05-DO** **Buckhorn Swamp**

Cause Location: This cause encompasses the segment of Buckhorn Swamp near Pope that crosses over Route 652.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: DO is impaired at Station 5ABKH003.89 with 7 exceedances out of 23 samples. The DO impairment is thought to be from natural conditions. There is currently no natural conditions report.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_BKH01B12 / Buckhorn Swamp / Segment of Buckhorn Swamp near Pope that crosses over Route 652.	5C	Dissolved Oxygen	2014	L	4.23

Buckhorn Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Naturally Occurring Organic Acids

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-05-PH** Buckhorn Swamp

Cause Location: This cause encompasses the segment of Buckhorn Swamp near Pope that crosses over Route 652.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: pH is impaired with 5 exceedances out of 23 samples. Impairment thought to be from natural causes. There is currently no Natural Conditions Report.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_BKH01B12 / Buckhorn Swamp / Segment of Buckhorn Swamp near Pope that crosses over Route 652.	5C	pH	2016	L	4.23

Buckhorn Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.23

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Naturally Occurring Organic Acids

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-06-BAC** **Nottoway Swamp**

Cause Location: This cause encompasses the segment of Nottoway Swamp near Route 611.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli is insufficient at station 5ANTT002.96 for the 2022 IR with 2 exceedances out of 12 samples, as there was one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. E. coli was impaired in the 2020 IR. In 2016 IR was supporting with E.coli data from Station 5ANTT002.96 with 2 exceedance/ 23 samples and now in the 2020 IR data remains impaired (5 exceedances/ 24 samples) at that same station. Citmon station 5ANTT-ORP-BNR has insufficient data due to collection methods (level II). E. coli remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_NTT01A12 / Nottoway Swamp / Segment of Nottoway Swamp near Route 611	5A	Escherichia coli (E. coli)	2018	L	8.13

Nottoway Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.13

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-06-DO** Nottoway Swamp

Cause Location: This cause encompasses the segment of Nottoway Swamp near Route 611.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: DO is impaired at Station 5ANT002.96 with 8 exceedances out of 23 samples in the 2022 IR cycle.

CMON Station 5ANNT-ORP-BNR (Level II data) has an observed effect for DO with 6 exc/ 10 samp in the 2020 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_NTT01A12 / Nottoway Swamp / Segment of Nottoway Swamp near Route 611	5C	Dissolved Oxygen	2012	L	8.13

Nottoway Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			8.13

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-06-PH** Nottoway Swamp

Cause Location: This cause encompasses the segment of Nottoway Swamp near Route 611.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: pH 2 exc/ 23 samp at Station 5ANT002.96.

2020 IR - pH is supporting at Citmon Station 5ANTT-ORP-BNR (0 exc/ 11 samp).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_NTT01A12 / Nottoway Swamp / Segment of Nottoway Swamp near Route 611	5C	pH	2012	L	8.13

Nottoway Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			8.13

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K28R-07-BAC** **Nottoway River - Upper**

Cause Location: From upstream intersection with watershed boundary (near Three Cr. confluence, RM 36.50) downstream to 5 miles upstream of Courtland (RM 32.00, end of PWS area - downstream of confluence with Buckhorn Swamp at Vicks Isl.).

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli is insufficient with 2 exceedances out of 33 samples as there is one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Station 5ANTW035.62 has 0 exceedances out of 1 sample and is insufficient with no STV exceedances but insufficient data to analyze geomean. E. coli retains the impaired status from the 2020 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K28R_NTW01A00 / Nottoway River - Upper / From upstream intersection with watershed boundary (near Three Cr. confluence, RM 36.50) downstream to 5 miles upstream of Courtland (RM 32.00, end of PWS area - downstream of confluence with Buckhorn Swamp at Vicks Isl.).	5A	Escherichia coli (E. coli)	2020	L	4.45

Nottoway River - Upper

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.45

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K29R-01-BAC** Seacorrie Swamp, German Swamp, XDW and XDX

Cause Location: Seacorrie Swamp, portion of German Swamp, UT to Assamoosick Swamp XDW, and UT to Seacorrie Swamp XDX.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 1998, the entire mainstem of Assamoosick Swamp (23.8 miles) was assessed as fully supporting but threatened of the Recreation Use. The segment was later identified to Virginia for listing consideration (station 5AASM013.36).

Assamoosick Swamp from the headwaters to Rt. 607 was downgraded in 2002, however the impairment was shortened in the year to end at the Route 607 bridge due to acceptable fecal coliform levels in this downstream portion (0/3 at 5AASM003.00, 0/13 at 5AASM000.89). The TMDL was due in 2010. In 2002, Black Swamp, Seacorrie Swamp, XDW, and XDX were also considered impaired of the Recreation Use. These TMDLs were due in 2014.

In 2004, German Swamp was added to the impairment. This was due in 2016.

During the 2010 cycle, E. coli monitoring was conducted throughout the watershed. The exceedance rates were acceptable at all stations on Black Swamp and Assamoosick Swamp above the Route 607 bridge; therefore, Black Swamp and the portion of Assamoosick Swamp which had been impaired were delisted. The lower portion of German Swamp remained impaired with an E. coli exceedance rate of 2/11 at 5AGMN000.54, however station 5AGMN003.19 was fully supporting (1/12); therefore, the portion above the upstream-most tributary was delisted. Seacorrie Swamp, XDW and XDX remained listed (5/14 at 5ASRE005.89, 4/21 at 5ASRE002.12, 3/8 at 5AXDW001.85, and 5/8 at 5AXDX001.35).

The Assamoosick Swamp and Tributaries Bacterial TMDL was developed during the 2012 cycle; it was approved by the EPA on 6/3/2010 and by the SWCB on 9/30/2010. The previously delisted segments are considered Category 2C; the impaired segments are Category 4A.

No new data has been collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K29R_GMN01A02 / German Swamp / The mainstem of German Swamp from the upstream-most tributary to its mouth.	4A	Escherichia coli (E. coli)	2010	L	2.62
VAP-K29R_SRE01A02 / Seacorrie Swamp / Seacorrie Swamp from its headwaters to its mouth	4A	Escherichia coli (E. coli)	2006	L	7.03
VAP-K29R_XDW01A02 / XDW - UT to Assamoosick Swamp / UT to Assamoosick Swamp	4A	Escherichia coli (E. coli)	2006	L	2.05
VAP-K29R_XDX01A02 / Seacorrie Swamp, UT / Unnamed tributary to Seacorrie Swamp	4A	Escherichia coli (E. coli)	2006	L	1.47

Seacorrie Swamp, German Swamp, XDW and XDX

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.17

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Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K29R-02-BAC** **Assamoosick Swamp**

Cause Location: Assamoosick Swamp from rivermile 2.5 near Mill Run downstream to its mouth

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2010 cycle, Assamoosick Swamp from rivermile 2.5 near Mill Run downstream to its mouth was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/11 at 5AASM000.89, which is located at the Route 647 bridge. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K29R_ASM02A02 / Assamoosick Swamp / Start of PWS at river mile 2.5 to mouth.	5A	Escherichia coli (E. coli)	2010	L	2.44

Assamoosick Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.44

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K29R-03-BAC** XGT - Assamoosick Swamp, UT

Cause Location: The UT XGT from its headwaters to its mouth at Assamoosick Swamp.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2010 cycle, the segment was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/6 at 5AXGT000.50, which is located at the Route 607 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K29R_XGT01A10 / Assamoosick Swamp, UT - XGT / Headwaters to mouth at Assamoosick Swamp	5A	Escherichia coli (E. coli)	2010	L	1.94

XGT - Assamoosick Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.94

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K29R-04-BAC** XGS - Assamoosick Swamp, UT

Cause Location: The UT XGS from its headwaters to its mouth at Assamoosick Swamp.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the segment was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/9 at 5AXGS000.96, which is located at the Route 634 bridge.

The stream is within the study area for the Assamoosick Swamp and Tributaries Bacterial TMDL, which was developed during the 2012 cycle. The TMDL was approved by the EPA on 6/3/2010 and by the SWCB on 9/30/2010. The stream is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K29R_XGS01A10 / XGS - Assamoosick Swamp, UT / Headwaters to mouth at Assamoosick Swamp	4A	Escherichia coli (E. coli)	2010	L	2.36

XGS - Assamoosick Swamp, UT

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.36

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-01-BAC** **Darden Mill Run**

Cause Location: This cause encompasses the area from headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreation Use is not supporting based on E.coli bacteria data with 9 exceedances out of 35 samples for station 5ADMR008.42. This creates the impaired status due to 2 or more STV hits in the same 90-day period with < 10 samples. A Bacteria Total Maximum Daily Load was developed for Three Creek, Flat Swamp, Tarrara Creek, Mill Swamp, and Darden Mill Run in Southampton, Sussex, Greensville, Brunswick Counties and the City of Emporia, Virginia. EPA approved 09/28/2012 (PN 10623).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_DMR01A02 / Darden Mill Run / From headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.	4A	Escherichia coli (E. coli)	2006	L	10.72

Darden Mill Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.72

Sources: Agriculture; Crop Production (Crop Land or Dry Land); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-01-DO** **Darden Mill Run**

Cause Location: This cause encompasses the area from headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: DO is impaired at station 5ADMR008.42 with 19 exceedances out of 35 samples. Impairment is suspected to be the result of natural swamp conditions present in these waters, including low flow and high organic content.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_DMR01A02 / Darden Mill Run / From headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.	5C	Dissolved Oxygen	2002	L	10.72

Darden Mill Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			10.72

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-01-PCB** **Nottoway River -Lower Middle**

Cause Location: Lower/middle portion of Nottoway River in watershed K30. Segment starts below Route 671 downstream just below Point Beach.

Cause City/County: Southampton County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Fish Tissue samples at station 5ANTW005.07 (18-IM-Hg, 2 exceedances) Blue Catfish . OE for As (3 exceedances). Impaired for PCBs (18-IM-PCB, 2 exceedances) Blue Catfish.

Fish Tissue samples at station 5ANTW011.18 (18-IM-Hg, 2 exceedances) Blue Catfish. OE for As (1 exceedance). OE for PCBs (18-O-PCB, 1 exceedance).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_NTW02A08 / Nottoway River -Lower Middle / Middle portion of Nottoway River in watershed K30. Segment starts below Route 671 downstream just below Point Beach.	5A	PCBs in Fish Tissue	2020	L	10.96

Nottoway River -Lower Middle

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.96

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-01-PH** **Darden Mill Run**

Cause Location: This cause encompasses the area from headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: pH is impaired with 11 exceedances out of 35 samples at station 5ADMR008.42. Impairment is suspected due to natural swamp conditions present in these waters, low flow and high organic content.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_DMR01A02 / Darden Mill Run / From headwaters near Newsoms downstream to Windbourne Millpond, near VA/NC state line.	5C	pH	2004	L	10.72

Darden Mill Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10.72

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-02-DO** **Nottoway River - Lower**

Cause Location: This cause encompasses the lower portion of the Nottoway River in watershed K30. Segment starts below Mill Creek near Point Beach to VA/NC state line.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: DO is impaired at Station 5ANTW003.30 (6 exc/ 46 samp) and NCDNR station 5NTW-D0000050-NCDENR (18 exc/ 89 samp). K30R-02-DO

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_NTW02B14 / Nottoway River - Lower / Lower portion of Nottoway River in watershed K30. Segment starts below Mill Creek near Point Beach to VA/NC state line.	5A	Dissolved Oxygen	2014	L	4.54

Nottoway River - Lower

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.54

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K30R-02-PCB** Nottoway River - Lower

Cause Location: Lower portion of Nottoway River in watershed K30. Segment starts below Mill Creek near Point Beach to VA/NC state line.

Cause City/County: Southampton County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: 17-IM-PCB Fish species utilized for PCB testing at stations 5ANTW003.30 included Blue Catfish (2 exceedances).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K30R_NTW02B14 / Nottoway River - Lower / Lower portion of Nottoway River in watershed K30. Segment starts below Mill Creek near Point Beach to VA/NC state line.	5A	PCBs in Fish Tissue	2020	L	4.54

Nottoway River - Lower

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.54

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K31R-01-BAC** **Blackwater Swamp, Warwick Swamp**

Cause Location: Blackwater Swamp from its headwaters to the Blackwater River and Warwick Swamp from its headwaters to Route 627.

Cause City/County: Dinwiddie County; Petersburg; Prince George County; Surry County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In the 1998 cycle, Warwick Swamp from its headwaters to the Route 627 bridge was assessed as fully supporting but threatened of the Recreation use. During the year 2002 cycle, the entire mainstems of Warwick Swamp and Blackwater Swamp were considered impaired of the Recreation use. Due to an acceptable fecal coliform exceedance rate at 5AWKS001.00, the Warwick Swamp segment was shortened to its original length in 2004. During the 2008 cycle, the impairment converted to E. coli.

The exceedance rates during the 2010 cycle were as follows:

5ABKR001.92 - 1/12 5ABKR003.68 - 4/21 5ABKR004.83 - 0/1 5ABKR005.48 - 3/10 5ABKR007.28 - 0/10
 5ABKR010.39 - 2/11 5ABKR014.01 - 1/12 5ABKR016.95 - 4/12 5AWKS009.11 - 6/21 (2014 cycle) 5AWKS013.53
 - 0/12 5AWKS016.48 - 2/12 5AWKS018.67 - 5/10 5AWKS019.17 - 1/10

The Blackwater River Bacterial TMDL was developed during the 2012 cycle. The report was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. Blackwater Swamp and Warwick Swamp will be considered Category 4A.

During the 2020 cycle the segment remained impaired for E.coli with an exceedance rate of 7/12 at station 5ABKR003.68. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_BKR01A98 / Blackwater Swamp / Headwaters to mouth.	4A	Escherichia coli (E. coli)	2006	L	22.91
VAP-K31R_WKS01A00 / Warwick Swamp / Warwick Swamp from its headwaters to the Route 627 bridge.	4A	Escherichia coli (E. coli)	2008	L	13.21

Blackwater Swamp, Warwick Swamp

Recreation

Estuary (Sq. Miles)
Reservoir (Acres)
River (Miles)

Escherichia coli (E. coli) - Total Impaired Size by Water Type: 36.12

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: K31R-02-BAC Second Swamp

Cause Location: Second Swamp from its headwaters to the first tributary upstream of Rt. 630

Cause City/County: Petersburg; Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Second Swamp from its headwaters to its mouth was initially assessed as not supporting the Recreation Use support goal in 2004 based on a fecal coliform violation rate of 2/9 at the Route 618 bridge (5ASEC001.11).

Additional monitoring was conducted during the 2010 cycle. Data showed that the lower portion of Second Swamp has acceptable E. coli violation rates (1/11 at 5ASEC001.11, 1/12 at 5ASEC005.39, and 1/11 at 5ASEC006.88); therefore, the portion from the first tributary upstream of Route 630 (5ASEC006.88) downstream to its mouth was delisted (6.91 miles).

The upstream portion of Second Swamp remains listed, although only marginal violation rates were noted:

2/12 at 5ASEC014.08 0/12 at 5ASEC012.54 0/12 at 5ASEC010.97 2/12 at 5ASEC008.74

The Blackwater River and Tributaries Bacterial TMDL was developed during the 2012 cycle. The report was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The TMDL addressed all of Second Swamp; therefore, the impaired portion is considered Category 4A and the previously-delisted portion is considered Category 2C. During the 2016 cycle the segment had an E.coli exceedance rate of 3/12 at station 5ASEC012.54 and remained impaired for the recreation use.

no new data for the 2018 and 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_SEC01A04 / Second Swamp / Second Swamp from its headwater to the first tributary upstream of Rt. 630	4A	Escherichia coli (E. coli)	2010	L	9.52

Second Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.52

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K31R-04-BAC** **Warwick Swamp**

Cause Location: Warwick Swamp from the tributary at approximately rivermile 2.9 to its mouth at Blackwater Swamp.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Warwick Swamp from the tributary at approximately rivermile 2.9 to its mouth was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 3/18 at 5AWKS001.00 and 4/12 at 5AWKS002.12.

The Blackwater River and Tributaries Bacterial TMDL was developed during the 2012 cycle. The report was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The TMDL only addressed the upstream impairment on Warwick Swamp, however the entire stream is located within the study area; therefore, the impaired portion will be considered nested in the Blackwater River impairment (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_WKS03A10 / Warwick Swamp / Warwick Swamp from the tributary at approximately rivermile 2.9 to its mouth	4A	Escherichia coli (E. coli)	2010	L	3.03

Warwick Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.03

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K31R-05-BAC** North Fork Blackwater Swamp

Cause Location: North Fork Blackwater Swamp from its headwater to its mouth.

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, North Fork Blackwater Swamp was assessed as not supporting of the Recreation Use due to E. coli violation rates of 2/12 at 5ABNF000.65, 4/11 at 5ABNF003.73, and 2/9 at 5ABNF005.25.

During the 2022 cycle no new data was collected. The Blackwater River Bacterial TMDL was developed during the 2012 cycle. The report was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. North Fork Blackwater Swamp is within the study area for the TMDL and will be considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_BNF01A10 / North Fork Blackwater Swamp / Headwaters to mouth at Blackwater Swamp	4A	Escherichia coli (E. coli)	2010	L	6.11

North Fork Blackwater Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.11

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K31R-08-BAC** **XHO - Warwick Swamp, UT**

Cause Location: Tributary from its headwater to its mouth at XES

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributary was impaired of the Recreation Use due to an E. coli violation rate of 3/9 at 5AXGX000.46, which is located at the Route 626 bridge. The stream drains to Warwick Swamp which was addressed in the Blackwater River and Tributaries Bacterial TMDL, approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The tributary will be considered nested (Category 4A) and will be addressed during implementation of the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_XHO01A12 / XHO - Warwick Swamp, UT / Headwaters to mouth at XES	4A	Escherichia coli (E. coli)	2012	L	2.42

XHO - Warwick Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.42

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K31R-09-BAC** **XGX - Warwick Swamp, UT**

Cause Location: Tributary from its headwater to its mouth at Warwick Swamp

Cause City/County: Prince George County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributary was impaired of the Recreation Use due to an E. coli violation rate of 3/9 at 5AXGX000.46, which is located at the Route 626 bridge. The stream drains to Warwick Swamp which was addressed in the Blackwater River and Tributaries Bacterial TMDL, approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The tributary will be considered nested (Category 4A) and will be addressed during implementation of the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_XGX01A12 / XGX - Warwick Swamp, UT / Headwaters to mouth at Warwick Swamp	4A	Escherichia coli (E. coli)	2012	L	2.22

XGX - Warwick Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.22

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-01-BAC** **Blackwater River**

Cause Location: Blackwater River from Warwick Swamp to the Route 617 bridge

Cause City/County: Isle Of Wight County; Southampton County; Surry County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli is impaired based on data from station 5ABLW058.22 with 5 exceedances out of 30 samples. The impaired status is given due to 2 or more STV hits in the same 90-day period with < 10 samples. The Blackwater River was identified for listing consideration by the EPA in 1998. The segment from Warwick Swamp to Cypress Swamp was initially assessed as not supporting of the Recreation Use during the 2002 cycle based on fecal coliform exceedances at 5ABLW074.66; the bacteria TMDL was due in 2010. During the 2006 cycle, the fecal coliform exceedance rate was acceptable, however the segment was considered impaired for E. coli based on exceedances at 5ABLW074.66 and downstream station 5ABLW058.22. The FC impairment was changed to E. coli, and the original TMDL due date was maintained.

During the 2010 cycle, it was determined that the 1998 segmentation actually extended downstream to the Route 617 bridge, which is also the location of 5ABLW058.22. The error was corrected and the impairment was extended. See VAT-K32R_BLW01A08.

During the 2012 cycle, the Blackwater River Bacterial TMDL was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The impairment is considered Category 4A.

The following are the 2014 exceedance rates: 5 exc/42 samp at 5ABLW058.22

1 exc/11 samp at 5ABLW064.46 3 exc/11 samp at 5ABLW069.30 3 exc/40 samp at 5ABLW074.66 2 exc/12 samp at 5ABLW087.70

During the 2016 cycle the segment remained impaired for Recreation use due to an E.coli exceedance rate of 6 exc/40 samp at 5ABLW074.66. During the 2018 cycle the segment remained impaired for Recreation use due to an E.coli exceedance rate of 7 exc/42 samp at 5ABLW074.66.

During the 2020 cycle the segment remained impaired for Recreation use due to an E.coli exceedance rate of 9 exc/42 samp at 5ABLW074.66. During the 2022 cycle the segment remained impaired for Recreation use due to an E.coli exceedance rate of 5/36 at 5ABLW074.66.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_BLW01B98 / Blackwater River / Start of Blackwater River at confluence of Warwick Swamp and Blackwater Swamp to Route 31	4A	Escherichia coli (E. coli)	2006	L	18.56
VAP-K32R_BLW02B98 / Blackwater River / Route 31 to Cypress Swamp	4A	Escherichia coli (E. coli)	2006	L	5.39
VAT-K32R_BLW01A08 / Blackwater River - Lower K32 / Lower portion of Blackwater R. in K32. Starts at the confluence with Cypress Swamp (upstream of Walls Bridge) downstream to above Rt 617 crossing @ Walls Bridge (RM 58.22).	4A	Escherichia coli (E. coli)	2008	L	2.33

Blackwater River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			26.28

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Appendix 4 - Fact Sheets for
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Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: K32R-01-BEN Blackwater River - Lower

Cause Location: This cause encompasses the lower portion of Blackwater River in K32. Starts at the confluence with Cypress Swamp (upstream of Walls Bridge) downstream to above Rt 617 crossing @ Walls Bridge (RM 58.22).

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on benthic data collected at stations 5ABLW052.91 and 5ABLW055.26.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K32R_BLW01A08 / Blackwater River - Lower K32 / Lower portion of Blackwater R. in K32. Starts at the confluence with Cypress Swamp (upstream of Walls Bridge) downstream to above Rt 617 crossing @ Walls Bridge (RM 58.22).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.33

Blackwater River - Lower

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.33

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-02-BAC** Spring Branch

Cause Location: From the old Borden Chemical/Spurlock Adhesives discharge to the confluence with the Blackwater River

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the segment was impaired of the Recreation Use due to E. coli violations at 5ASRN000.65, which is located below Bryant Pond. The stream is within the study area for the Blackwater River Bacterial TMDL, which was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. Spring Branch will be addressed during implementation and is considered nested (Category 4A). The exceedance rate was 6/48 during the 2014 cycle.

During the 2018 cycle the segment remained impaired for E.coli with exceedances at all stations. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_SRN01A94 / Spring Branch / Spurlock Adhesives discharge to Blackwater River.	4A	Escherichia coli (E. coli)	2012	L	4.16
VAP-K32R_SRN02A06 / Spring Branch / Headwaters to Spurlock Adhesives	4A	Escherichia coli (E. coli)	2018	L	0.11

Spring Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.27

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-02-BEN** **Spring Branch**

Cause Location: From the old Borden Chemical/Spurlock Adhesives discharge to the confluence with the Blackwater River

Cause City/County: Sussex County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Spring Branch was initially assessed as impaired of the Aquatic Life Use in the 1994 cycle due to a severely impaired benthic community.

There are six past and current biological monitoring stations on Spring Branch. 5ASRN003.82 is located upstream of all the discharges; 5ASRN003.69 is located 50 yards below the Route 460 bridge; 5ASRN001.99 and 5ASRN001.90 are located upstream and downstream of Rt. 653; 5ASRN001.24 is located 100 yards below the Sussex Service Authority's Spring Branch WWTF discharge; and 5ASRN000.65 is located downstream of Bryant's Pond, near the mouth of Spring Branch. The three downstream stations were rated impaired during the 2012 cycle.

The benthic TMDL received approval by the EPA on 5/10/2006 and from the SWCB on 9/7/2006. The results indicated that total phosphorus is the Most Probable Stressor for Spring Branch because of its relationship to low dissolved oxygen and high pH. Total phosphorus was therefore used to develop the benthic TMDL.

During the 2018 cycle the segment remained impaired for benthics. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_SRN01A94 / Spring Branch / Spurlock Adhesives discharge to Blackwater River.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.16

Spring Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.16

Sources: Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-02-PH** **Spring Branch**

Cause Location: From the old Borden Chemical/Spurlock Adhesives discharge to the confluence with the Blackwater River

Cause City/County: Sussex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4A

Cause Description: The segment was considered impaired of the Aquatic Life Use in the 2008 cycle due to high pH at station 5ASRN000.66. The benthic TMDL was completed during the 2008 cycle; it received approval by the EPA on 5/10/2006 and from the SWCB on 9/7/2006. The results indicated that total phosphorus is the Most Probable Stressor for Spring Branch because of its relationship to low dissolved oxygen and high pH. The benthic TMDL limits phosphorus input, which should reduce algal growth and lower the pH. Therefore, the segment will be considered a Category 4A water for pH.

The exceedance rates were as follows during the 2014 cycle:

12/63 at 5ASRN000.65 11/60 at 5ASRN000.66 0/64 at 5ASRN001.24 0/63 at 5ASRN001.90 0/59 at 5ASRN001.99 0/40 at 5ASRN003.69

During the 2018 cycle there was no new pH data. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_SRN01A94 / Spring Branch / Spurlock Adhesives discharge to Blackwater River.	4A	pH	2008	L	4.16

Spring Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.16

Sources: Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source

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Chowan River and Dismal Swamp Basins

Cause Group Code: K32R-04-BAC Otterdam Swamp

Cause Location: Otterdam Swamp Headwaters to mouth. Nested within segment K32R-03-DO.

Cause City/County: Prince George County; Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The segment was initially assessed as not supporting of the Recreation Use goal during the 2002 cycle based on fecal coliform exceedances at 5AOTR001.26, 5AOTR004.31 (Rt. 607), and 5AOTR005.69 (Rt. 606). These are confined animal feeding operation (CAFO) special study stations.

E.coli was added as an impairing cause of the Recreation Use in 2006, however the original bacteria TMDL due date of 2014 was maintained. The bacteria impairment converted solely to E. coli during the 2008 cycle.

Otterdam Swamp was included in the Blackwater River Bacterial TMDL which was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The impairment is considered Category 4A.

The following are the exceedance rates during the 2014 cycle: 4/21 at 5AOTR001.26 3/14 at 5AOTR004.31 (2010 cycle) 0/12 at 5AOTR005.69 (2010 cycle) During the 2018 cycle the segment remained impaired for E.coli at station 5AOTR008.07 with an exceedance rate of 3/12. Also with 2/12 exceedance rate at station 5AOTR001.26 and 5/12 at station 5AOTR004.31.

During the 2020 cycle the segment remained impaired with 8/24 exceedance rate at station 5AOTR004.31. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_OTR01A98 / Otterdam Swamp / Headwaters to Averys Pond dam	4A	Escherichia coli (E. coli)	2016	L	7.44
VAP-K32R_OTR02A00 / Otterdam Swamp / Below Averys Pond to Blackwater River	4A	Escherichia coli (E. coli)	2006	L	5.86

Otterdam Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.3

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-05-BAC** **Coppahaunk Swamp, UT - XDT**

Cause Location: Mainstem from its headwaters to mouth

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Coppahaunk Swamp mainstem was initially assessed in 2002 as not supporting of the Recreation Use based on numerous fecal coliform exceedances. During the 2006 cycle, station 5AXDT000.50 had an E. coli exceedance rate of 2/2 and the UT was added into the mainstem impairment. The initial bacteria TMDL due date of 2014 was maintained.

During the 2008 cycle, additional E. coli monitoring at station 5ACPH006.00 showed an acceptable exceedance rate (1/11); therefore, the mainstem Coppahaunk Swamp was delisted for bacteria. This was a partial delist because the unnamed tributary to Coppahaunk Swamp, XDT, remains impaired.

XDT was addressed in the Blackwater River Bacterial TMDL which was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. Therefore, it will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XDT01A08 / Coppahaunk Swamp, UT / Headwaters to mouth at Coppahaunk Swamp	4A	Escherichia coli (E. coli)	2006	L	0.92

Coppahaunk Swamp, UT - XDT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.92

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-07-BAC** Cypress Swamp Tributaries

Cause Location: All tributaries to Cypress Swamp, including Johnchecohunk Swamp and Spring Grove Swamp

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During 2006, station 5AJCH002.27 on Johnchecohunk Swamp had an E. coli exceedance rate of 2/12. In addition, the Cypress Swamp mainstem (VAP-K32R_CPP01A98) showed exceedances for bacteria. Therefore, the segment was assessed as not supporting the Recreation Use for E. coli.

The Cypress Swamp TMDL was completed and approved by the EPA on 10/14/2005. Due to the high reductions required to meet the Cypress Swamp mainstem TMDL, this segment is considered nested.

The segment remains impaired in the 2014 cycle with an exceedance rate of 2/11. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_CPP01B06 / Cypress Swamp Tributaries / All tributaries draining to Cypress Swamp.	4A	Escherichia coli (E. coli)	2006	L	143.63

Cypress Swamp Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			143.63

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-08-BAC** Cypress Swamp

Cause Location: Mainstem from its headwaters to its mouth.

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Cypress Swamp from Johnchecohunk Swamp to its mouth (5.35 miles) was originally listed as impaired of the Recreation use during the 2002 cycle based on fecal coliform exceedances at the Rt. 31 bridge (5ACPP003.20). During the 2004 cycle, the impairment was extended upstream due to fecal coliform exceedances at 5A-PL-SCP1B and 5ACPP006.04 (Rt. 616).

In the 2006 cycle, E. coli was added as an impairing cause based on exceedances at 5ACPP003.20 and 5ACPP007.84 (Rt. 630). The TMDL was completed and approved by the EPA on 10/14/2005.

The impairment was converted to E. coil in the 2008 cycle based on E. coli exceedances at station 5ACPH003.20 and 5ACPH006.04.

The following were the exceedance rates during the 2010 cycle: 8/34 at 5ACPP003.20 2/12 at 5ACPP007.86

During the 2018 cycle there was no new data.

During the 2020 cycle the segment was impaired for E.coli with an exceedance rate of 2/12 at station 5ACPP003.20. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_CPP01A98 / Cypress Swamp / Headwaters to mouth at Blackwater River.	4A	Escherichia coli (E. coli)	2006	L	17.06

Cypress Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.06

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: K32R-11-BAC XDR - UT to Otterdam Swamp

Cause Location: Headwaters to mouth

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, XDR (UT to Otterdam Swamp) was considered impaired of the Recreation Use due to a fecal coliform violation rate of 9/16 at 5AXDR00.38. Additional monitoring during the 2010 cycle confirmed an E. coli impairment with a violation rate of 5/14.

The tributary is within the study area for the Otterdam Swamp bacterial impairment, which was addressed in the Blackwater River Bacterial TMDL. The TMDL was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The impairment will be addressed during implementation and is therefore considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XDR01A06 / UT to Otterdam Swamp / Headwaters to mouth at Otterdam Swamp	4A	Escherichia coli (E. coli)	2010	L	2.61

XDR - UT to Otterdam Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.61

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: K32R-13-HGFT Blackwater River Basin

Cause Location: Blackwater River and tributaries from its headwaters to the VA-State Line

Cause City/County: Dinwiddie County; Isle Of Wight County; Petersburg; Prince George County; Southampton County; Suffolk; Surry County; Sussex County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: During the 2006 cycle, the Blackwater River from Route 31 near Dendron downstream to the Virginia-North Carolina state line was assessed as impaired of the Fish Consumption Use due to a VDH fish consumption advisory for mercury.

During the 2008 cycle, the advisory was expanded on 8/31/2007 to include the Blackwater River to its headwaters, including all of its tributaries. The advisory currently recommends consuming no more than two meals/month of Blue Catfish, largemouth bass, sunfish species, bowfin, chain pickerel, white catfish, redhorse sucker and longnose gar.

The advisory is based on the results of DEQ's fish tissue monitoring program, which show mercury exceedances at multiple stations throughout the watershed, including 5ABKR003.68, 5ABKR002.33, 5AWKS013.53, 5ASEC005.39, 5ABLW074.66, 5ACPP004.04, 5ACPP007.86, 5AJCH000.73.

17-IM-FT_Met Hg (7 exceedances) - Largemouth Bass, Carp, Channel Catfish, Redear Sunfish, Bluegill Sunfish, and Bowfin were used in the testing to determine this fish tissue impairment at station 5ABLW031.90.

Station 5ABLW022.84 - 17-IM FT_met; 5 exceedances of TV for Hg (Redear Sunfish, Largemouth Bass, Bluegill Sunfish, Bowfin, Chain Pickerel), 2 exceedances of TSV for As (Bowfin and chain pickerel).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_BKR01A98 / Blackwater Swamp / Headwaters to mouth.	5A	Mercury in Fish Tissue	2008	L	22.91
VAP-K31R_BNF01A10 / North Fork Blackwater Swamp / Headwaters to mouth at Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	6.11
VAP-K31R_CAT01A10 / Cattail Creek / Headwaters to mouth at Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	3.44
VAP-K31R_SEC01A04 / Second Swamp / Second Swamp from its headwater to the first tributary upstream of Rt. 630	5A	Mercury in Fish Tissue	2008	L	9.52
VAP-K31R_SEC01B10 / Second Swamp / First tributary upstream of Rt. 630 to mouth	5A	Mercury in Fish Tissue	2008	L	6.92
VAP-K31R_WKS01A00 / Warwick Swamp / Warwick Swamp from its headwaters to the Route 627 bridge.	5A	Mercury in Fish Tissue	2008	L	13.21
VAP-K31R_WKS02A04 / Warwick Swamp / Warwick Swamp from the Route 627 bridge to the tributary at approximately rivermile 2.9	5A	Mercury in Fish Tissue	2008	L	6.24
VAP-K31R_WKS03A10 / Warwick Swamp / Warwick Swamp from the tributary at approximately rivermile 2.9 to its mouth	5A	Mercury in Fish Tissue	2008	L	3.03
VAP-K31R_XAT01A10 / Blackwater Swamp, UT / Headwaters to mouth at Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	1.46

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K31R_XES01A08 / Warwick Swamp, UT / Headwater to mouth at Warwick Swamp	5A	Mercury in Fish Tissue	2008	L	3.43
VAP-K31R_XFN01A08 / North Fork Blackwater Swamp, UT / Headwaters to mouth at North Fork Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	2.83
VAP-K31R_XFX01A10 / Warwick Swamp, UT / Headwaters to mouth at Warwick Swamp	5A	Mercury in Fish Tissue	2008	L	2.96
VAP-K31R_XGE01A10 / Blackwater Swamp, UT / Headwaters to mouth at Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	1.46
VAP-K31R_XGX01A12 / XGX - Warwick Swamp, UT / Headwaters to mouth at Warwick Swamp	5A	Mercury in Fish Tissue	2008	L	2.22
VAP-K31R_XHO01A12 / XHO - Warwick Swamp, UT / Headwaters to mouth at XES	5A	Mercury in Fish Tissue	2008	L	2.42
VAP-K31R_XHP01A10 / Blackwater Swamp, UT / Headwaters to mouth at Blackwater Swamp	5A	Mercury in Fish Tissue	2008	L	2.51
VAP-K31R_XHS01A12 / XHS - Second Swamp, UT / Headwaters to mouth at Second Swamp	5A	Mercury in Fish Tissue	2008	L	4.40
VAP-K31R_ZZZ01A14 / Unsegmented Rivers in K31 / Unsegmented portion of watershed CU52.	5A	Mercury in Fish Tissue	2008	L	40.84
VAP-K31R_ZZZ01B14 / Unsegmented Rivers in K31 / Unsegmented portion of watershed CU53.	5A	Mercury in Fish Tissue	2008	L	94.09
VAP-K31R_ZZZ01C14 / Unsegmented Rivers in K31 / Unsegmented portion of watershed CU54.	5A	Mercury in Fish Tissue	2008	L	59.14
VAP-K32R_BLW01B98 / Blackwater River / Start of Blackwater River at confluence of Warwick Swamp and Blackwater Swamp to Route 31	5A	Mercury in Fish Tissue	2008	L	18.56
VAP-K32R_BLW02B98 / Blackwater River / Route 31 to Cypress Swamp	5A	Mercury in Fish Tissue	2006	L	5.39
VAP-K32R_CPH01A98 / Coppahaunk Swamp / Headwaters to mouth at Blackwater River.	5A	Mercury in Fish Tissue	2008	L	12.34
VAP-K32R_CPP01A98 / Cypress Swamp / Headwaters to mouth at Blackwater River.	5A	Mercury in Fish Tissue	2008	L	17.06
VAP-K32R_CPP01B06 / Cypress Swamp Tributaries / All tributaries draining to Cypress Swamp.	5A	Mercury in Fish Tissue	2008	L	143.63
VAP-K32R_OTR01A98 / Otterdam Swamp / Headwaters to Averys Pond dam	5A	Mercury in Fish Tissue	2008	L	7.44
VAP-K32R_OTR02A00 / Otterdam Swamp / Below Averys Pond to Blackwater River	5A	Mercury in Fish Tissue	2008	L	5.86
VAP-K32R_RED01A08 / Reedy Branch Watershed / Headwaters to mouth at Otterdam Swamp	5A	Mercury in Fish Tissue	2008	L	7.32
VAP-K32R_SRN01A94 / Spring Branch / Spurlock Adhesives discharge to Blackwater River.	5A	Mercury in Fish Tissue	2008	L	4.16
VAP-K32R_SRN02A06 / Spring Branch / Headwaters to Spurlock Adhesives	5A	Mercury in Fish Tissue	2008	L	0.11

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XAL01A08 / Spring Branch, UT / Headwaters to mouth at Spring Branch.	5A	Mercury in Fish Tissue	2008	L	0.72
VAP-K32R_XAW01A08 / Spring Branch, UT / Headwaters to mouth at Spring Branch.	5A	Mercury in Fish Tissue	2008	L	1.07
VAP-K32R_XDR01A06 / UT to Otterdam Swamp / Headwaters to mouth at Otterdam Swamp	5A	Mercury in Fish Tissue	2008	L	2.61
VAP-K32R_XDS01A06 / UT to Otterdam Swamp / Headwaters to mouth at Otterdam Swamp	5A	Mercury in Fish Tissue	2008	L	1.12
VAP-K32R_XDT01A08 / Coppahaunk Swamp, UT / Headwaters to mouth at Coppahaunk Swamp	5A	Mercury in Fish Tissue	2008	L	0.92
VAP-K32R_XFM01A08 / Blackwater River, UT / Headwaters to mouth at Blackwater River	5A	Mercury in Fish Tissue	2008	L	3.14
VAP-K32R_XFV01A10 / XFV - Otterdam Swamp, UT / Headwaters to mouth	5A	Mercury in Fish Tissue	2008	L	1.21
VAP-K32R_XGC01A10 / XGC - Coppahaunk Swamp, UT / Headwaters to mouth at Coppahaunk Swamp	5A	Mercury in Fish Tissue	2008	L	2.98
VAP-K32R_ZZZ01A14 / Unsegmented Rivers in K32R / Unsegmented portion of watershed CU55.	5A	Mercury in Fish Tissue	2008	L	30.89
VAP-K32R_ZZZ01B14 / Unsegmented Rivers in K32R / Unsegmented portion of watershed CU56.	5A	Mercury in Fish Tissue	2008	L	40.82
VAP-K32R_ZZZ01C14 / Unsegmented Rivers in K32R / Unsegmented portion of watershed CU57	5A	Mercury in Fish Tissue	2008	L	110.77
VAT-K32R_BLW01A08 / Blackwater River - Lower K32 / Lower portion of Blackwater R. in K32. Starts at the confluence with Cypress Swamp (upstream of Walls Bridge) downstream to above Rt 617 crossing @ Walls Bridge (RM 58.22).	5A	Mercury in Fish Tissue	2006	L	2.33
VAT-K33R_ANT01A06 / Antioch Swamp - Middle / From confluence with Burnt Mills Swamp downstream to confluence with northern UT (RM 1.30).	5A	Mercury in Fish Tissue	2010	L	1.45
VAT-K33R_BLW01A00 / Blackwater River - Upper / Upper portion of Blackwater R. in K33. Starts at the Rt 617 crossing (Walls Bridge, RM 58.22) downstream to above Rt 460 crossing @ Zuni (RM 40.23).	5A	Mercury in Fish Tissue	2006	L	19.11
VAT-K33R_BLW02A04 / Blackwater River - Middle / Middle portion of Blackwater River within watershed, from Rt 460 bridge crossing, RM 40.22 to downstream approx. halfway between Station 5ABLW040.22 and Station 5ABLW038.69.	5A	Mercury in Fish Tissue	2004	L	1.04
VAT-K33R_BLW03A08 / Blackwater River - Lower / Lower portion of Blackwater River within watershed, from RM 39.34 downstream of confluence with Antioch Swamp (RM 35.22)].	5A	Mercury in Fish Tissue	2004	L	4.19

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K33R_BLW04A08 / Blackwater River / From connection of Antioch Swamp to the Watershed line of K33.	5A	Mercury in Fish Tissue	2008	L	1.82
VAT-K33R_BMS01A12 / Burnt Mills Swamp / At confluence of Antioch Swamp to Route 258.	5A	Mercury in Fish Tissue	2008	L	5.17
VAT-K33R_ZZZ01A00 / Unsegmented rivers in K33R, Villines Swamp / Evaluated non-segmented rivers/swamps in K33.	5A	Mercury in Fish Tissue	2008	L	199.38
VAT-K34R_GHB01A18 / Golden Hill Branch / Tributary to Mill Swamp; North of Elberon	5A	Mercury in Fish Tissue	2010	L	3.48
VAT-K34R_MSW01A00 / Mill Swamp / Located northwest of Raynor, upstream tributary to Rattlesnake Swamp. Segment begins at confluence of Moores Swamp with Mill Swamp (mile 16.78) downstream to confluence with Rattlesnake Swamp (mile 0.0).	5A	Mercury in Fish Tissue	2010	L	8.45
VAT-K34R_MSW02A18 / Mill Swamp- Upper / Upstream portion of Swamp, Located North of Route 617 and South of Colonial Trail	5A	Mercury in Fish Tissue	2010	L	5.15
VAT-K34R_RKN01A02 / Rattlesnake Swamp K34 / Located northwest of Raynor. Rattlesnake Swamp Segment from confluence of Pouches Swamp downstream to watershed boundary K33/K34.	5A	Mercury in Fish Tissue	2010	L	6.43
VAT-K34R_ZZZ01A00 / Unsegmented rivers in K34R, Rattlesnake Swamp / Evaluated non-segmented rivers in K34.	5A	Mercury in Fish Tissue	2010	L	153.32
VAT-K35R_BNT01A04 / Brantley Swamp - Lower / Located northeast of Pulleys Crossroads. Segment from confluence with Lightwood Swamp downstream to confluence with Seacock Swamp.	5A	Mercury in Fish Tissue	2010	L	3.65
VAT-K35R_RHS01A08 / Round Hill Swamp / Confluence of Seacock Swamp between State Route 614 and State Route 623	5A	Mercury in Fish Tissue	2010	L	0.64
VAT-K35R_RHS02A20 / Roundhill Swamp / Round Hill Swamp east of Appleton Road, north of Quaker Road, to the west of Seacock Swamp.	5A	Mercury in Fish Tissue	2010	L	3.89
VAT-K35R_RHS03A20 / Roundhill Swamp / Round Hill Swamp from the confluence of Horsepen Branch and Indigo Branch, north of Round Hill Road, west of Appleton Road.	5A	Mercury in Fish Tissue	2010	L	4.03
VAT-K35R_SCK01A00 / Seacock Swamp - Upper / Located west of Rt 460, south of Sussex - Southampton Co. line. Upper portion of Seacock Swamp, from Drumwright Pond downstream to confluence with unnamed tributary, approx. 0.1 mi downstream of Rt 628 crossing.	5A	Mercury in Fish Tissue	2010	L	0.85

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_SCK02A08 / Seacock Swamp - Lower / Located west of Rt 460 south of Ivor. Lower portion of Seacock Swamp, from confluence with Brantley Swamp (RM 8.73) downstream below State Hwy 614.	5A	Mercury in Fish Tissue	2010	L	2.50
VAT-K35R_SCK03A08 / Seacock Swamp - Lower / Lower portion of Seacock Swamp south of Doles Crossroads, west of State Hwy 600.	5A	Mercury in Fish Tissue	2010	L	2.60
VAT-K35R_SCK03B18 / Seacock Swamp / Approx. 1 mi north of Seacock Swamp where it crosses Route 635 to confluences with the Blackwater River	5A	Mercury in Fish Tissue	2010	L	3.23
VAT-K35R_SCK04A10 / Seacock Swamp / From State Route 618 south to confluence with Reddy Hole Branch	5A	Mercury in Fish Tissue	2010	L	0.82
VAT-K35R_XDY01A04 / UT Seacock Swamp / UT to Seacock Swamp, PRO CAFO special study. Headwaters to confluence with Seacock Swamp mainstem.	5A	Mercury in Fish Tissue	2010	L	1.02
VAT-K35R_XDZ01A04 / UT Airfield Pond - Upper / UT to Airfield Pond, PRO CAFO special study. Headwaters to confluence with UT	5A	Mercury in Fish Tissue	2010	L	0.68
VAT-K35R_XDZ02A04. / UT Airfield Pond - Lower / UT start at confluence with segment	5A	Mercury in Fish Tissue	2010	L	0.71
VAT-K35R_XDZ01A04 halfway between State Hwy 622 and 729 downstream to Airfield Pond.					
VAT-K35R_XED01A18 / UT to Seacock Swamp-Lower / Tributary of Seacock Swamp that runs East / West from South of Corinth at Rt. 626 to Rt 635 north of Unity in Southampton County where it merges with the mainstem of Seacock Swamp.	5A	Mercury in Fish Tissue	2010	L	3.76
VAT-K35R_ZZZ01A00 / Unsegmented rivers in Seacock Swamp. / Area of unsegmented rivers that extend west from Airfield Pond, North to Rt. 460 in Wakefield, East to Guildfield Corner and South to Corinth.	5A	Mercury in Fish Tissue	2010	L	199.07
VAT-K35R_ZZZ02A18 / Unsegmented Seacock Swamp - No Station / Unsegmented portions K35R Seacock Swamp	5A	Mercury in Fish Tissue	2010	L	13.30
VAT-K36R_BLC01A06 / Black Creek / Located NW of Burdette. From Wades Pond downstream to mouth. Tributary to Blackwater R. with confluence at RM 22.0.	5A	Mercury in Fish Tissue	2008	L	4.96
VAT-K36R_BLC02A10 / Black Creek - Upper / Segment parallel with State Route 503. Southeast of Whitefields Millpond and Johnson Millpond.	5A	Mercury in Fish Tissue	2008	L	3.29

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLW01A00 / Blackwater River - Uppermost (PWS) / From start of watershed at RM 35.21 (at the confluence with Seacock Swamp) downstream to approximately 0.1 mi south of Rt. 603.	5A	Mercury in Fish Tissue	2004	L	4.28
VAT-K36R_BLW01B08 / Blackwater River - Upper / Between State Hwy 603 at the confluence with Horse Swamp to approximately 0.5 mi north of State Hwy 630.	5A	Mercury in Fish Tissue	2004	L	6.47
VAT-K36R_BLW02A08 / Blackwater River - Middle / Segment includes water from east of Edgehill to west of the Franklin Municipal John Beverly Rose Airport.	5A	Mercury in Fish Tissue	2004	L	3.86
VAT-K36R_BLW02B08 / Blackwater River - Upper / Segment begins north of Maynards Crossroads and State Hwy 630 and ends at Joyners Bridge.	5A	Mercury in Fish Tissue	2004	L	2.47
VAT-K36R_BLW02C10 / Blackwater River - Upper / Segment begins at State Route 611 and ends near Edgehill.	5A	Mercury in Fish Tissue	2004	L	3.01
VAT-K36R_BLW03A08 / Blackwater River - Middle / Segment begins west of the Franklin Municipal John Beverly Rose Airport and ends at the Blackwater Landing in Franklin.	5A	Mercury in Fish Tissue	2004	L	2.24
VAT-K36R_BLW04A08 / Blackwater River - Lower Middle / From Blackwater Landing in Franklin the southern end of the industrial waste ponds in Isle of Wight.	5A	Mercury in Fish Tissue	2004	L	2.83
VAT-K36R_BLW04B12 / Blackwater River - Lower Middle / From Industrial Waste Ponds near Isle of Wight and Suffolk line to US-58.	5A	Mercury in Fish Tissue	2004	L	0.70
VAT-K36R_BLW04C12 / Blackwater River - Lower Middle / South of the Isle of Wight / Suffolk line beginning at Rt 58 downstream to Cox Landing	5A	Mercury in Fish Tissue	2012	L	4.07
VAT-K36R_BLW05A08 / Blackwater River - Lower / From Cox Landing downstream to downstream to VA/NC state line	5A	Mercury in Fish Tissue	2004	L	5.11
VAT-K36R_BLW06A20 / Blackwater River - Lower Middle / Blackwater River south of Route 58 and north of South Quay Road.	5A	Mercury in Fish Tissue	2012	L	0.69
VAT-K36R_CRW01A18 / Corrowaugh Swamp / Trib to Blackwater North of Route 619 upstream near Dardens Pond and Route 611	5A	Mercury in Fish Tissue	2008	L	5.87
VAT-K36R_CYS01A12 / Cypress Swamp / Swamp off of Blackwater River. From Town of Sedley downstream to Route 611.	5A	Mercury in Fish Tissue	2008	L	5.17
VAT-K36R_DKS01A10 / Ducks Swamp / From confluence with Jenkins Swamp upstream to confluence with Corrowaugh Swamp -north of Walters and Aqueduct.	5A	Mercury in Fish Tissue	2008	L	2.61

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_WAC01A08 / Washole Creek / Segment at the confluence of Blackwater. East of Franklin Sewage Disposal. South of US Hwy 58.	5A	Mercury in Fish Tissue	2008	L	0.55
VAT-K36R_XGI01A08 / Unsegmented Tributary to Blackwater / Unsegmented river from Blackwater south of Franklin and north of State Hwy 58	5A	Mercury in Fish Tissue	2008	L	2.76
VAT-K36R_ZZZ01A00 / Unsegmented rivers in K36R (not PWS area) / Evaluated non-segmented rivers in K36 (excluding Corrowaugh Swamp), located downstream of Norfolk raw water intake located southeast of Burdette (on Blackwater R).	5A	Mercury in Fish Tissue	2008	L	308.86
VAT-K36R_ZZZ01B00 / Unsegmented rivers in K36R (PWS area) / The evaluated tributaries to Blackwater River (including Corrowaugh Swamp), located within 5 mi upstream from Norfolk raw water intake located southeast of Burdette (on Blackwater R). From end of K36 (RM 35.0) downstream to RM 27.0.	5A	Mercury in Fish Tissue	2008	L	68.05
VAT-K36R_ZZZ01C18 / UT to Blackwater / Trib to Blackwater River in Franklin South of 258 to headwaters near Clay St	5A	Mercury in Fish Tissue	2008	L	3.21

Blackwater River Basin

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1800.39

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-15-BAC** Spring Branch, UT (XAW)

Cause Location: The unnamed tributary from its headwaters to its mouth at Spring Branch.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the UT was assessed as not supporting of the Recreation Use due to E. coli exceedances at the Route 460 bridge (5AXAW000.19). The stream is located within the study area for the Blackwater River Bacterial TMDL, which was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The impairment will be addressed during implementation; therefore, it is considered nested (Category 4A.)

The exceedance rate was 20/53 during the 2014 cycle. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XAW01A08 / Spring Branch, UT / Headwaters to mouth at Spring Branch.	4A	Escherichia coli (E. coli)	2010	L	1.07

Spring Branch, UT (XAW)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.07

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-16-BAC** **Spring Branch, UT (XAL)**

Cause Location: The unnamed tributary from its headwaters to its mouth at Spring Branch.

Cause City/County: Prince George County; Surry County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributary was impaired of the Recreation Use due to E. coli exceedances at 5AXAL000.02. The stream is located within the study area for the Blackwater River Bacterial TMDL, which was approved by the EPA on 7/9/2010 and by the SWCB on 9/30/2010. The impairment will be addressed during implementation; therefore, it is considered nested (Category 4A.) The exceedance rate was 7/24 during the 2014 cycle.

During the 2018 cycle the segment remained impaired with exceedance rates of 16/22 at 5AXAW000.19. During the 2022 cycle no new data was collected.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XAL01A08 / Spring Branch, UT / Headwaters to mouth at Spring Branch.	4A	Escherichia coli (E. coli)	2012	L	0.72

Spring Branch, UT (XAL)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.72

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K32R-18-BEN** **Blackwater River, UT**

Cause Location: Unnamed tributary XFM from its headwaters to its mouth at Blackwater River

Cause City/County: Sussex County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2008 cycle, the tributary was assessed as not supporting the Aquatic Life Use due to impairment of the benthic community at station 5AXFM000.88, which is located at the Route 613 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-K32R_XFM01A08 / Blackwater River, UT / Headwaters to mouth at Blackwater River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.14

Blackwater River, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.14

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K33R-02-BAC** **Blackwater River - Middle**

Cause Location: This cause encompasses the middle portion of Blackwater River from Rt 460 bridge crossing, RM 40.22 to downstream approx. halfway between Station 5ABLW040.22 and Station 5ABLW038.69.

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli data from station 5ABLW040.22 was marked as insufficient (3 exc/ 34 samp) for the 2022 IR due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Recreation Use retains the impaired status based on data from the 2020 IR.

The Recreation Use is impaired based on the E.coli bacteria data (7 exc/ 33 samp) at DEQ (AQM) station 5ABLW040.22 from the 2020 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K33R_BLW02A04 / Blackwater River - Middle / Middle portion of Blackwater River within watershed, from Rt 460 bridge crossing, RM 40.22 to downstream approx. halfway between Station 5ABLW040.22 and Station 5ABLW038.69.	5A	Escherichia coli (E. coli)	2012	L	1.04

Blackwater River - Middle

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.04

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K33R-02-BEN** **Blackwater River - Upper**

Cause Location: This cause encompasses the upper portion of Blackwater R. in K33. Starts at the Rt 617 crossing (Walls Bridge, RM 58.22) downstream to above Rt 460 crossing @ Zuni (RM 40.23).

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Benthic impairment is retained from 2008 Assessment. No new benthic data within the assessment window. Previous impairment is from benthic data collected at stations 5ABW052.91 and 5ABW055.26. Station Metrics in 2002 for station 52.91 and 2001 for 55.26 in the Spring and Fall were classified as moderately impaired with low DO and swamp conditions.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K33R_BW01A00 / Blackwater River - Upper / Upper portion of Blackwater R. in K33. Starts at the Rt 617 crossing (Walls Bridge, RM 58.22) downstream to above Rt 460 crossing @ Zuni (RM 40.23).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	19.11

Blackwater River - Upper

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.11

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: K33R-03-BEN Blackwater River - Lower and Burnt Mills Swamp

Cause Location: This cause encompasses the lower portion of the Blackwater River from RM 39.34 to the confluence with Antioch Swamp as well as the entirety of Burnt Mills Swamp

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: There is no new data to assess in the 2022 IR cycle.

Benthic impairment identified at DEQ (ProbMon) station 5ABLW038.69. Station 5ABLW038.69 Benthic IM [MI: S&F '05] and 5ABMS000.80 [VI: S&F 10].

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K33R_BLW03A08 / Blackwater River - Lower / Lower portion of Blackwater River within watershed, from RM 39.34 downstream of confluence with Antioch Swamp (RM 35.22)].	5A	Benthic Macroinvertebrates Bioassessments	2008	L	4.19
VAT-K33R_BMS01A12 / Burnt Mills Swamp / At confluence of Antioch Swamp to Route 258.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	5.17

Blackwater River - Lower and Burnt Mills Swamp

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.36

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K34R-01-BAC** Mill Swamp

Cause Location: Located northwest of Raynor, upstream tributary to Rattlesnake Swamp. Segment begins at confluence of Moores Swamp with Mill Swamp (mile 16.78) downstream to confluence with Rattlesnake Swamp (mile 0.0).

Cause City/County: Isle Of Wight County; Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 2022 IR cycle lists E. coli as insufficient with 2 exceedances out 12 samples due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. The impaired status is retained from the 2020 IR.

Recreation Use is impaired based on E.coli data with 8 exceedances out of 24 samples at DEQ (AQM) station 5AMSW006.77 from the 2020 IR.

A Bacterial TMDL for the Chowan Study Area was developed and EPA approved on 10/14/2005 (VAT-K34R-01).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K34R_MSW01A00 / Mill Swamp / Located northwest of Raynor, upstream tributary to Rattlesnake Swamp. Segment begins at confluence of Moores Swamp with Mill Swamp (mile 16.78) downstream to confluence with Rattlesnake Swamp (mile 0.0).	4A	Escherichia coli (E. coli)	2010	L	8.45

Mill Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.45

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: K34R-02-BAC Rattlesnake Swamp

Cause Location: This cause encompasses Rattlesnake Swamp Segment from confluence of Pouches Swamp downstream to watershed boundary K33/K34.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E.coli bacteria data is impaired with 7 exceedances out of 34 samples at DEQ (AQM) station @ 5ARKN006.40 due to 2 or more STV hits in the same 90-day period with < 10 samples.

A Bacterial TMDL for the Chowan Study Area was developed and EPA approved on 10/14/2005 (VAT-K34R-01). This TMDL includes Rattlesnake (Creek) Swamp, Mill Swamp, Cypress Swamp, Nottoway River, Little Nottoway River, Big Hounds Creek, Beaverpond Creek, Sappony Creek, and Raccoon Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K34R_RKN01A02 / Rattlesnake Swamp K34 / Located northwest of Raynor. Rattlesnake Swamp Segment from confluence of Pouches Swamp downstream to watershed boundary K33/K34.	4A	Escherichia coli (E. coli)	2010	L	6.43

Rattlesnake Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.43

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K35L-01-DO** **Airfield Pond**

Cause Location: This cause encompasses the Pond north of Lightwood Swamp, off of State Route 628.

Cause City/County: Sussex County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Aquatic Life Use is impaired for dissolved oxygen based on the Class III DO water quality criteria. Data from station 5ALTD005.10 has 15 viol / 42 obs for Dissolved Oxygen.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35L_LTD01A02 / Airfield Pond / Pond north of Lightwood Swamp; off of State Route 628	5C	Dissolved Oxygen	2008	L	120.07

Airfield Pond

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	120.07	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: K35L-01-HG Airfield Pond

Cause Location: This cause encompasses all of Airfield Pond north of Lightwood Swamp, off of State Route 628.

Cause City/County: Sussex County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on Fish Tissue data from 2006 at Station 5ALTD005.10. Fish Tissue data Impaired for Hg for fish species Brown Bullhead Catfish, Largemouth Bass, Chain Pickerel, Bowfin & Bluegill Sunfish. The VDH Fish Advisory is for all of Blackwater and its tributaries as stated on 10/29/03, modified 7/27/05 and again on 8/31/07.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35L_LTD01A02 / Airfield Pond / Pond north of Lightwood Swamp; off of State Route 628	5A	Mercury in Fish Tissue	2010	L	120.07

Airfield Pond

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	120.07	

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K35R-02-BAC** **Seacock Swamp - Lower**

Cause Location: This cause encompasses the lower portion of Seacock swamp south of Doles Crossroads, west of State Hwy 600.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/5A

Cause Description: There is no new data to assess in the 2022 IR cycle.

Recreational Use impairment is retained. Need new E.coli data.
 2006 01557 / 2008 K35R-02-BAC

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_SCK03A08 / Seacock Swamp - Lower / Lower portion of Seacock Swamp south of Doles Crossroads, west of State Hwy 600.	5A	Fecal Coliform	2004	L	2.6

Seacock Swamp - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			2.6

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K35R-02-BEN** **Seacock Swamp - Lower**

Cause Location: This cause encompasses the lower portion of Seacock swamp

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: There is no new data to assess in the 2022 IR cycle.

The Aquatic Life Use is impaired based on benthic assessment at station 5ASCK003.84 Benthic IM [MI:S-'04].
 There is insufficient data to assess DO or pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_SCK03A08 / Seacock Swamp - Lower / Lower portion of Seacock Swamp south of Doles Crossroads, west of State Hwy 600.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.6

Seacock Swamp - Lower

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.6

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K35R-03-BAC** **UT Seacock Swamp**

Cause Location: This cause encompasses the UT to Seacock Swamp, PRO CAFO special study. Headwaters to confluence with Seacock Swamp mainstem.

Cause City/County: Surry County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/5A

Cause Description: There is no new data to assess in the 2022 IR cycle.

Recreational Use is not supported based on data over 5 years old (2004 IR FC data: 6 exc/ 7 samp.) at 5AXDY000.96. The impaired status was retained from previous Fecal Coliform data. Confined animal operations are present in the watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_XDY01A04 / UT Seacock Swamp / UT to Seacock Swamp, PRO CAFO special study. Headwaters to confluence with Seacock Swamp mainstem.	5A	Fecal Coliform	2004	L	1.02

UT Seacock Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			1.02

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K35R-05-BAC** **UT Airfield Pond - Upper**

Cause Location: This cause encompasses UT to Airfield Pond, PRO CAFO special study. Headwaters to confluence with UT VAT-K35R_XDZ02A04.

Cause City/County: Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli data was insufficient from the 2022 IR at Station 5AXDZ001.73 with 1 exceedance out of 6 samples due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. E. coli retains the impaired status based on 2015 E. coli data from Station 5AXDZ001.73 with 2 exc/ 6 samp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_XDZ01A04 / UT Airfield Pond - Upper / UT to Airfield Pond, PRO CAFO special study. Headwaters to confluence with UT VAT-K35R_XDZ02A04.	5A	Escherichia coli (E. coli)	2004	L	0.68

UT Airfield Pond - Upper

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.68

Sources: Animal Feeding Operations (NPS); Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: K35R-06-BAC Seacock Swamp - Upper and Lower

Cause Location: This cause encompasses the upper portion of Seacock Swamp between Drumwright Pond and approximately 0.2 mi east of Rt. 628 and lower Seacock Swamp between the confluence of Brantley Swamp and the confluence with Round Hill Swamp.

Cause City/County: Southampton County; Surry County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: There is no new data to assess for station 5ASCK018.65 in the 2022 IR cycle.

E.coli is impaired based on data at Station 5ASCK006.96 with 9 exceedances out of 34 samples, as there are 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_SCK01A00 / Seacock Swamp - Upper / Located west of Rt 460, south of Sussex - Southampton Co. line. Upper portion of Seacock Swamp, from Drumwright Pond downstream to confluence with unnamed tributary, approx. 0.1 mi downstream of Rt 628 crossing.	5A	Fecal Coliform	2006	L	0.85

Seacock Swamp - Upper and Lower

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.85

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_SCK02A08 / Seacock Swamp - Lower / Located west of Rt 460 south of Ivor. Lower portion of Seacock Swamp, from confluence with Brantley Swamp (RM 8.73) downstream below State Hwy 614.	5A	Escherichia coli (E. coli)	2012	L	2.5

Seacock Swamp - Upper and Lower

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.5

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: K35R-07-BAC Roundhill Swamp

Cause Location: Round Hill Swamp from the confluence of Horsepen Branch and Indigo Branch, north of Round Hill Road, west of Appleton Road.

Cause City/County: Southampton County; Surry County; Sussex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli data from the 2022 IR states there are 0 exceedances out of 12 samples and is given the status of insufficient due to no STV exceedances but insufficient data to analyze geomean. E. coli retains the status of impaired. E. coli is impaired from data collected at Station 5ARHS004.20 (2 exc / 12 samp) from the 2020 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_RHS03A20 / Roundhill Swamp / Round Hill Swamp from the confluence of Horsepen Branch and Indigo Branch, north of Round Hill Road, west of Appleton Road.	5A	Escherichia coli (E. coli)	2020	L	4.03

Roundhill Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.03

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K35R-08-BEN** Round Hill Swamp

Cause Location: The cause encompasses Round Hill Swamp between the confluence with Seacock Swamp and Rt. 623

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Aquatic Life Use is impaired based on benthic impairments (Benthic ProbMon-Benthic IM [MI:S-'05] at station 5ARHS000.39.

2008 K35R-08-BEN

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K35R_RHS01A08 / Round Hill Swamp / Confluence of Seacock Swamp between State Route 614 and State Route 623	5A	Benthic Macroinvertebrates Bioassessments	2008	L	0.64

Round Hill Swamp

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.64

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: K36R-01-DO Blackwater - Lower Middle

Cause Location: Segment includes water from west of Franklin Municipal Airport downstream to Cox Landing downstream to RM 0.65 (at Suffolk City & Gates County line).

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The Aquatic Life Use impairment is retained. The DO impairment is Cat 4C based on EPA approval letter dated April 8, 2010 to confirm all six Blackwater segments are impaired due to natural conditions and therefore move to Category 4C. DO data within the 2022 IR cycle is impaired (9 exc/ 31 samp). In the EPA approval letter, "it is EPAs understanding that VADEQ will request that Blackwater River (Middle, Lower-Middle, Lower. Mouth) be formally reclassified as a Class VII Swamp Water during the next triennial review of the Virginia's Water Quality Standards". Water remain in Class II with a Cat 4C until Triennial Review.

Station 5ABLW014.28 DO (12 exc/ 31 samp) and 5ABLW014.88 DO (11 exc/ 31 samp).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLW02A08 / Blackwater River - Middle / Segment includes water from east of Edgehill to west of the Franklin Municipal John Beverly Rose Airport.	4C	Dissolved Oxygen	NA	NA	3.86
VAT-K36R_BLW03A08 / Blackwater River - Middle / Segment begins west of the Franklin Municipal John Beverly Rose Airport and ends at the Blackwater Landing in Franklin.	4C	Dissolved Oxygen	NA	NA	2.24
VAT-K36R_BLW05A08 / Blackwater River - Lower / From Cox Landing downstream to downstream to VA/NC state line	4C	Dissolved Oxygen	NA	NA	5.11

Blackwater - Lower Middle

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			11.21

Sources: Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-02-BEN** **Black Creek**

Cause Location: This cause encompasses the Black Creek Located NW of Burdette. From Wades Pond downstream to mouth. Tributary to Blackwater R. with confluence at RM 22.0.

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained based on the Benthic data collected at Station 5ABLC000.88 (Benthic ProbMon-Benthic IM [MI:F-'03, VI:S-'03]).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLC01A06 / Black Creek / Located NW of Burdette. From Wades Pond downstream to mouth. Tributary to Blackwater R. with confluence at RM 22.0.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	4.96

Black Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.96

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: K36R-02-DO Blackwater River - Lower Middle

Cause Location: This cause encompasses the area from RM 13.76 (downstream of Franklin, confluence of UT, parallel to Hayden High School) downstream west of Union Camp Holding Pond.

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The Aquatic Life Use is impaired based on DO data at DEQ (AQM) stations @ 5ABLW002.54 (5 exceedances / 11 observations), 5ABLW009.14 (15 exceedances / 45 observations), 5ABLW009.80 (11 exceedances / 31 observations), 5ABLW012.28 (12 exceedances / 31 observations), 5ABLW013.16 (11 exceedances / 28 observations), 5ABLW014.28 (12 exceedances / 31 observations), 5ABLW014.88 (11 exceedances / 31 observations), 5ABLW016.27 (9 exceedances / 31 observations), 5AWAC000.03 (11 exceedances / 31 observations), 5BLW-D0001800-NCDEQ (35 exceedances / 103 observations). DO impairment is Cat 4C based on EPA approval letter dated April 15, 2010 to confirm all six Blackwater segments are impaired due to natural conditions and therefore move to Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLW04A08 / Blackwater River - Lower Middle / From Blackwater Landing in Franklin the southern end of the industrial waste ponds in Isle of Wight.	4C	Dissolved Oxygen	NA	NA	2.83
VAT-K36R_BLW04B12 / Blackwater River - Lower Middle / From Industrial Waste Ponds near Isle of Wight and Suffolk line to US-58.	4C	Dissolved Oxygen	NA	NA	0.70
VAT-K36R_BLW04C12 / Blackwater River - Lower Middle / South of the Isle of Wight / Suffolk line beginning at Rt 58 downstream to Cox Landing	4C	Dissolved Oxygen	NA	NA	4.07
VAT-K36R_BLW06A20 / Blackwater River - Lower Middle / Blackwater River south of Route 58 and north of South Quay Road.	4C	Dissolved Oxygen	NA	NA	0.69

Blackwater River - Lower Middle

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.29

Sources: Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-03-BAC** Black Creek- Upper

Cause Location: This cause encompasses the upper portion of Black Creek parallel with State Route 503. Southeast of Whitefields Millpond and Johnson Millpond.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E.coli data collected at station 5ABLC006.97 is impaired with 3 exceedances out of 12 samples, due to there being 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLC02A10 / Black Creek - Upper / Segment parallel with State Route 503. Southeast of Whitefields Millpond and Johnson Millpond.	5A	Escherichia coli (E. coli)	2010	L	3.29

Black Creek- Upper

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.29

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-03-DO** **Washole Creek**

Cause Location: This cause encompasses the area at the confluence of Blackwater. East of Franklin Sewage Disposal. South of US Hwy 58.

Cause City/County: Isle Of Wight County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The Aquatic Life Use is impaired based on DO data (10 violations / 33 observations) at station 5AWAC000.03. The DO impairment is Cat 4C based on EPA approval letter dated April 15, 2010 to confirm all six Blackwater segments are impaired due to natural conditions and therefore move to Category 4C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_WAC01A08 / Washole Creek / Segment at the confluence of Blackwater. East of Franklin Sewage Disposal. South of US Hwy 58.	4C	Dissolved Oxygen	NA	NA	0.55

Washole Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.55

Sources: Natural Sources

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-04-BAC** Cypress Swamp

Cause Location: This cause encompasses Cypress Swamp from town of Sedley downstream to Route 611.

Cause City/County: Isle Of Wight County; Southampton County; Suffolk

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is impaired based on 2 or more STV hits in the same 90-day period with < 10 samples at Station 5ACYS001.92.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_CYS01A12 / Cypress Swamp / Swamp off of Blackwater River. From Town of Sedley downstream to Route 611.	5A	Escherichia coli (E. coli)	2012	L	5.17

Cypress Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.17

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-04-BEN** Unsegmented Tributary to Blackwater

Cause Location: This cause encompasses the Unsegmented River from Blackwater South of Franklin to North of State Hwy 58.

Cause City/County: Southampton County; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on Benthic Impairments. The Benthic ProbMon is impaired at station 5AXGI001.79 (X-Trib to Blackwater River). Spring Score 2007 = 16.4, Fall Score 2007 = 8.9.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_XGI01A08 / Unsegmented Tributary to Blackwater / Unsegmented river from Blackwater south of Franklin and north of State Hwy 58	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.76

Unsegmented Tributary to Blackwater

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.76

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-07-BAC** **Blackwater River - Upper**

Cause Location: This cause encompasses the Blackwater River segment north of Maynards Crossroads and State Hwy 630 and ends at Joyners Bridge

Cause City/County: Isle Of Wight County; Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: E. coli data saw an observed effect with 3 exceedances out of 43 samples and 0 geomean exceedances out of 5 geomean samples. The observed effect is due to no geomean exceedances and only 1 STV exceedance in one or multiple 90-day periods represented by < 10 samples. E. coli impairment was retained from the 2016 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLW02B08 / Blackwater River - Upper / Segment begins north of Maynards Crossroads and State Hwy 630 and ends at Joyners Bridge.	5A	Escherichia coli (E. coli)	2016	L	2.47

Blackwater River - Upper

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.47

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-08-BAC Ducks Swamp**

Cause Location: This cause encompasses the area from the confluence with Jenkins Swamp upstream to confluence with Corroaugh Swamp -north of Walters and Aqueduct.

Cause City/County: Isle Of Wight County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use is not supported based on data collected at station 5ADKS000.09 (2 or more STV hits in the same 90-day period with < 10 samples). Station was supporting based on Ecoli in the 2016 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_DKS01A10 / Ducks Swamp / From confluence with Jenkins Swamp upstream to confluence with Corroaugh Swamp -north of Walters and Aqueduct.	5A	Escherichia coli (E. coli)	2018	L	2.61

Ducks Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.61

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K36R-09-BAC** **Black Creek**

Cause Location: Located NW of Burdette. From Wades Pond downstream to mouth. Tributary to Blackwater R. with confluence at RM 22.0.

Cause City/County: Southampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station 5ABLC002.00 had an observed effect with 1 exceedance out of 1 sample and station 5ABLC002.55 had an observed effect with 1 exceedance out of 12 samples. This gives the status of insufficient to both stations due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. E. coli retains the impaired status from the 2020 IR. There is currently no TMDL to account for the E. coli impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K36R_BLC01A06 / Black Creek / Located NW of Burdette. From Wades Pond downstream to mouth. Tributary to Blackwater R. with confluence at RM 22.0.	5A	Escherichia coli (E. coli)	2020	L	4.96

Black Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.96

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K37R-01-PH** **Buckhorn Creek**

Cause Location: This cause encompasses all of Northern Branch of Buckhorn Creek (within Virginia).

Cause City/County: Southampton County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/4C

Cause Description: The Aquatic Life Use is impaired due to depressed pH concentrations, impairment continued from 2004 IR at DEQ (AQM) station @ 5AXDN000.48 (segment Class change from III to VII, can not delist previous impairments since no current data). A natural conditions report is complete that determined the pH impairment was not influenced by anthropogenic sources.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K37R_XDN01A00 / Buckhorn Creek / All of Northern Branch of Buckhorn Creek (within Virginia).	4C	pH	NA	NA	1.53

Buckhorn Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.53

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K38R-01-BEN** Somerton Creek

Cause Location: This cause encompasses the area of Somerton Creek from 5 miles upstream from monitoring station (RM 10.36) downstream to VA/NC state line.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on the Benthic Impairments at Station 5ASTN008.78. Station 5ASTN008.78 Benthic IM [MI:F-'04].

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K38R_STN01A00 / Somerton Creek / Somerton Creek from 5 miles upstream from monitoring station (RM 10.36) downstream to VA/NC state line.	5A	Benthic Macroinvertebrates Bioassessments	2006	L	9.39

Somerton Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.39

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K38R-02-BAC** March Swamp

Cause Location: This cause encompasses entirety of March Swamp. Northeast of Factory Hill. Northern tributary to Somerton Creek.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is impaired based on E.coli data at DEQ (AQM) station @ 5AMAR001.65 with 1 exceedance / 9 observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K38R_MAR01A06 / March Swamp / Northeast of Factory Hill. Northern tributary to Somerton Creek. Entirety of swamp.	5A	Escherichia coli (E. coli)	2008	L	7.72

March Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.72

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K38R-04-BAC** Jones Swamp

Cause Location: This cause encompasses from Spivey Swamp near Rt. 643 (Arthur Dr) upstream to confluence with Quaker Swamp near Route 664.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use was impaired for E. coli in the 2020 IR cycle. Due to a water quality standard change, the E. coli data at station 5A.JNS001.89 now has insufficient information - one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. The impairment will carry over for this IR cycle until there is enough data to assess its status.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K38R_JNS01A14 / Jones Swamp - Lower / Trib to Spivey Swamp near Rt. 643 (Arthur Dr) upstream to confluence with Quaker Swamp near Route 664.	5A	Escherichia coli (E. coli)	2014	L	3.8

Jones Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.8

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K38R-06-BAC** Somerton Creek

Cause Location: This cause encompasses Somerton Creek from 5 miles upstream from monitoring station (RM 10.36) downstream to VA/NC state line.

Cause City/County: Suffolk

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is impaired for the current cycle based on E.coli data at DEQ (AQM) station 5ASTN008.78. There were 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K38R_STN01A00 / Somerton Creek / Somerton Creek from 5 miles upstream from monitoring station (RM 10.36) downstream to VA/NC state line.	5A	Escherichia coli (E. coli)	2016	L	9.39

Somerton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.39

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K38R-07-DO** **Jones Swamp**

Cause Location: This cause encompasses the Trib to Spivey Swamp from Rt. 643 (Arthur Dr) upstream to confluence with Quaker Swamp near Route 664.

Cause City/County: Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The Aquatic Life Use is not supported based on DO data collected at station 5AJNS001.89 with 15 exceedances / 23 observations. Impairment is suspected to be natural conditions.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K38R_JNS01A14 / Jones Swamp - Lower / Trib to Spivey Swamp near Rt. 643 (Arthur Dr) upstream to confluence with Quaker Swamp near Route 664.	5C	Dissolved Oxygen	2018	L	3.8

Jones Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.8

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K39L-01-HG** **Lake Drummond**

Cause Location: This cause encompasses the entirety of lake Drummond within the Great Dismal Swamp National Wildlife Refuge. Located on City of Suffolk/City of Chesapeake boundary near NC state line.

Cause City/County: Chesapeake; Suffolk

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on the VDH fish consumption advisory for Bowfin and Chain Pickerel (issued 10/2003 & modified 7/27/05, 8/31/2007 recommending no more than two meals/month due to Hg reported in fish tissue).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39L_LKD01A06 / Lake Drummond / Within the Great Dismal Swamp National Wildlife Refuge. Located on City of Suffolk/City of Chesapeake boundary near NC state line. Entirety of lake.	5A	Mercury in Fish Tissue	2006	L	3241.97

Lake Drummond

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		3241.97	

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K39L-01-PH** **Lake Drummond**

Cause Location: This cause encompasses the entirety of lake Drummond within the Great Dismal Swamp National Wildlife Refuge. Located on City of Suffolk/City of Chesapeake boundary near NC state line.

Cause City/County: Chesapeake; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The Aquatic Life Use is impaired based on the pooled pH exceedance of the criteria for this parameter with a violation rate of 100% (113 violates/113 obs.).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39L_LKD01A06 / Lake Drummond / Within the Great Dismal Swamp National Wildlife Refuge. Located on City of Suffolk/City of Chesapeake boundary near NC state line. Entirety of lake.	5C	pH	2008	L	3241.97

Lake Drummond

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		3241.97	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: K39R-01-HG Dismal Swamp Canal and Feeder Ditch to Lake Drummond

Cause Location: This cause encompasses the Dismal Swamp Canal from Deep Creek Locks to VA/NC state line and including Feeder Ditch to Lake Drummond and unsegmented rivers in K39R.

Cause City/County: Chesapeake

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on the VDH fish consumption advisory for Bowfin and Chain Pickerel (issued 10/2003 & modified 7/27/05, recommending no more than two meals/month due to Hg reported in fish tissue).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_XCK01A00 / Dismal Swamp Canal & Feeder Ditch to Lake Drummond / Dismal Swamp Canal from Deep Creek Locks to VA/NC state line and including Feeder Ditch to Lake Drummond.	5A	Mercury in Fish Tissue	2004	L	13.22

Dismal Swamp Canal and Feeder Ditch to Lake Drummond

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			13.22

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K39R-02-HG** Unsegmented rivers in K39R

Cause Location: This cause encompasses the non-segmented rivers-feeder ditches within K39.

Cause City/County: Chesapeake; Suffolk

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish Consumption Use impairment for Mercury is retained for 2018 IR. Monitoring data at Station 5B-GDS-ED is from 2005. The feeder ditches flow to Lake Drummond which is impaired for Fish Consumption based on a VDH Fish Consumption Advisory.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_ZZZ01B08 / Unsegmented rivers in K39R / Evaluated non-segmented areas of K39. majority of waters are feeder ditches to Lake Drummond.	5A	Mercury in Fish Tissue	2010	L	15.29

Unsegmented rivers in K39R

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.29

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K39R-03-BAC** Adams Swamp

Cause Location: This cause encompasses the Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.

Cause City/County: Chesapeake; Suffolk

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use is impaired based on E. coli data collected at station 5BADA002.34 with 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_ADA01A18 / Adams Swamp / Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.	5A	Escherichia coli (E. coli)	2018	L	3

Adams Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K39R-03-DO** **Adams Swamp**

Cause Location: This cause encompasses the Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.

Cause City/County: Chesapeake; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The Aquatic Life Use is impaired based on pH and DO data collected at station 5BADA002.34. Data collected at the station has 15 exceedances / 23 observations for DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_ADA01A18 / Adams Swamp / Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.	5C	Dissolved Oxygen	2018	L	3

Adams Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K39R-03-PH** Adams Swamp

Cause Location: This cause encompasses the Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.

Cause City/County: Chesapeake; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The Aquatic Life Use is impaired based on pH and DO data collected at station 5BADA002.34. Data collected at the station has 9 exceedances / 23 observations for pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_ADA01A18 / Adams Swamp / Swamp in its entirety located in Suffolk from NC/VA border near Route 673 to headwaters.	5C	pH	2018	L	3

Adams Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Natural Sources

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K39R-04-DO** Cypress Swamp

Cause Location: Cyprus Swamp from the confluence of Council Swamp and Dragon Swamp eastward to West Ditch.

Cause City/County: Chesapeake; Suffolk

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired due to DO data collected at Station 5BCYS001.65 (7 exceedances / 12 observations).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K39R_CYS01A20 / Cypress Swamp / Cyprus Swamp from the confluence of Council Swamp and Dragon Swamp eastward to West Ditch.	5A	Dissolved Oxygen	2020	L	4.56

Cypress Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.56

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-01-DO** **Unnamed tributary to Northwest River**

Cause Location: This cause encompasses the Unnamed trib to Northwest River from St Brides Rd crossing to confluence with Northwest River. Within PWS area.

Cause City/County: Chesapeake

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: Aquatic Life Use impairment is due to low dissolved oxygen concentrations (20 exceedances / 33 observations) at DEQ (AQM) station @ 5BXAM000.60. A Total Maximum Daily Load was developed for the Northwest River Watershed for Total Phosphorus due to Low Dissolved Oxygen. EPA Approved 4/26/2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_XAM01A02 / Unnamed tributary to Northwest River (PWS) / Unnamed trib to Northwest River from St Brides Rd crossing to confluence with Northwest River. Within PWS area.	4A	Dissolved Oxygen	2002	L	4.07

Unnamed tributary to Northwest River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.07

Sources: Contaminated Groundwater; Municipal Point Source Discharges; Non-Point Source; Runoff from Forest/Grassland/Parkland

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-02-BAC** Northwest River - Middle (PWS)

Cause Location: This cause encompasses Northwest River from RM 16.63 (start of PWS) to RM 12.0 near 168 . Upstream of Pine Grove Lane, downstream to 168.

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use impairment is retained based on E. coli data from stations 5BNTW012.14 and 5BNTW012.86 with 7viol / 33 obs and 0 viol / 1 obs. For the 2022 assessment cycle, there were no STV exceedances but insufficient data to analyze geomean for station 5BNTW012.14, and there was one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean for station 5BNTW012.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_NTW02A00 / Northwest River - Middle (PWS) / Northwest River from RM 16.63 (start of PWS) to RM 12.0 near 168 . Upstream of Pine Grove Lane, downstream to 168.	5A	Escherichia coli (E. coli)	2006	L	5.69

Northwest River - Middle (PWS)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.69

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-04-BAC** Northwest River - Lower (PWS)

Cause Location: Northwest River from 168 to the Indian Creek Confluence

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description:

The Recreation Use is impaired in the 2020 IR cycle due to impaired E. coli data collected at Stations 5BNTW009.49, 5BNTW010.23, and 5BNTW011.90 ((4 viol / 33 obs), (4 viol / 33 obs), (4 viol, 33 obs)).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_NTW03A08 / Northwest River - Lower (PWS) / Northwest River from 168 to the Indian Creek Confluence	5A	Escherichia coli (E. coli)	2016	L	2.83

Northwest River - Lower (PWS)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.83

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-04-HG** Northwest River - Middle

Cause Location: This cause encompasses the Northwest River from RM 16.63 (start of PWS) to RM 12.0 near 168 . Upstream of Pine Grove Lane, downstream to 168.

Cause City/County: Chesapeake

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on FT data collected at Station 5BNTW011.90. The mercury Fish Tissue Value was violated in 2007 (07-IM- FT_Met Hg Largemouth Bass & Bowfin).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_NTW02A00 / Northwest River - Middle (PWS) / Northwest River from RM 16.63 (start of PWS) to RM 12.0 near 168 . Upstream of Pine Grove Lane, downstream to 168.	5A	Mercury in Fish Tissue	2010	L	5.69

Northwest River - Middle

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			5.69

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-06-DO** **Indian Creek tributary to Northwest River**

Cause Location: This cause encompasses the area from the St. Brides Rd. crossing downstream to the confluence with the Northwest River. Located southeast of Saint Brides.

Cause City/County: Chesapeake

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life Use impairment is due to low dissolved oxygen concentrations (9 exceedances / 35 observations) at DEQ (AQM) stations @ 5BIND001.15. Not determined to be natural conditions therefore a TMDL was completed and EPA approved 4/26/2011 that assigned a TP endpoint for the DO impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_IND01A02 / Indian Creek tributary to Northwest River / From the St. Brides Rd. crossing downstream to the confluence with the Northwest River. Located southeast of Saint Brides.	4A	Dissolved Oxygen	2002	L	3.46

Indian Creek tributary to Northwest River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.46

Sources: Contaminated Groundwater; Municipal Point Source Discharges; Non-Point Source; Runoff from Forest/Grassland/Parkland

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-08-BAC** Unnamed tributary to Northwest River (PWS)

Cause Location: Unnamed trib to Northwest River from St Brides Rd crossing to confluence with Northwest River. Within PWS area.

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use is impaired due to E. coli data collected at Station at 5BXAM000.60 with 2 or more STV hits in the same 90-day period with < 10 samples..

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_XAM01A02 / Unnamed tributary to Northwest River (PWS) / Unnamed trib to Northwest River from St Brides Rd crossing to confluence with Northwest River. Within PWS area.	5A	Escherichia coli (E. coli)	2006	L	4.07

Unnamed tributary to Northwest River (PWS)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.07

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K40R-09-BAC** Indian Creek tributary to Northwest River

Cause Location: From the St. Brides Rd. crossing downstream to the confluence with the Northwest River. Located southeast of Saint Brides.

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is retained from the 2020 IR. The segment was impaired based on E.coli data collected at station 5BIND001.15 with 9 viol/ 34 obs. For the 2022 IR cycle, there was one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K40R_IND01A02 / Indian Creek tributary to Northwest River / From the St. Brides Rd. crossing downstream to the confluence with the Northwest River. Located southeast of Saint Brides.	5A	Escherichia coli (E. coli)	2006	L	3.46

Indian Creek tributary to Northwest River

Recreation	Estuary (Sq. Miles) Reservoir (Acres) River (Miles) Escherichia coli (E. coli) - Total Impaired Size by Water Type: 3.46
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-01-BEN** **Pocaty River**

Cause Location: This cause encompasses the Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.

Cause City/County: Chesapeake; Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained based on benthic impairment. Data collected at station 5BPCT002.16 MI: S-03 and VI : F-03.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_PCT01A02 / Pocaty River / Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	7.43

Pocaty River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.43

Sources: Crop Production (Crop Land or Dry Land); Non-Point Source; Source Unknown; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-01-DO** **Pocaty River**

Cause Location: This cause encompasses the Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.

Cause City/County: Chesapeake; Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life Use is impaired based on low dissolved oxygen concentrations. The cause of the depressed dissolved oxygen concentrations is suspected to be naturally occurring. DO violates 25 exceedances / 43 observations at Station 5BPCT001.79

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_PCT01A02 / Pocaty River / Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.	4A	Dissolved Oxygen	2002	L	7.43

Pocaty River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			7.43

Sources: Crop Production (Crop Land or Dry Land); Non-Point Source; Source Unknown; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-02-BAC** Milldam Creek - Lower

Cause Location: This cause encompasses the tidally influenced portion of Milldam Creek from Blackwater Rd. crossing (RM 1.92) to confluence with North landing River @ RM 0.00.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired due to E.coli data with 2 or more STV exceedances in the same 90-day period with < 10 samples, no geomean exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_MLD02A06 / Milldam Creek - Lower / Tidally influenced portion of Milldam Creek from Blackwater Rd. crossing (RM 1.92) to confluence with North landing River @ RM 0.00.	4A	Escherichia coli (E. coli)	1998	L	2.55

Milldam Creek - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.55

Sources: Agriculture; Confined Animal Feeding Operations (NPS); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-02-DO** Milldam Creek - Lower

Cause Location: This cause encompasses the tidally influenced portion of Milldam Creek from Blackwater Rd. crossing (RM 1.92) to confluence with North Landing River @ RM 0.00.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: Aquatic Life Use is impaired due to low dissolved oxygen concentrations (18 exceedances / 45 observations) at DEQ (AQM) station 5BMLD001.92.

A Stressor Report was developed for the Dissolved Oxygen Assessment for Virginia Beach (Albemarle Canal/ North Landing River, Milldam Creek, West Neck Creek (middle), and Nawney Creek). EPA Approved letter for 4A 12/14/2010. It was determined that the approved bacterial TMDL should significantly reduce organic matter and nutrients and thus a TMDL specifically addressing DO is not required. However, if conditions do not improve through implementation of the Bacteria TMDL consideration will be given to develop an additional TMDL for DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_MLD02A06 / Milldam Creek - Lower / Tidally influenced portion of Milldam Creek from Blackwater Rd. crossing (RM 1.92) to confluence with North landing River @ RM 0.00.	4A	Dissolved Oxygen	2006	L	2.55

Milldam Creek - Lower

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.55

Sources: Grazing in Riparian or Shoreline Zones; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-03-DO** Albemarle Canal and North Landing River - Middle

Cause Location: This cause encompasses the Albemarle Canal (Intracoastal Waterway) and North Landing River from the Great Bridge Locks downstream to confluence with West Neck Creek.

Cause City/County: Chesapeake; Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: Aquatic Life Use is impaired based on 2016 WoE station 5BAAC000.49 with 2 exceedances / 2 observations for DO. There is an observed effect for DO at station 5BAAC007.85 with 1 exceedance / 5 observations. Aquatic Life Use is impaired due to low dissolved oxygen concentrations (22 exceedances / 44 observations) at DEQ (AQM) station 5BNLR013.61. EPA approved TMDL 1/13/2011 for Albemarle Canal/ North Landing River.
 1999 CD segment for DO (Attachment B) VAT-K41R-03.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_AAC01A06 / Albemarle Canal (upstream of North Landing River) / Albemarle and Chesapeake Canal (Intracoastal Waterway) from Great Bridge Locks downstream to confluence with North Landing River (RM 13.65).	4A	Dissolved Oxygen	2002	L	8.55
VAT-K41R_NLR02A06 / North Landing River - Middle / From confluence with Intracoastal Waterway (RM 13.65) downstream to instream Island (RM 12.01, upstream of confluence of West Neck Creek).	4A	Dissolved Oxygen	2006	L	2.16

Albemarle Canal and North Landing River - Middle

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			10.71

Sources: Agriculture; Contaminated Groundwater; Municipal Point Source Discharges; Non-Point Source; Runoff from Forest/Grassland/Parkland

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-05-BAC** West Neck Creek - Middle

Cause Location: This cause encompasses the segment from southside of Princess Anne Road crossing (RM 6.20) downstream to widening of creek (RM 3.10) approx. 0.55 mi downstream of Indian River Road crossing.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreation Use is retained as impaired based on Ecoli data collected at station 5BWNC003.65. More data is necessary to analyze the geometric mean. Initial impairment (2002 cycle) (TMDL ID: VAT-K41R-05) based on fecal coliform.

A Bacterial TMDL was developed for the Virginia Beach Coastal Area (London Bridge Creek & Canal # 2, Milldam Creek, Nawney Creek, West Neck Creek (Middle), and West Neck Creek (Upper)) and was approved by EPA 9/05.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_WNC01A00 / West Neck Creek - Middle / Segment from south side of Princess Anne Road crossing (RM 6.20) downstream to widening of creek (RM 3.10) near Indian River Road crossing.	4A	Escherichia coli (E. coli)	2002	L	3.4

West Neck Creek - Middle

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.4

Sources: Agriculture; Confined Animal Feeding Operations (NPS); Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-05-DO** **West Neck Creek - Middle**

Cause Location: This cause encompasses the area from southside of Princess Anne road crossing (RM 6.20) downstream to widening of creek (RM 3.10) approx. 0.55 mi downstream of Indian River Road crossing.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: Aquatic Life Use is impaired for DO (5 exceedances / 23 observations) at DEQ station 5BWNC003.65. The high nutrient and total organic solids concentrations indicate that anthropogenic sources are exacerbating the naturally low DO conditions in the stream.

A Stressor Report was developed for the Dissolved Oxygen Assessment for Virginia Beach (Albemarle Canal/ North Landing River, Milldam Creek, West Neck Creek (middle), and Nawney Creek). EPA Approved letter for 4A classification, 12/14/2010. It was determined that the approved bacterial TMDL should significantly reduce organic matter and nutrients and thus a TMDL specifically addressing DO is not required. However, if conditions do not improve through implementation of the Bacteria TMDL consideration will be given to develop an additional TMDL for DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_WNC01A00 / West Neck Creek - Middle / Segment from south side of Princess Anne Road crossing (RM 6.20) downstream to widening of creek (RM 3.10) near Indian River Road crossing.	4A	Dissolved Oxygen	2002	L	3.4

West Neck Creek - Middle

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.4

Sources: Livestock (Grazing or Feeding Operations); Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-05-PCB** West Neck Creek - Middle

Cause Location: This cause encompasses the area from southside of Princess Anne road crossing (RM 6.20) downstream to widening of creek (RM 3.10) approx. 0.55 mi downstream of Indian River Road crossing.

Cause City/County: Virginia Beach

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The Fish Consumption Use is retained as impaired based on Fish Tissue data collected at Station 5BWNC003.65. 07-IM, FT_PCB White Catfish, Carp & FT-OE, Met_As Carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_WNC01A00 / West Neck Creek - Middle / Segment from south side of Princess Anne Road crossing (RM 6.20) downstream to widening of creek (RM 3.10) near Indian River Road crossing.	5A	PCBs in Fish Tissue	2010	L	3.4

West Neck Creek - Middle

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.4

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-08-BAC** Blackwater Creek

Cause Location: This cause encompasses the area of Blackwater Creek from headwaters at RM 3.2 to confluence with North Landing River RM 0.0.

Cause City/County: Chesapeake

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use is not supported based on E. coli data collected at station 5BBKW002.50. There are 2 or more STV exceedances in the same 90-day period with < 10 samples, no geomean exceedances.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_BKW01A00 / Blackwater Creek / Blackwater Creek from headwaters at RM 3.2 to confluence with North Landing River RM 0.0.	5A	Escherichia coli (E. coli)	2006	L	4.47

Blackwater Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.47

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-09-BAC** **Pocaty River**

Cause Location: This cause encompasses Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.

Cause City/County: Chesapeake; Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is not supported based on E. coli data at Station 5BPCT001.79. There were multiple geometric mean exceedances within a 90 day period.

A Total Maximum Daily Load has been developed for the Back Bay, North Landing River, and Pocaty River Watersheds for E. coli and Enterococci due to Recreation Use Impairments and Total Phosphorus due to Low Dissolved Oxygen in Aquatic Life Use impairments. EPA approved 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_PCT01A02 / Pocaty River / Pocaty River and selected tribs. from headwaters at mile 3.92 to confluence with North Landing River at mile 0.00.	4A	Escherichia coli (E. coli)	2012	L	7.43

Pocaty River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			7.43

Sources: Agriculture

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-12-BEN** **Unnamed Trib to Milldam Creek**

Cause Location: This cause encompasses the area from the confluence with Milldam Creek to Craggs Cswy.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Aquatic Life Use is not supported based on benthic data from Station 5BXAT000.30. Benthic IM [VI:S&F-09 & S-10; MI:F-10]

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_XAT01A12 / Unnamed Trib to Milldam Creek / From Confluence with Milldam Creek to Craggs Cswy	5A	Benthic Macroinvertebrates Bioassessments	2012	L	0.67

Unnamed Trib to Milldam Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			0.67

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-12-DO** **Unnamed Trib to Milldam Creek**

Cause Location: This cause encompasses the area from the confluence with Milldam Creek to Craggs Cswy.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Aquatic Life Use is retained as impaired based DO data from Station 5BXAT000.30 with 4 exceedances / 4 observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_XAT01A12 / Unnamed Trib to Milldam Creek / From Confluence with Milldam Creek to Craggs Cswy	5A	Dissolved Oxygen	2014	L	0.67

Unnamed Trib to Milldam Creek

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				0.67

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-13-DO** **Blackwater Creek**

Cause Location: This cause encompasses Blackwater Creek from the headwaters at RM 3.2 to confluence with North Landing River RM 0.0.

Cause City/County: Chesapeake

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Aquatic Life Use is not supporting based on dissolved oxygen data collected at station 5BBKW002.50 (9 exceedances / 46 observations).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_BKW01A00 / Blackwater Creek / Blackwater Creek from headwaters at RM 3.2 to confluence with North Landing River RM 0.0.	5A	Dissolved Oxygen	2008	L	4.47

Blackwater Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.47

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-14-BAC** North Landing River - Middle

Cause Location: From confluence with Intracoastal Waterway (RM 13.65) downstream to instream Island (RM 12.01, upstream of confluence of West Neck Creek).

Cause City/County: Chesapeake; Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Recreation Use is impaired based on the E. coli data collected at Station 5BNLR013.61. One STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Additional monitoring is necessary for delisting. This is the first E. coli impairment recorded since the development of the Bacteria TMDL for this applicable watershed. An E. coli impairment was recorded in the 2006 IR cycle prior to the development of a TMDL. Therefore, this AU is nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_NLR02A06 / North Landing River - Middle / From confluence with Intracoastal Waterway (RM 13.65) downstream to instream Island (RM 12.01, upstream of confluence of West Neck Creek).	4A	Escherichia coli (E. coli)	2006	L	2.16

North Landing River - Middle

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.16

Sources: Livestock (Grazing or Feeding Operations); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K41R-15-BAC** **West Neck Creek - Lower**

Cause Location: Segment and tribes. from widening of creek (RM 3.10) approx. 0.55 mi downstream of Indian River Road crossing downstream to mouth (RM 0.0) at confluence with North Landing River.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is retained as impaired based on E. coli data collected at Station 5BWNC001.73.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K41R_WNC02A04 / West Neck Creek - Lower / Segment and tribes. from widening of creek (RM 3.10) approx. 0.55 mi downstream of Indian River Road crossing downstream to mouth (RM 0.0) at confluence with North Landing River.	5A	Escherichia coli (E. coli)	2006	L	6.12

West Neck Creek - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.12

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-01-BAC** Nawney Creek - Upper

Cause Location: This cause encompasses the Upper portion of Nawney Creek, 0.8 mi. upstream of Nawney Creek Road bridge (RM 1.92) downstream 0.6 mi. from Nawney Creek Road bridge to RM 1.24.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Recreation Use is not supporting based on Enterococci data from at station 5BNWN001.84. There were 2 or more STV hits in the same 90-day period with < 10 samples.

A Bacterial TMDL was developed for the Virginia Beach Coastal Area (London Bridge Creek & Canal # 2, Milldam Creek, Tawney Creek, West Neck Creek (Middle), and West Neck Creek (Upper)) EPA approved 9/ 2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_NWN01A00 / Nawney Creek - Upper / Upper portion of Nawney Creek, 0.8 mi. upstream of Nawney Creek Road bridge (RM 1.92) downstream 0.6 mi. from Nawney Creek Road bridge to RM 1.24.	4A	Enterococcus	2004	L	0.016

Nawney Creek - Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.016		

Sources: Animal Feeding Operations (NPS); Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Waterfowl; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-01-DO** **Nawney Creek - Upper**

Cause Location: This cause encompasses the Upper portion of Nawney Creek, 0.8 mi. upstream of Nawney Creek Road bridge (RM 1.92) downstream 0.6 mi. from Nawney Creek Road bridge to RM 1.24.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: 5BNWN001.84 exceeds 23 out of 34 observations for DO.

High nutrients and organic solids concentrations are present in the stream, which are exacerbating the naturally low DO conditions. Therefore, impairment is a result of anthropogenic impacts. The implementation of the Bacteria TMDL approved in 2005 will improve excessive nutrients and organic solids concentrations. If conditions do not improve through implementation of the Bacteria TMDL consideration will be given to develop an additional TMDL for DO.

EPA understands DEQ intends to revise WQS for this stream in the next triennial review to reflect natural low DO conditions in this stream.

Dissolved Oxygen Assessment for Virginia Beach EPA approved 10/26/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_NWN01A00 / Nawney Creek - Upper / Upper portion of Nawney Creek, 0.8 mi. upstream of Nawney Creek Road bridge (RM 1.92) downstream 0.6 mi. from Nawney Creek Road bridge to RM 1.24.	4A	Dissolved Oxygen	2002	L	0.016

Nawney Creek - Upper

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.016		

Sources: Livestock (Grazing or Feeding Operations); Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-02-BAC** **Nawney Creek - Lower**

Cause Location: This cause encompasses the lower portion of Nawney Creek, from 0.6 mi. downstream from Nawney Creek Road bridge (RM 1.24) downstream to RM 0.00 (confluence with Redhead/Back Bay).

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Recreation Use is not supported based on Enterococcus data at DEQ station @ 5BNWN000.00. There were 2 or more STV hits in the same 90-day period with < 10 samples.

A Bacterial TMDL for the Virginia Beach Coastal Area (London Bridge Creek and Canal #2, Milldam Creek, Tawney Creek, West Neck Creek (Middle), and West Neck Creek (Upper)) was approved on 09/27/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_NWN02A00 / Nawney Creek - Lower / Lower portion of Nawney Creek, from 0.6 mi. downstream from Nawney Creek Road bridge (RM 1.24) downstream to RM 0.00 (confluence with Redhead/Back Bay).	4A	Enterococcus	2006	L	0.017

Nawney Creek - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.017		

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Runoff from Forest/Grassland/Parkland; Waterfowl; Wildlife Other than Waterfowl

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-02-DO** **Nawney Creek - Lower**

Cause Location: This cause encompasses the lower portion of Nawney Creek, from 0.6 mi. downstream from Nawney Creek Road bridge (RM 1.24) downstream to RM 0.00 (confluence with Redhead/Back Bay).

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: Aquatic Life Use impairment based on DO data with 5 exceedances / 33 observations at DEQ station @ 5BNWN000.00. High nutrients and organic solids concentrations are present in the stream, which are exacerbating the naturally low DO conditions. Therefore, impairment is a result of anthropogenic impacts. The implementation of the Bacteria TMDL approved in 2005 will improve excessive nutrients and organic solids concentrations. If conditions do not improve through implementation of the Bacteria TMDL consideration will be given to develop an additional TMDL for DO.

EPA understands DEQ intends to revise WQS for this stream in the next triennial review to reflect natural low DO conditions in this stream.

Dissolved Oxygen Assessment for Virginia Beach EPA approved 10/26/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_NWN02A00 / Nawney Creek - Lower / Lower portion of Nawney Creek, from 0.6 mi. downstream from Nawney Creek Road bridge (RM 1.24) downstream to RM 0.00 (confluence with Redhead/Back Bay).	4A	Dissolved Oxygen	2008	L	0.017

Nawney Creek - Lower

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.017		

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-03-BAC** **Hell Point Creek - Lower (at mouth)**

Cause Location: Located southwest of Sandbridge. Segment begins at intersection of creek and canal upstream of monitoring station and ends at mouth, confluence with North Bay.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is retained as not supporting due to Enterococci data collected at Station 5BHPC000.00. More monitoring data is needed to update the assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_HPC02A04 / Hell Point Creek - Lower (at mouth) / Located southwest of Sandbridge. Segment begins at intersection of creek and canal upstream of monitoring station and ends at mouth, confluence with North Bay.	4A	Enterococcus	2006	L	0.015

Hell Point Creek - Lower (at mouth)

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.015		

Sources: Livestock (Grazing or Feeding Operations); Wastes from Pets

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-04-BAC** Muddy Creek

Cause Location: This cause encompasses area at confluence with Ashville Bridge Creek and ends at the mouth, the confluence with North Bay.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired due to Enterococci bacteria concentrations exceeding the water quality standards at DEQ station @ 5BMDY000.00. There were 2 or more STV hits in the same 90-day period with < 10 samples.

A Total Maximum Daily Load has been developed for the Back Bay, North Landing River, and Pocaty River Watersheds for E. coli and Enterococci due to Recreation Use Impairments and Total Phosphorus due to Low Dissolved Oxygen in Aquatic Life Use impairments. EPA approved 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_MDY01A04 / Muddy Creek / Located southeast of Pungo. Segment begins at confluence with Ashville Bridge Creek and ends at the mouth, the confluence with North Bay.	4A	Enterococcus	2004	L	0.026

Muddy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.026		

Sources: Agriculture; Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-05-BAC** **Beggars Bridge Creek**

Cause Location: This cause encompasses the area southeast of Dawley Corners, tributary to Shipps Bay. Segment begins at the confluence of numerous unnamed tributaries (RM 1.34) near Dawley Corners and extends downstream to the mouth at the confluence with Shipps Bay.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Recreation Use is impaired based on Enterococci data collected at station 5BBBC000.76. Enterococci has 2 or more STV hits in the same 90-day period with < 10 samples.

A Total Maximum Daily Load has been developed for the Back Bay, North Landing River, and Pocaty River Watersheds for E. coli and Enterococci due to Recreation Use Impairments and Total Phosphorus due to Low Dissolved Oxygen in Aquatic Life Use impairments. EPA approved 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_BBC01A04 / Beggars Bridge Creek / Located southeast of Dawley Corners, tributary to Shipps Bay. Segment begins at the confluence of numerous unnamed tributaries (RM 1.34) near Dawley Corners and extends downstream to the mouth at the confluence with Shipps Bay.	4A	Enterococcus	2004	L	0.042

Beggars Bridge Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.042		

Sources: Agriculture; Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-06-BAC** Ashville Bridge Creek - Lower

Cause Location: This cause encompasses the lower portion of Ashville Bridge Creek, between Hell Point and Muddy Creeks.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Recreation Use impairment is retained from previous assessments. Data collected from station 5BASH002.20 in the current cycle had one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. More data is needed to update the assessment.

A Total Maximum Daily Load has been developed for the Back Bay, North Landing River, and Pocaty River Watersheds for E. coli and Enterococci due to Recreation Use Impairments and Total Phosphorus due to Low Dissolved Oxygen in Aquatic Life Use impairments. EPA approved 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_ASH01A06 / Ashville Bridge Creek - Lower / Lower portion of Ashville Br. Cr., between Hell Point and Muddy Creeks.	4A	Enterococcus	2006	L	0.022

Ashville Bridge Creek - Lower

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.022		

Sources: Agriculture; Municipal Point Source Discharges; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-07-DO** **Beggars Bridge Creek**

Cause Location: This cause encompasses the area located southeast of Dawley Corners, tributary to Shipps Bay. Segment begins at the confluence of numerous unnamed tributaries (RM 1.34) near Dawley Corners and extends downstream to the mouth at the confluence with Shipps

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Dissolved oxygen is impaired with 4 exceedances / 34 observations at station 5BBBC000.76.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_BBC01A04 / Beggars Bridge Creek / Located southeast of Dawley Corners, tributary to Shipps Bay. Segment begins at the confluence of numerous unnamed tributaries (RM 1.34) near Dawley Corners and extends downstream to the mouth at the confluence with Shipps Bay.	5A	Dissolved Oxygen	2010	L	0.042

Beggars Bridge Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.042		

Sources: Source Unknown

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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-10-BAC** **Hell Point Creek - Upper**

Cause Location: This cause encompasses the area west of Sandbridge. Segment from headwaters downstream to RM 0.73, intersection of creek with canal near mouth.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supported based on Enterococci bacteria data at DEQ station @ 5BHPC001.46. The station had 2 or more STV hits in the same 90-day period with < 10 samples.

A Total Maximum Daily Load has been developed for the Back Bay, North Landing River, and Pocaty River Watersheds for E. coli and Enterococci due to Recreation Use Impairments and Total Phosphorus due to Low Dissolved Oxygen in Aquatic Life Use impairments. EPA approved 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42E_HPC01A00 / Hell Point Creek - Upper / Located west of Sandbridge. Segment from headwaters downstream to RM 0.73, intersection of creek with canal near mouth.	4A	Enterococcus	2006	L	0.03

Hell Point Creek - Upper

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.03		

Sources: Municipal Point Source Discharges

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Appendix 4 - Fact Sheets for
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Chowan River and Dismal Swamp Basins

Cause Group Code: **K42E-12-BAC** Lower Scopus Marsh

Cause Location: Tributary of Scopus Marsh, west of Ocean Lakes High School southward to the north of Lago Mar Park.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting due to impaired Enterococci data collected at Citizen Monitoring Stations 5SPS-OLABC1-VAMSC (2 viol / 2 obs), 5SPS-OLABC2-VAMSC (2 viol / 2 obs), and 5SPS-OLABC3-VAMSC (1 viol / 2 obs). This Assessment Unit falls within an existing TMDL for Enterococci. There was insufficient data to assess the Recreation Use in the 2022 IR Cycle. More sampling is necessary to delist.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-K42R_SPS02A20 / Lower Scopus Marsh / Tributary of Scopus Marsh, west of Ocean Lakes High School southward to the north of Lago Mar Park.	4A	Enterococcus	2020	L	1.37

Lower Scopus Marsh

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:			1.37

Sources: Agriculture; Crop Production (Crop Land or Dry Land); Residential Districts

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O01R-01-BAC South Fork Holston River and Tributaries

Cause Location: These segments of the South Fork Holston River include from the mainstem South Fork Holston River from the headwaters downstream to the Barton Creek confluence; from the Rowland Creek confluence downstream to the Grosses Creek confluence; from the Grosses Creek confluence to south of Loves Mill; and the Lower South Fork Holston River from the South Holston Lake backwaters upstream to the Rush Creek confluence.

Tributaries included: Bishop Branch from the confluence with South Fork Holston River upstream to the confluence with Parker Branch.

Grosses Creek from the headwaters downstream to the confluence with South Fork Holston River.

Slemp Creek from the headwaters downstream to the confluence with the South Fork Holston River.

St. Clair Creek, a South Fork Holston River tributary south of St. Clair Bottom.

Cressy Creek, a South Fork Holston River tributary south of Sugar Grove. Beaverdam Creek, mainstem of TN state line upstream to the confluence with the South Fork Holston River. Laurel Creek, from the South Fork Holston River confluence upstream to the state line near Iron Mountain.

Cause City/County: Smyth County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station 6CBSC000.10 had a 91% exceedance of the previous E.coli water quality standard. Station 6CGRC000.68 had a 67% exceedance of the previous E. coli water quality standard. Station 6CSFH110.45 has a 33% exceedance, station 6CSLM000.67 had a 40% exceedance, 6CSTC000.20 had a 23% exceedance of the previous E. coli water quality standard

Stations 6CSFH097.42 and 6CSFH075.61 had one STV exceedance, but insufficient data to analyze geomean. Stations 6CCRS001.15 had 2 or more STV exceedances in the same 90-day period represented by 10+ samples. Stations 6CSFH093.01, 6CBVD000.07, and 6CLAL001.21 had geomean exceedances in any 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O01R_BSC01A02 / Bishop Branch / South Fork Holston tributary from south at Riverside.	4A	Escherichia coli (E. coli)	2010	L	0.48
VAS-O01R_CRS01B04 / Cressy Creek / South Holston River tributary south of Sugar Grove.	4A	Escherichia coli (E. coli)	2022	L	1.63
VAS-O01R_GRC01A00 / Grosses Creek / From the headwaters downstream to the South Fork Holston River confluence, southeast of Loves Mill.	4A	Escherichia coli (E. coli)	2010	L	4.01
VAS-O01R_SFH01A00 / South Fork Holston River / Mainstem South Fork Holston River from Rowland Creek confluence downstream to Grosses Creek confluence.	4A	Escherichia coli (E. coli)	2002	L	8.73
VAS-O01R_SFH03A00 / South Fork Holston River / Mainstem South Fork Holston River from headwaters downstream to Barton Branch confluence.	4A	Escherichia coli (E. coli)	2010	L	9.58
VAS-O01R_SLM01A02 / Slemp Creek / Upper Slemp Creek, north of Sugar Grove.	4A	Escherichia coli (E. coli)	2010	L	3.85
VAS-O01R_STC01A02 / Saint Clair Creek / A South Fork Holston tributary south of St. Clair Bottom.	4A	Escherichia coli (E. coli)	2016	L	3.68

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O02R_BVD01A00 / Beaverdam Creek / Beaverdam Creek mainstem from Tennessee line upstream to its confluence with South Fork Holston River in Damascus.	4A	Escherichia coli (E. coli)	2022	L	2.02
VAS-O02R_LAL01A04 / Laurel Creek / From South Fork Holston River confluence upstream to state line near Iron Mountain.	4A	Escherichia coli (E. coli)	2022	L	6.10
VAS-O02R_SFH01B02 / South Fork Holston River / South Fork Holston River from Grosses Creek confluence south of Loves Mill. downstream to Rush Creek confluence.	4A	Escherichia coli (E. coli)	2022	L	6.14
VAS-O02R_SFH02A00 / South Fork Holston River / Lower South Fork Holston River from Rockhouse Run confluence at South Holston Lake backwaters, river mile 73.00, upstream to the Rush Creek confluence.	4A	Escherichia coli (E. coli)	2004	L	12.99

South Fork Holston River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			59.21

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O01R_SFH03A00 / South Fork Holston River / Mainstem South Fork Holston River from headwaters downstream to Barton Branch confluence.	4A	Fecal Coliform	2004	L	9.58

South Fork Holston River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			9.58

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O01R-02-PH** Hurricane Creek Tributary

Cause Location: This is an unnamed tributary of Hurricane Creek in Smyth County north of the Appalachian Trail.

Cause City/County: Smyth County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: pH measurements at station 6CXEE000.72 failed to meet the pH water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O01R_XEE01A08 / Hurricane Creek tributary / On Hurricane Mountain.	5A	pH	2010	L	1.12

Hurricane Creek Tributary

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.12

Sources: Natural Sources

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Tennessee and Big Sandy River Basins

Cause Group Code: **O02R-01-HG** **South Fork Holston River**

Cause Location: This segment extends from the Grosses Creek confluence downstream to Rush Creek.

Cause City/County: Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Two samples at station 6CSFH0088.91 exceeded the Mercury screening values in 2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O02R_SFH01B02 / South Fork Holston River / South Fork Holston River from Grosses Creek confluence south of Loves Mill. downstream to Rush Creek confluence.	5A	Mercury in Fish Tissue	2010	L	6.14

South Fork Holston River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.14

Sources: Atmospheric Deposition - Toxics

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O02R-03-HG** **Beaverdam Creek**

Cause Location: This segment extends from the Tennessee state line upstream to its confluence with the South Fork Holston River.

Cause City/County: Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The Virginia Department of Health's level of concern was exceeded for Mercury in one fish tissue sample and the Department of Environmental Quality's screening value for Mercury was exceeded in an additional sample.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O02R_BVD01A00 / Beaverdam Creek / Beaverdam Creek mainstem from Tennessee line upstream to its confluence with South Fork Holston River in Damascus.	5A	Mercury in Fish Tissue	2010	L	2.02

Beaverdam Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			2.02

Sources: Atmospheric Deposition - Toxics

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Tennessee and Big Sandy River Basins

Cause Group Code: **O02R-05-BAC** **Whitetop Laurel Creek**

Cause Location: Mainstem from Pennington Branch confluence upstream of Konnarock, downstream to the Green Cove Creek confluence and from the Straight Branch confluence downstream to the Laurel Creek confluence at Laureldale.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CWLC011.55 had a 17% exceedance of the previous E. coli water quality standard. Station 6CWLC000.79 had geomean exceedance in any 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O02R_WLC01A00 / Whitetop Laurel Creek / South of Straight Mountain, the mainstem from Little Laurel Creek confluence upstream of Konnarock, downstream to the Green Cove Creek confluence.	4A	Escherichia coli (E. coli)	2012	L	3.80
VAS-O02R_WLC01A06 / Whitetop Laurel Creek / Mainstem from Straight Branch confluence downstream to Laurel Creek confluence at Laureldale.	4A	Escherichia coli (E. coli)	2022	L	3.19

Whitetop Laurel Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.99

Sources: Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: O03R-01-BAC Middle Fork Holston River and Tributaries

Cause Location: These segments extend from the headwaters above Groseclose downstream to the Rt. 91 bridge in Washington County and also includes from the PWS segment upstream to Edmondson Dam.

Tributaries included: Dulton Branch, a Middle Fork Holston River headwaters tributary originating on Glade Mountain and confluencing at Groseclose. Unnamed Middle Fork Holston River tributary that enters at the Rt. 803 crossing near the USGS gaging station.

Cause City/County: Smyth County; Washington County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Stations 6CMFH055.88 and 6CXDY000.17 had a 67% exceedances of the previous E.coli water quality standard. Station 6CMFH045.72 had a 22% exceedance of the previous water quality standard.

Stations 6BDUT000.14 and 6CMFH013.21 had one STV exceedance in one or multiple 90-day windows but insufficient data to analyze geomean. Stations 6CMFH040.67, 6CMFH053.36, and 6CMFH027.14 has 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_MFH01A00 / Middle Fork Holston River / From Marion raw water intake, near Mt Carmel, downstream to Hungry Mother Creek confluence, including Town of Marion.	4A	Fecal Coliform	2002	L	5.50
VAS-O03R_MFH02A00 / Middle Fork Holston River / From Marion raw water intake, 45.83, through Atkins to the Snavelly Branch confluence.	4A	Fecal Coliform	2002	L	5.15
VAS-O03R_MFH04A98 / Middle Fork Holston River / From Dutton Branch confluence at Groseclose downstream to the at the Snavelly Branch confluence.	4A	Fecal Coliform	2002	L	4.25
VAS-O05R_MFH04A00 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Sulphur Spring Creek downstream to Rt. 91 bridge.	4A	Fecal Coliform	2002	L	9.20
VAS-O05R_MFH05A04 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Edmondson Dam upstream to Rt. 91 bridge, downstream to Rt. 91 bridge confluence.	4A	Fecal Coliform	2006	L	3.80

Middle Fork Holston River and Tributaries

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 27.9

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_DUT01A04 / Dulton Branch / Middle Fork Holston River headwaters tributary originating on Glade Mountain and confluences at Groseclose.	4A	Escherichia coli (E. coli)	2020	L	3.32

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_MFH01A00 / Middle Fork Holston River / From Marion raw water intake, near Mt Carmel, downstream to Hungry Mother Creek confluence, including Town of Marion.	4A	Escherichia coli (E. coli)	2010	L	5.50
VAS-O03R_MFH02A00 / Middle Fork Holston River / From Marion raw water intake, 45.83, through Atkins to the Snavelly Branch confluence.	4A	Escherichia coli (E. coli)	2010	L	5.15
VAS-O03R_MFH04A98 / Middle Fork Holston River / From Dutton Branch confluence at Groseclose downstream to the at the Snavelly Branch confluence.	4A	Escherichia coli (E. coli)	2014	L	4.25
VAS-O03R_MFH05A04 / Middle Fork Holston River / Mainstem headwaters upstream of Dutton Branch confluence at Groseclose, originates in Kinser Valley in Wythe County.	4A	Escherichia coli (E. coli)	2010	L	3.42
VAS-O04R_MFH01A00 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Hungry Mother Creek confluence downstream to Sulfur Spring Creek confluence.	4A	Escherichia coli (E. coli)	2004	L	12.60
VAS-O05R_MFH03A00 / Middle Fork Holston River / Mainstem Middle Fork Holston River from PWS segment upstream to Edmondson Dam.	4A	Escherichia coli (E. coli)	2006	L	3.87
VAS-O05R_MFH04A00 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Sulphur Spring Creek downstream to Rt. 91 bridge.	4A	Escherichia coli (E. coli)	2020	L	9.20
VAS-O05R_XDY01A08 / Middle Fork Holston tributary / Enters at SR 803 crossing near the USGS gauging station.	4A	Escherichia coli (E. coli)	2008	L	0.89

Middle Fork Holston River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			48.2

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: O03R-01-BEN Middle Fork Holston River

Cause Location: This segment includes the Middle Fork Holston River from the headwaters downstream to the Dutton Branch confluence.

Cause City/County: Smyth County; Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Station 6CMFH055.88 was impaired based on the VSCI scores of 72.6 and 57.9 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_MFH05A04 / Middle Fork Holston River / Mainstem headwaters upstream of Dutton Branch confluence at Groseclose, originates in Kinser Valley in Wythe County.	4A	Benthic Macroinvertebrates Bioassessments	2010	H	3.42

Middle Fork Holston River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.42

Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O03R-02-BAC** Bear Creek

Cause Location: Middle Fork Holston River tributary, west of Atkins, parallel to Route 622.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station at 6CBER000.17 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_BER01A02 / Bear Creek & tributaries / Middle Fork Holston River tributary flows south, west of Atkins.	4A	Escherichia coli (E. coli)	2010	L	6.51

Bear Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.51

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O03R-03-BAC** Staley Creek

Cause Location: This segment is a Middle Fork Holston River tributary, parallel to Route 16, south of Marion to the National Forest border.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station at 6CSTA000.05 has a 64% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O03R_STA01A02 / Staley Creek / Middle Fork Holston River tributary from I 81 upstream to National Forest just north of Rocky Hollow, including east Currin Valley.	4A	Escherichia coli (E. coli)	2010	L	5.58
VAS-O03R_STA01B10 / Staley Creek / Middle Fork Holston River tributary on the west side of Marion, upstream to I 81.	4A	Escherichia coli (E. coli)	2010	L	1.02
VAS-O03R_STA02A04 / Staley Creek / Headwaters in western Currin Valley.	4A	Escherichia coli (E. coli)	2020	L	1.46

Staley Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.06

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O04L-01-HG Hungry Mother Lake

Cause Location: This segment includes Hungry Mother Lake from its headwaters to the dam.

Cause City/County: Smyth County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6CHUN005.24 on 9/29/2020 show mercury levels above the fish tissue value of 300 ppb in two walleye composite samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O04L_HUN01A02 / Hungry Mother Lake / Man made reservoir located within Hungry Mother State Park in Smyth County.	5A	Mercury in Fish Tissue	2010	L	103.23

Hungry Mother Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	103.23	

Sources: Atmospheric Deposition - Toxics

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O04R-01-BAC** **Hungry Mother Creek**

Cause Location: These segments include from the reservoir downstream to the Middle Fork Holston River confluence and the reservoir backwaters upstream.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6CHUN001.34 had a 42% exceedance of the previous E.coli water quality standard. Station 6CHUN006.54 had geomean exceedances in any 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O04R_HUN02A02 / Hungry Mother Creek / Hungry Mother Creek downstream from dam to Middle Fork Holston River west of Marion.	4A	Escherichia coli (E. coli)	2006	L	4.83
VAS-O04R_HUN02B04 / Hungry Mother Creek & tributaries / From the reservoir backwaters upstream.	4A	Escherichia coli (E. coli)	2022	L	24.50

Hungry Mother Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			29.33

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O04R-03-BAC** Laurel Springs Creek

Cause Location: This segment flows north from Adwolf to the Middle Fork Holston River.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 6CLRL000.35, had a 50% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O04R_LRL01A04 / Laurel Springs Creek / Flows north from Adwolf to Middle Fork Holston River.	4A	Escherichia coli (E. coli)	2006	L	2.12

Laurel Springs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.12

Sources: Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O04R-04-BAC** Walker Creek

Cause Location: This segment flows from the headwaters downstream to the Middle Fork Holston River near the intersection of route 659 and route 645.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 6CWAL000.09, had a 67% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O04R_WAL01A02 / Walker Creek & tributaries / A Middle Fork Holston River tributary from north of Little Brushy Mountain.	4A	Escherichia coli (E. coli)	2006	L	13.53

Walker Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.53

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O04R-05-BAC** Sulphur Spring Branch and Tributaries

Cause Location: This segment is a Middle Fork Holston River tributary north of Chilhowie that runs parallel to Route 107 to the intersection with Route 617.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CSUL000.09 has a 75% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O04R_SUL01A12 / Sulphur Spring Creek and tributaries / Middle Fork Holston River tributary that drains Lyons Gap area of Little Brushy Mountain northwest of Chilhowie.	4A	Escherichia coli (E. coli)	2012	L	11.28

Sulphur Spring Branch and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.28

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O05R-01-BAC Three Creeks

Cause Location: These segments include the following tributaries to Middle Fork Holston River: Hutton, Hall, Byers, and their tributaries (Cedar Creek, West Fork Cedar Creek, East Fork Cedar Creek, Plum Creek, unnamed tributary to Hutton Creek, unnamed tributary to Hall Creek and Tattle Branch).

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Stations 6CBYS000.08,6CCED000.04, 6CHAL000.75, 6CHAL002.60, 6CHTO000.24, 6CPLU000.02, and 6CTAT000.50 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_BY01A94 / Byers Creek / Byers Creek from Hall Creek and Indian Run confluence downstream to Middle Fork Holston River confluence.	4A	Escherichia coli (E. coli)	1996	L	0.50
VAS-O05R_CED01A94 / Cedar Creek / From confluence of East Fork Cedar Creek and West Fork Cedar Creek through Cedarville to Middle Fork Holston confluence.	4A	Escherichia coli (E. coli)	2006	L	5.61
VAS-O05R_HAL01A94 / Hall Creek / Mainstem from headwaters north of Emory through Emory and Henry College to Byers Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	6.91
VAS-O05R_HTO01A94 / Hutton Creek / Headwaters east of Glade Spring downstream to Middle Fork Holston River confluence and tributaries.	4A	Escherichia coli (E. coli)	2006	L	5.16
VAS-O05R_PLU01A02 / Plum Creek / Headwaters at Jamison Gap downstream to Hutton Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	2.33
VAS-O05R_TAT01A02 / Tattle Branch / Mainstem south of Old Glade Spring from headwaters to Byers Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	2.78

Three Creeks

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		23.29

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_BY01A94 / Byers Creek / Byers Creek from Hall Creek and Indian Run confluence downstream to Middle Fork Holston River confluence.	4A	Fecal Coliform	2004	L	0.50
VAS-O05R_CED01A94 / Cedar Creek / From confluence of East Fork Cedar Creek and West Fork Cedar Creek through Cedarville to Middle Fork Holston confluence.	4A	Fecal Coliform	2002	L	5.61

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_CWF01A02 / West Fork Cedar Creek / Cedar Creek tributary west of Meadowview.	4A	Fecal Coliform	2002	L	1.54
VAS-O05R_ECE01A02 / Cedar Creek / Cedar Creek tributary through Meadowview.	4A	Fecal Coliform	2002	L	1.11
VAS-O05R_HAL01A94 / Hall Creek / Mainstem from headwaters north of Emory through Emory and Henry College to Byers Creek confluence.	4A	Fecal Coliform	2002	L	6.91
VAS-O05R_HTO01A94 / Hutton Creek / Headwaters east of Glade Spring downstream to Middle Fork Holston River confluence and tributaries.	4A	Fecal Coliform	2002	L	5.16
VAS-O05R_PLU01A02 / Plum Creek / Headwaters at Jamison Gap downstream to Hutton Creek confluence.	4A	Fecal Coliform	2002	L	2.33
VAS-O05R_TAT01A02 / Tattle Branch / Mainstem south of Old Glade Spring from headwaters to Byers Creek confluence.	4A	Fecal Coliform	2002	L	2.78
VAS-O05R_XCD01A02 / Tributary to Hutton Creek / Headwaters near Litz through Glade Spring down to Middle Fork Holston River confluence and tributaries.	4A	Fecal Coliform	2002	L	4.11
VAS-O05R_XCG01A02 / Hall Creek tributary / Mainstem from headwaters to Hall Creek confluence west of Patrick Henry High School.	4A	Fecal Coliform	2002	L	1.71

Three Creeks

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			31.76

Sources: Animal Feeding Operations (NPS); Crop Production (Crop Land or Dry Land); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O05R-01-BEN Three Creeks

Cause Location: These segments include the following tributaries to Middle Fork Holston River: Hall and surrounding tributaries (Byers Creek, Cedar Creek, West Fork Cedar Creek, East Fork Cedar Creek, Plum Creek, unnamed tributary to Hutton Creek, unnamed tributary to Hall Creek, Tattle Branch).

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Station 6CBYS000.08 has VSCI score of 53.4 and 63.1 in 2019 and 53.8 and 65.7 in 2017. Station 6CTAT000.50 had VSCI score of 62.2 and 58.0 in 2019 and 58.7 and 66.2 in 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_BY01A94 / Byers Creek / Byers Creek from Hall Creek and Indian Run confluence downstream to Middle Fork Holston River confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	H	0.50
VAS-O05R_CED01A94 / Cedar Creek / From confluence of East Fork Cedar Creek and West Fork Cedar Creek through Cedarville to Middle Fork Holston confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	H	5.61
VAS-O05R_CWF01A02 / West Fork Cedar Creek / Cedar Creek tributary west of Meadowview.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	1.54
VAS-O05R_ECE01A02 / Cedar Creek / Cedar Creek tributary through Meadowview.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	1.11
VAS-O05R_HAL01A94 / Hall Creek / Mainstem from headwaters north of Emory through Emory and Henry College to Byers Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	H	6.91
VAS-O05R_PLU01A02 / Plum Creek / Headwaters at Jamison Gap downstream to Hutton Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	2.33
VAS-O05R_TAT01A02 / Tattle Branch / Mainstem south of Old Glade Spring from headwaters to Byers Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	H	2.78
VAS-O05R_XCD01A02 / Tributary to Hutton Creek / Headwaters near Litz through Glade Spring down to Middle Fork Holston River confluence and tributaries.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	4.11
VAS-O05R_XCG01A02 / Hall Creek tributary / Mainstem from headwaters to Hall Creek confluence west of Patrick Henry High School.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	1.71

Three Creeks

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

26.6

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Appendix 4 - Fact Sheets for
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Sources: Animal Feeding Operations (NPS); Crop Production (Crop Land or Dry Land); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O05R-02-BAC** Greenway Creek

Cause Location: This segment includes the mainstem from the headwaters downstream to the confluence with the Middle Fork Holston River.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station 6CGRW000.09 had a 83% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_GRW01A02 / Greenway Creek / Tributary to Middle Fork Holston River at Neff, west of Meadowview.	4A	Escherichia coli (E. coli)	2008	L	5.02

Greenway Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.02

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O05R-02-BEN** Greenway Creek

Cause Location: This segment includes the mainstem from the headwaters downstream to the confluence with the Middle Fork Holston River.

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological station located at 6CGRW002.31 was impaired based on VSCI scores of 66.3 and 59 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_GRW01A02 / Greenway Creek / Tributary to Middle Fork Holston River at Neff, west of Meadowview.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.02

Greenway Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.02

Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O05R-05-BEN** Middle Fork Holston River

Cause Location: This segment includes the mainstem Middle Fork Holston River from the Sulphur Springs Creek confluence to Edmondson Dam.

Cause City/County: Smyth County; Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological station 6CMFH023.41 was impaired based on VSCI score of 57 and 53 in 2005. 6CMFH011.23 had VSCI scores of 62.8 and 73.3 in 2018 and station 6CMFH026.00 had VSCI scores of 52.1 and 63.8 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O05R_MFH04A00 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Sulphur Spring Creek downstream to Rt. 91 bridge.	4A	Benthic Macroinvertebrates Bioassessments	2008	H	9.2
VAS-O05R_MFH05A04 / Middle Fork Holston River / Mainstem Middle Fork Holston River from Edmondson Dam upstream to Rt. 91 bridge, downstream to Rt. 91 bridge confluence.	4A	Benthic Macroinvertebrates Bioassessments	2006	H	3.8

Middle Fork Holston River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: O06L-01-DO South Holston Lake

Cause Location: TVA owned reservoir in Tennessee and Virginia. The dam is located in Tennessee. South Holston Reservoir is used to generate hydroelectric power and provide flood control and recreational opportunities.

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: At 6CSFH062.93, 19 excursions of the dissolved oxygen WQS were recorded in 157 observations (12.1%) during the 2015 and 2019 monitoring seasons.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06L_SF01A00 / South Holston Reservoir / 7,580 acre reservoir owned and operated by the Tennessee Valley Authority to generate hydroelectric power and provide flood control recreational opportunities. The dam is located in Tennessee; acreage given is Virginia only.	5A	Dissolved Oxygen	2022	L	1699.98

South Holston Lake

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1699.98	

Sources: Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: O06L-01-HG South Holston Lake

Cause Location: TVA owned reservoir in Tennessee and Virginia. The dam is located in Tennessee. South Holston Reservoir is used to generate hydroelectric power and provide flood control and recreational opportunities.

Cause City/County: Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6CSFH070.80 on 9/29/2020 show mercury levels above the tissue value (300 ppb) in composite samples of three species (smallmouth bass, largemouth bass, and golden redhorse).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06L_SFH01A00 / South Holston Reservoir / 7,580 acre reservoir owned and operated by the Tennessee Valley Authority to generate hydroelectric power and provide flood control recreational opportunities. The dam is located in Tennessee; acreage given is Virginia only.	5A	Mercury in Fish Tissue	2010	L	1699.98

South Holston Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1699.98	

Sources: Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: O06L-01-PCB South Holston Lake

Cause Location: TVA owned reservoir in Tennessee and Virginia. The dam is located in Tennessee. South Holston Reservoir is used to generate hydroelectric power and provide flood control and recreational opportunities.

Cause City/County: Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Fish tissue collected at 6CSFH070.80 on 9/29/2020 show polychlorinated biphenyls (PCB) levels above the tissue value (18 ppb) in a composite sample of carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06L_SF01A00 / South Holston Reservoir / 7,580 acre reservoir owned and operated by the Tennessee Valley Authority to generate hydroelectric power and provide flood control recreational opportunities. The dam is located in Tennessee; acreage given is Virginia only.	5A	PCBs in Fish Tissue	2010	L	1699.98

South Holston Lake

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1699.98	

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O06R-01-BAC Wolf Creek and Tributaries

Cause Location: These segments extend from the upper mainstem at Route 11 downstream to the lake backwaters and also includes the lower mainstem from the Town Creek confluence through the Great Knobs, downstream to the Route 75 bridge.

Tributaries included: Spoon Gap Creek, a Wolf Creek tributary near Green Spring.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station, 6CWLF001.18, had a 66% exceedance of the previous E.coli water quality standard and station 6CWLF007.55 had a 55% exceedance of the previous E.coli water quality standard. Station 6CSPO001.45 had a 15% exceedance of the previous E.coli water quality standard.

Station 6CWLF008.00 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_WLF01A98 / Wolf Creek / Lower mainstem from Town Creek confluence through the Great Knobs, downstream to Rt. 75 bridge.	4A	Fecal Coliform	2004	L	3.33
VAS-O06R_WLF02B06 / Wolf Creek / Lower end of Wolf Creek from Rt. 75 bridge near Green Spring downstream to South Holston Lake backwaters.	4A	Fecal Coliform	2006	L	0.41
VAS-O06R_WLF03A06 / Wolf Creek / From upper Rt. 75 bridge near Abingdon downstream to Rt. 75 bridge near Green Spring.	4A	Fecal Coliform	2004	L	2.93

Wolf Creek and Tributaries

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 6.67

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_SPO01A16 / Spoon Gap Creek / A Wolf Creek tributary near Green Spring.	4A	Escherichia coli (E. coli)	2016	L	2.67
VAS-O06R_WLF01A98 / Wolf Creek / Lower mainstem from Town Creek confluence through the Great Knobs, downstream to Rt. 75 bridge.	4A	Escherichia coli (E. coli)	2008	L	3.33
VAS-O06R_WLF02B06 / Wolf Creek / Lower end of Wolf Creek from Rt. 75 bridge near Green Spring downstream to South Holston Lake backwaters.	4A	Escherichia coli (E. coli)	2010	L	0.41
VAS-O06R_WLF02B08 / Wolf Creek / Upper mainstem from the Town Creek confluence past Stone Mill, upstream to Rt. 11 in west Abingdon.	4A	Escherichia coli (E. coli)	2010	L	2.36

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_WLF03A06 / Wolf Creek / From upper Rt. 75 bridge near Abingdon downstream to Rt. 75 bridge near Green Spring.	4A	Escherichia coli (E. coli)	2010	L	2.93

Wolf Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.7

Sources: Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-01-BEN** **Wolf Creek**

Cause Location: This segment includes the mainstem of Wolf Creek from the Town Creek confluence downstream to the lake backwaters.

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological monitoring station 6CWLF was impaired based on VSCI scores of 57.8 and 51.8 in the 2019 monitoring season. Station 6CWLF005.95 was impaired based on VSCI scores of 53.5 and 55.3 in 2019 and 42.3 and 42.9 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_WLF01A98 / Wolf Creek / Lower mainstem from Town Creek confluence through the Great Knobs, downstream to Rt. 75 bridge.	4A	Benthic Macroinvertebrates Bioassessments	2002	H	3.33
VAS-O06R_WLF02B06 / Wolf Creek / Lower end of Wolf Creek from Rt. 75 bridge near Green Spring downstream to South Holston Lake backwaters.	4A	Benthic Macroinvertebrates Bioassessments	2006	H	0.41
VAS-O06R_WLF03A06 / Wolf Creek / From upper Rt. 75 bridge near Abingdon downstream to Rt. 75 bridge near Green Spring.	4A	Benthic Macroinvertebrates Bioassessments	2006	H	2.93

Wolf Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			6.67

Sources: Grazing in Riparian or Shoreline Zones; Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-01-PCB** **Wolf Creek**

Cause Location: This segment extends from the Town Creek confluence downstream to the lake backwaters.

Cause City/County: Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: This segment was listed based on the Virginia Department of Health's fish consumption advisory for polychlorinated biphenyls.

Fish tissue was collected in 2020 at station 6BWLF006.55, 2 composite samples of norther hogsucker showed no exceedances of the tissue value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_WLF01A98 / Wolf Creek / Lower mainstem from Town Creek confluence through the Great Knobs, downstream to Rt. 75 bridge.	5A	PCBs in Fish Tissue	2006	L	3.33
VAS-O06R_WLF02B06 / Wolf Creek / Lower end of Wolf Creek from Rt. 75 bridge near Green Spring downstream to South Holston Lake backwaters.	5A	PCBs in Fish Tissue	2006	L	0.41
VAS-O06R_WLF03A06 / Wolf Creek / From upper Rt. 75 bridge near Abingdon downstream to Rt. 75 bridge near Green Spring.	5A	PCBs in Fish Tissue	2006	L	2.93

Wolf Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			6.67

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-02-BAC** **Fifteen Mile Creek and Tributaries**

Cause Location: These segments extend from the headwaters downstream to the confluence with the South Holston Reservoir.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Stations 6CFIF000.96 and 6CFIF006.16 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_FIF01A02 / Fifteenmile Creek & tributaries / From north of Watauga Road to South Holston Lake backwaters.	5A	Escherichia coli (E. coli)	2008	L	8.99
VAS-O06R_FIF02A08 / Fifteenmile Creek / From Lee Highway near I81 Exit 19, to beginning of PWS waters just north of Watauga Road.	5A	Escherichia coli (E. coli)	2008	L	3.94

Fifteen Mile Creek and Tributaries

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.93

Sources: Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-02-BEN** **Fifteen Mile Creek Tirbutary**

Cause Location: Fifteen Mile Creek tributary, north of the eastern end of Rt. 677.

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6CXAN000.89 was impaired based on VSCI score of 42.7 and 53.4 in the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_XAN01A22 / Fifteen Mile Creek Tributary / Fifteenmile Creek tributary, north of eastern end Rt.677 (old landfill side).	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.33

Fifteen Mile Creek Tirbutary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.33

Sources: Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-03-BAC** **Spring Creek**

Cause Location: This segment extends from the South Holston Reservoir backwaters upstream to the headwaters.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6CSPR001.18 had a 42% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_SPR01A02 / Spring Creek / Spring Creek from South Holston Lake backwaters upstream.	5A	Escherichia coli (E. coli)	2008	L	4.44

Spring Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.44

Sources: Rural (Residential Areas); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-04-BAC** **Town Creek**

Cause Location: This segment includes the mainstem from the headwaters, through the Town of Abingdon to the Wolf Creek confluence.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CTOW000.58 had a 42% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_TOW01A00 / Town Creek / Mainstem from the headwaters, flows from northeast through Town of Abingdon, southwest to the Wolf Creek confluence.	4A	Escherichia coli (E. coli)	2012	L	4.76

Town Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.76

Sources: Rural (Residential Areas); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O06R-06-BAC** Cox Mill Creek

Cause Location: A South Holston Lake tributary.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ special study monitoring station located at 6CMLC000.65 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O06R_CXC01A18 / Cox Mill Creek / South Holston Lake tributary.	5A	Escherichia coli (E. coli)	2018	L	3.51

Cox Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.51

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O07R-01-BAC Beaver Creek and Tributaries

Cause Location: These segments include the headwaters of Beaver Creek downstream to the Tennessee political boundary.

Tributaries included: Little Creek, from the headwaters downstream to the TN state line in the City of Bristol. Mumpower Creek, a tributary to Little Creek parallel to Rt. 640, north of Bristol city limits. Unnamed Little Creek tributary, from the headwaters downstream to the confluence of Mumpower Creek, parallel to Campground Road

Cause City/County: Bristol; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Station 6CBEV022.29 had a 50% exceedance of the previous E.coli water quality standard and stations 6CLTL000.26, 6CMUM000.65, and 6CXDR000.34 had 88%, 41%, and 67% exceedances of the prior water quality standard.

Trend monitoring station 6CBEV020.86 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_BEV01A94 / Beaver Creek / Mainstem from Beaver Creek dam (nonfunctional) thru the City of Bristol, downstream to Tennessee state line including tributaries.	4A	Escherichia coli (E. coli)	2006	L	7.28
VAS-O07R_BEV02A94 / Beaver Creek / From headwaters of Beaver Creek near Ratcliff Knob downstream to Beaver Creek flood control dam in Sugar Hollow Park.	4A	Escherichia coli (E. coli)	2006	L	7.77
VAS-O07R_LTL01A96 / Little Creek / Headwaters, downstream to the Tennessee state line in the City of Bristol.	4A	Escherichia coli (E. coli)	2006	L	2.30
VAS-O07R_MUM01A06 / Mumpower Creek / A tributary to Little Creek parallel SR 640, north of Bristol City limits.	4A	Escherichia coli (E. coli)	2006	L	2.91
VAS-O07R_XDR01A06 / Little Creek / Headwaters west of Haskell, downstream to the confluence of Mumpower Creek parallel to Campground Road.	4A	Escherichia coli (E. coli)	2006	L	2.81

Beaver Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.07

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Appendix 4 - Fact Sheets for
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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_LTL01A96 / Little Creek / Headwaters, downstream to the Tennessee state line in the City of Bristol.	4A	Fecal Coliform	2004	L	2.3

Beaver Creek and Tributaries

Recreation

Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.3

Sources: Rural (Residential Areas); Unrestricted Cattle Access; Wastes from Pets

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O07R-01-BEN Beaver Creek

Cause Location: This segment includes the mainstem from the headwaters of Beaver Creek downstream to the Tennessee political boundary including its tributaries.

Cause City/County: Bristol; Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological stations located at 6CBEV015.27 and 6CBEV023.99 was found to be impaired based on VSCI scores of 47.5 and 54.9 and 55.2 and 65.3 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_BEV01A94 / Beaver Creek / Mainstem from Beaver Creek dam (nonfunctional) thru the City of Bristol, downstream to Tennessee state line including tributaries.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	7.28
VAS-O07R_BEV02A94 / Beaver Creek / From headwaters of Beaver Creek near Ratcliff Knob downstream to Beaver Creek flood control dam in Sugar Hollow Park.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	7.77

Beaver Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.05

Sources: Crop Production (Crop Land or Dry Land); Rural (Residential Areas); Unrestricted Cattle Access; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O07R-01-PCB** Beaver Creek and Little Creek

Cause Location: These segments include the headwaters of Beaver Creek downstream to the Tennessee political boundary and Little Creek from the headwaters downstream to the Tennessee political boundary in the City of Bristol.

Cause City/County: Bristol; Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: VDH fish consumption advisory originally issued 5/15/2003 and amended 12/13/2007 & 7/27/2005 and includes the area from the Beaver Creek dam downstream approximately 10 miles to the VA/TN state line within the City of Bristol including the tributary of Little Creek. Carp, largemouth bass, and smallmouth bass should not be consumed; no more than two eight ounce meals of any other species should be consumed.

Fish tissue stations (6CBEV015.27 and 6CLTL000.26) found polychlorinated biphenyls (PCB's) in carp and stonerollers above DEQ's screening value.

Recent fish tissue collected in 2020 at 6CBEV015.27 included 3 composite samples of rock bass, northern hogsucker, and white sucker. All samples exceeded the tissue screening value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_BEV01A94 / Beaver Creek / Mainstem from Beaver Creek dam (nonfunctional) thru the City of Bristol, downstream to Tennessee state line including tributaries.	5A	PCBs in Fish Tissue	2006	L	7.28
VAS-O07R_BEV02A94 / Beaver Creek / From headwaters of Beaver Creek near Ratcliff Knob downstream to Beaver Creek flood control dam in Sugar Hollow Park.	5A	PCBs in Fish Tissue	2006	L	7.77
VAS-O07R_LTL01A96 / Little Creek / Headwaters, downstream to the Tennessee state line in the City of Bristol.	5A	PCBs in Fish Tissue	2006	L	2.30

Beaver Creek and Little Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			17.35

Sources: Illegal Dumps or Other Inappropriate Waste Disposal

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O07R-04-BAC** **Sinking Creek**

Cause Location: This segment includes the headwaters downstream to the Tennessee state line, east of the City of Bristol.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6CSNK006.68 had one STV exceedance but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_SNK01A02 / Sinking Creek / Headwaters downstream to the Tennessee state line, east of City of Bristol.	5A	Escherichia coli (E. coli)	2012	L	3.8

Sinking Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.8

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O07R-05-BAC** Stoffel Creek

Cause Location: This segment is located northwest of the City of Bristol, near the Three Springs community.

Cause City/County: Bristol; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6CSTO000.86 has 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O07R_STO01A12 / Stoffel Creek & tributaries / Drains the Three Springs community, northwest of City of Bristol.	5A	Escherichia coli (E. coli)	2012	L	5.22

Stoffel Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 5.22
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Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O08R-01-BAC** **Boozy Creek**

Cause Location: This is a South Fork Holston Lake tributary to Tennessee, parallel to Route 618.

Cause City/County: Scott County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6CBOO002.71 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O08R_BOO01A12 / Boozy Creek / South Fork Holston Lake tributary parallel to the Tennessee state line, from Anderson Cemetery downstream.	5A	Escherichia coli (E. coli)	2012	L	2.54

Boozy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.54

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O09R-01-BAC** Lick Creek

Cause Location: This segment extends from the Lynn Camp confluence, river mile 4.31, downstream to the North Fork Holston River confluence.

Cause City/County: Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CLIB000.08 had a 33% exceedance, station 6CLIB001.06 had a 25% exceedance, and station 6CLIB003.65 had a 16% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O09R_LIB01A02 / Lick Creek / From the Lynn Camp confluence at river mile 4.31, downstream to the North Fork Holston confluence.	4A	Escherichia coli (E. coli)	2006	L	5.73

Lick Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.73

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O09R-03-BAC North Fork Holston River

Cause Location: This segment includes the mainstem from the headwaters downstream to the Crewey Branch confluence, and from the Crewey Branch confluence downstream through Riverside to Locust Cove Creek, and the mainstem from the Lick Branch confluence downstream to the Lick Creek confluence.

Cause City/County: Bland County; Smyth County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6CNFH127.12 had a 58% exceedance, station 6CNFH113.36 had a 17% exceedance, and station 6CNFH124.62 had a 33% exceedance of the previous E.coli water quality standard.

Station 6CNFH098.47 had 1 STV exceedance but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O09R_NFH01A02 / North Fork Holston River / Mainstem from Lick Creek confluence downstream to Crewey Branch confluence.	4A	Escherichia coli (E. coli)	2010	L	13.77
VAS-O09R_NFH01A98 / North Fork Holston River / Mainstem from Crewey Branch confluence downstream through Riverside to Locust Cove Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	1.74
VAS-O09R_NFH01B02 / North Fork Holston River / Mainstem from Lick Branch confluence near Bland/Wythe County line downstream to Lick Creek confluence.	4A	Escherichia coli (E. coli)	2014	L	12.58
VAS-O09R_NFH01C02 / North Fork Holston River / Mainstem from headwaters near Sharon Springs, downstream through Ceres, to Lick Branch confluence.	4A	Escherichia coli (E. coli)	2010	L	12.24

North Fork Holston River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		40.33

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O09R_NFH01C02 / North Fork Holston River / Mainstem from headwaters near Sharon Springs, downstream through Ceres, to Lick Branch confluence.	4A	Fecal Coliform	2006	L	12.24

North Fork Holston River

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.24

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O10R-01-BAC North Fork Holston River

Cause Location: This segment extends from the Laurel Creek confluence downstream to the confluence of Tumbling Creek. It also includes the mainstem from the confluence of Big Moccasin Creek downstream to the Tennessee line.

Cause City/County: Scott County; Smyth County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station 6CNFH081.69 had 1 STV exceedance but insufficient data to analyze geomean. Trend monitoring station 6CNFH085.20 had 2 STV hits in the same 90-day period with less than 10 samples and trend monitoring station 6CNFH008.78 had 1 STV exceedance but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_NFH01A94 / North Fork Holston River / From Rt. 91 near Broady Bottom above Saltville to Robertson Branch confluence.	4A	Escherichia coli (E. coli)	2008	L	1.84
VAS-O10R_NFH02A00 / North Fork Holston River / From Laurel Creek confluence near Broadford, downstream Rt. 91 near Allison Gap.	4A	Escherichia coli (E. coli)	2006	L	8.51
VAS-O11R_NFH03A94 / North Fork Holston River / From confluence of Robertson Branch near Allison Gap, downstream to confluence of Tumbling Creek.	4A	Escherichia coli (E. coli)	2006	L	4.92
VAS-O13R_NFH01A94 / North Fork Holston River / Mainstem from confluence of Big Moccasin Creek downstream to Tennessee state line, WQS Section 1a (TH45).	4A	Escherichia coli (E. coli)	2006	L	5.33

North Fork Holston River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		20.6

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_NFH01A94 / North Fork Holston River / From Rt. 91 near Broady Bottom above Saltville to Robertson Branch confluence.	4A	Fecal Coliform	2006	L	1.84
VAS-O13R_NFH01A94 / North Fork Holston River / Mainstem from confluence of Big Moccasin Creek downstream to Tennessee state line, WQS Section 1a (TH45).	4A	Fecal Coliform	2004	L	5.33

North Fork Holston River

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.17

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Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O10R-01-HG North Fork Holston River

Cause Location: This segment begins in Saltville at the Robertson Branch confluence and extends downstream to the Tennessee state line.

Cause City/County: Scott County; Smyth County; Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/4A

Cause Description: Mercury (Hg) contamination of the fish tissue prior to 1972 led to a ban on fish consumption by the Virginia Department of Health. The ban extends downstream for 80.4 miles, through watersheds; VAS-O11R, VAS-O12R, and VAS-O13R. Station 6CNFH080.43 exceeded the screening value for Hg in the water column and 6CNFH039.18 exceeded the screening values for Hg in sediment and fish tissue.

Recent fish tissue was collected in 2020. At 6CNFH080.85, 6 samples were collected of 5 species (smallmouth bass, black redhorse sucker, northern hogsucker, smallmouth bass, redbreast sunfish, rock bass); all samples exceeded the tissue value for mercury.

At 6CNFH039.18, 2 samples were collected of 2 species (rock bass, redbreast sunfish); all samples exceeded the tissue value for mercury.

At 6CNFH008.80, 6 samples were collected of 4 species (smallmouth bass, channel catfish, northern hogsucker, golden redhorse); four samples exceeded the tissue value for mercury.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_NFH01A94 / North Fork Holston River / From Rt. 91 near Broady Bottom above Saltville to Robertson Branch confluence.	4A	Mercury in Fish Tissue	1994	L	1.84
VAS-O11R_NFH01A00 / North Fork Holston River / Segment from Brumley Creek confluence downstream to Cabin Creek confluence.	4A	Mercury in Fish Tissue	1994	L	1.88
VAS-O11R_NFH02A94 / North Fork Holston River / From Route 80 crossing at River Bridge community downstream to Brumley Creek confluence.	4A	Mercury in Fish Tissue	1994	L	6.29
VAS-O11R_NFH02B10 / North Fork Holston River / From Tumbling Creek confluence downstream to Rt. 80 bridge crossing.	4A	Mercury in Fish Tissue	1994	L	8.52
VAS-O11R_NFH03A94 / North Fork Holston River / From confluence of Robertson Branch near Allison Gap, downstream to confluence of Tumbling Creek.	4A	Mercury in Fish Tissue	1994	L	4.92
VAS-O12R_NFH01B02 / North Fork Holston River / Mainstem near Maces Spring from Livingston Creek confluence downstream to Cove Creek confluence.	4A	Mercury in Fish Tissue	1994	L	4.28
VAS-O12R_NFH01C02 / North Fork Holston River / Mainstem near Mendota from Abrams Creek confluence to Livingston Creek confluence.	4A	Mercury in Fish Tissue	1994	L	8.18
VAS-O12R_NFH02A00 / North Fork Holston River / Mainstem from Cabin Creek confluence near Mongle Spring to Little Moccasin Creek confluence at Holston community.	4A	Mercury in Fish Tissue	1994	L	2.84

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_NFH02C04 / North Fork Holston River / Mainstem near Walnut Grove, from Smith Creek confluence at Horseshoe Bend, downstream to Abrams Creek confluence near Stacher Ford.	4A	Mercury in Fish Tissue	1994	L	10.81
VAS-O12R_NFH03C04 / North Fork Holston River / Mainstem near Roebuck, from Smith Creek confluence at the Holston community upstream to the Little Moccasin Creek confluence at Horseshoe Bend.	4A	Mercury in Fish Tissue	1994	L	8.44
VAS-O13R_NFH01A94 / North Fork Holston River / Mainstem from confluence of Big Moccasin Creek downstream to Tennessee state line, WQS Section 1a (TH45).	4A	Mercury in Fish Tissue	1994	L	5.33
VAS-O13R_NFH02A94 / North Fork Holston River / Mainstem from the confluence of Cove Creek south of Maces Spring, downstream to confluence of Big Moccasin Creek south of Weber City.	4A	Mercury in Fish Tissue	1994	L	18.73

North Fork Holston River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		82.06

Sources: Industrial Point Source Discharge; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O10R-01-PCB North Fork Holston River

Cause Location: This segment begins in Saltville at river mile 85.40 and extends to the Tennessee state line.

Cause City/County: Scott County; Smyth County; Washington County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: VDH issued a fish consumption advisory on 4/12/1974 that prohibits the consumption of any fish species from Saltville to the VA/TN state line, approximately 84 miles, due to contamination from mercury. PCBs were added as a contaminant to the advisory on 12/23/2004.

Recent fish tissue was collected in 2020. At 6CNFH080.45, 3 samples of 3 species (smallmouth bass, black redhorse sucker, northern hogsucker); all samples exceeded tissue screening value for PCBs.

At 6CNFH039.18, 4 samples were collected of 3 species (rock bass, redbreast sunfish, flathead catfish); none exceeded tissue screening value for PCBs.

At 6CNFH008.80, 7 samples were collected of 5 species (smallmouth bass, channel catfish, redbreast sunfish, northern hogsucker, golden redhorse sucker); 2 samples exceeded tissue screening value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_NFH01A94 / North Fork Holston River / From Rt. 91 near Broady Bottom above Saltville to Robertson Branch confluence.	5A	PCBs in Fish Tissue	1996	L	1.84
VAS-O11R_NFH02B10 / North Fork Holston River / From Tumbling Creek confluence downstream to Rt. 80 bridge crossing.	5A	PCBs in Fish Tissue	1996	L	8.52
VAS-O11R_NFH03A94 / North Fork Holston River / From confluence of Robertson Branch near Allison Gap, downstream to confluence of Tumbling Creek.	5A	PCBs in Fish Tissue	1996	L	4.92
VAS-O12R_NFH01B02 / North Fork Holston River / Mainstem near Maces Spring from Livingston Creek confluence downstream to Cove Creek confluence.	5A	PCBs in Fish Tissue	1996	L	4.28
VAS-O12R_NFH01C02 / North Fork Holston River / Mainstem near Mendota from Abrams Creek confluence to Livingston Creek confluence.	5A	PCBs in Fish Tissue	1996	L	8.18
VAS-O12R_NFH02A00 / North Fork Holston River / Mainstem from Cabin Creek confluence near Mongle Spring to Little Moccasin Creek confluence at Holston community.	5A	PCBs in Fish Tissue	1996	L	2.84
VAS-O12R_NFH02C04 / North Fork Holston River / Mainstem near Walnut Grove, from Smith Creek confluence at Horseshoe Bend, downstream to Abrams Creek confluence near Stacher Ford.	5A	PCBs in Fish Tissue	1996	L	10.81
VAS-O12R_NFH03C04 / North Fork Holston River / Mainstem near Roebuck, from Smith Creek confluence at the Holston community upstream to the Little Moccasin Creek confluence at Horseshoe Bend.	5A	PCBs in Fish Tissue	1996	L	8.44

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O13R_NFH01A94 / North Fork Holston River / Mainstem from confluence of Big Moccasin Creek downstream to Tennessee state line, WQS Section 1a (TH45).	5A	PCBs in Fish Tissue	1996	L	5.33
VAS-O13R_NFH02A94 / North Fork Holston River / Mainstem from the confluence of Cove Creek south of Maces Spring, downstream to confluence of Big Moccasin Creek south of Weber City.	5A	PCBs in Fish Tissue	1996	L	18.73

North Fork Holston River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			73.89

Sources: Industrial Point Source Discharge; Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O10R-01-PH** Little Tumbling Creek

Cause Location: This segment includes from the power line crossing upstream to the Laurel Bed Lake discharge in Clinch Mountain Station Wildlife Management Area.

Cause City/County: Smyth County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: At 6CLTC004.59, 23% of pH measurements fall below the WQS for Class VI waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_LTC01A02 / Little Tumbling Creek / Between Clinch Mountain and Flattop Mountain from power line crossing upstream to headwaters in Clinch Mountain State Wildlife Management Area.	5A	pH	2020	L	5.8

Little Tumbling Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.8

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O10R-05-BAC North Fork Holston River Tributaries

Cause Location: These segments include the headwaters of Laurel Creek within Jefferson National Forest upstream of the Roaring Fork confluence downstream to the North Fork Holston River confluence; Locust Cove Creek which is a tributary to the North Fork Holston River; Robertson Branch from the headwaters to the confluence with the North Fork Holston River; Turkey Run Creek from the headwaters to the confluence with the North Fork Holston River at McCready; and Beaver Creek from the headwaters on Walker Mountain east of Page Hollow, downstream to the confluence with the North Fork Holston River.

Cause City/County: Bland County; Smyth County; Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6CRRB000.06, 6CTUR000.03, 6CBVR000.08, and 6CLAE000.62 had 25%, 45%, 67%, and 21% exceedances of the previous E.coli water quality standard.

Station 6CLOC000.14 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_BVR01A02 / Beaver Creek / From headwaters on Walker Mountain east of Page Hollow, downstream to mile 2.8 near Oak Grove.	4A	Escherichia coli (E. coli)	2010	L	1.93
VAS-O10R_BVR01B04 / Beaver Creek / From North Fork Holston River confluence near North Holston upstream 2.8 miles.	4A	Escherichia coli (E. coli)	2010	L	2.83
VAS-O10R_LAE01A02 / Laurel Creek / Headwaters within Jefferson National Forest upstream of the Roaring Fork confluence through Poor Valley.	4A	Escherichia coli (E. coli)	2010	L	2.65
VAS-O10R_LAE02A02 / Laurel Creek, middle / From Little Tumbling Creek confluence at Tannersville downstream to confluence with North Fork Holston River. at Broadford.	4A	Escherichia coli (E. coli)	2010	L	6.48
VAS-O10R_LOC01A02 / Locust Cove Creek / A North Fork Holston tributary near Rich Valley High School from headwaters near Rt. 16 on Brushy Mountain in Jefferson National Forest.	4A	Escherichia coli (E. coli)	2006	L	8.88
VAS-O10R_RRB01A02 / Robertson Branch / Mainstem from headwaters at Redrock Mountain downstream through Allison Gap to North Fork Holston River confluence.	4A	Escherichia coli (E. coli)	2010	L	3.26
VAS-O10R_TUR01A10 / Turkey Run Creek / A North Fork Holston River tributary from Whiterock Mountain to confluence with North Fork Holston River at McCready.	4A	Escherichia coli (E. coli)	2010	L	3.71

North Fork Holston River Tributaries

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		29.74

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_LAE01A02 / Laurel Creek / Headwaters within Jefferson National Forest upstream of the Roaring Fork confluence through Poor Valley.	4A	Fecal Coliform	2004	L	2.65
VAS-O10R_LAE02A02 / Laurel Creek, middle / From Little Tumbling Creek confluence at Tannersville downstream to confluence with North Fork Holston River. at Broadford.	4A	Fecal Coliform	2006	L	6.48
VAS-O10R_LOC01A02 / Locust Cove Creek / A North Fork Holston tributary near Rich Valley High School from headwaters near Rt. 16 on Brushy Mountain in Jefferson National Forest.	4A	Fecal Coliform	2006	L	8.88

North Fork Holston River Tributaries

Recreation	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
				18.01

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O10R-05-BEN** Laurel Creek

Cause Location: This segment includes the headwaters within Jefferson National Forest in Bland County downstream to the confluence with Roaring Fork.

Cause City/County: Bland County; Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological station located at 6CLAE018.29 was impaired based on VSCI scores of 55.3 and 78.7 in 2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_LAE01A02 / Laurel Creek / Headwaters within Jefferson National Forest upstream of the Roaring Fork confluence through Poor Valley.	5A	Benthic Macroinvertebrates Bioassessments	2002	L	2.65

Laurel Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.65

Sources: Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O10R-08-BEN** Little Tumbling Creek

Cause Location: This segment includes from the power line crossing upstream to the Laurel Bed Lake discharge in Clinch Mountain State Wildlife Management Area.

Cause City/County: Smyth County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: Discharge from Laurel Bed Lake into boggy area (possibly created by Beaver dams).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_LTC01A02 / Little Tumbling Creek / Between Clinch Mountain and Flattop Mountain from power line crossing upstream to headwaters in Clinch Mountain State Wildlife Management Area.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	5.8

Little Tumbling Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.8

Sources: Natural Sources; Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: O10R-08-TEMP Little Tumbling Creek

Cause Location: This segment includes from the power line crossing upstream to the Laurel Bed Lake discharge in Clinch Mountain Station Wildlife Management Area.

Cause City/County: Smyth County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: At station 6CLTC004.59, 3 of 13 (23%) temperature measurements exceeded WQS for Class VI waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O10R_LTC01A02 / Little Tumbling Creek / Between Clinch Mountain and Flattop Mountain from power line crossing upstream to headwaters in Clinch Mountain State Wildlife Management Area.	5A	Temperature	2020	L	5.8

Little Tumbling Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			5.8

Sources: Natural Sources; Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O11L-02-TEMP** **Laurel Bed Lake**

Cause Location: This lake is owned by the Department of Wildlife Resources and lies within Clinch Mountain Wildlife Management Area.

Cause City/County: Russell County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: At 6CLAU001.84, 17 of 73 temperature measurements exceeded WQS during the 2016 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11L_LAU01A02 / Laurel Bed Lake / DWR owned lake within the Clinch Mountain Wildlife Management Area. Mountain slope, 20 to 30 degrees, maximum depth 11.3 M, managed as a warm water fishery.	5C	Temperature	2010	L	359.43

Laurel Bed Lake

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		359.43	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-03-BEN** **North Fork Holston River**

Cause Location: This segment extends from the confluence of Robertson Branch downstream to the confluence of Tumbling Creek.

Cause City/County: Scott County; Smyth County; Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: A biological station located at 6CNFH080.45 was impaired based on the VSCI scores of 55 and 52.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_NFH03A94 / North Fork Holston River / From confluence of Robertson Branch near Allison Gap, downstream to confluence of Tumbling Creek.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	4.92

North Fork Holston River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.92

Sources: Natural Sources

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-03-CHLR** North Fork Holston

Cause Location: This segment of the North Fork Holston River extends from the confluence with Robertson Branch in Saltville to the Tumbling Creek confluence.

Cause City/County: Scott County; Smyth County; Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Chloride/4A

Cause Description: The benthic Total Maximum Daily Load (TMDL) was completed in 2006 and confirmed that there was a chloride impairment due to natural conditions.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_NFH03A94 / North Fork Holston River / From confluence of Robertson Branch near Allison Gap, downstream to confluence of Tumbling Creek.	4A	Chloride	1996	L	4.92

North Fork Holston

Aquatic Life	Chloride - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 4.92
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Sources: Natural Sources

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-04-BAC** Logan Creek

Cause Location: Logan Creek is a North Fork Holston tributary. This segment includes the mainstem from the headwaters to the North Fork Holston confluence.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CLOG000.12 had a 25% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_LOG01A02 / Logan Creek / From headwaters, north of Meadowview through Lindell parallel to Rt. 80, to North Fork Holston River confluence.	4A	Escherichia coli (E. coli)	2006	L	5.43

Logan Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.43

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-05-BAC** **Toole Creek**

Cause Location: Toole Creek is a North Fork Holston tributary. This segment includes the mainstem from headwaters to North Fork Holston confluence.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CTOO000.25 had a 25% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_TOO01A98 / Toole Creek / A North Fork Holston tributary. Mainstem from headwaters through Whites Mill community to North Fork Holston confluence.	4A	Escherichia coli (E. coli)	2006	L	5.85

Toole Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.85

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-08-BAC** **Brumley Creek**

Cause Location: From North Fork Holston River confluence upstream 4 miles to Duncanville.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Relisted in 2016: AWQM station 6CBRU000.20 had a 17% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_BRU01B04 / Brumley Creek / From North Fork Holston confluence upstream 4 miles to Duncanville.	4A	Escherichia coli (E. coli)	2008	L	4.18

Brumley Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 4.18
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Sources: Rural (Residential Areas)

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-09-BAC** **East Fork Wolf Creek**

Cause Location: This segment parallels Route 80 north of Hayter's Gap.

Cause City/County: Russell County; Smyth County; Tazewell County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CEFW000.46 has a 17% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_EWF01A12 / East Fork Wolf Creek / In Poor Valley parallel to Route 80 north of Hayters Gap community.	4A	Escherichia coli (E. coli)	2012	L	3.48

East Fork Wolf Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.48

Sources: Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-11-BAC** **Finley Creek**

Cause Location: This segment is a North Fork Holston River tributary at Glenford parallel to Route 741, west of Lindell.

Cause City/County: Russell County; Smyth County; Tazewell County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CFIN001.26 has a 42% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_FIN01A12 / Finley Creek / North Fork Holston River tributary at Glenford, west of Lindell, Parallels Rt.741 and unmaintained road.	4A	Escherichia coli (E. coli)	2012	L	1.9

Finley Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.9

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O11R-12-BAC** Wolf Creek and West Fork Wolf Creek

Cause Location: These segments include Wolf Creek, a North Fork Holston River tributary downstream of Hayters Gap and West Fork Wolf Creek, west of Hayters Gap between Little Mountain and Clinch Mountain parallel to Route 689.

Cause City/County: Russell County; Smyth County; Tazewell County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station at 6CWOC000.02 had a 33% exceedance of the previous E.coli water quality standard. 6CWOL000.04 is impaired based on geomean exceedances in any 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O11R_WOC01A12 / West Fork Wolf Creek / Poor Valley between Little Mountain and Clinch Mountain west of Hayters Gap community.	4A	Escherichia coli (E. coli)	2012	L	3.16
VAS-O11R_WOL01A02 / Wolf Creek / A North Fork Holston River tributary downstream of Hayters Gap community.	4A	Escherichia coli (E. coli)	2022	L	0.96

Wolf Creek and West Fork Wolf Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.12

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O12R-02-BAC** **Abrams Creek**

Cause Location: Abrams Creek is a North Fork Holston River tributary. This segment includes the mainstem from the headwaters to the North Fork Holston River confluence.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CABR001.00 had a 25% exceedance of the previous water quality standard for E.coli.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_ABR01A00 / Abrams Creek / Mainstem from Burson Place to confluence with North Fork Holston River near Stacher Ford.	4A	Escherichia coli (E. coli)	2006	L	11.78

Abrams Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.78

Sources: Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: O12R-03-BAC Cove Creek and Tribs

Cause Location: Cove Creek is a North Fork Holston River tributary. This segment includes the mainstem from the headwaters to the North Fork Holston River confluence. Rich Valley Unnamed Tributary is a tributary to Fleenor Branch near Valley Institute Elementary School.

Cause City/County: Scott County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CCOV002.44 had a 27% exceedance of the previous bacteria water quality standard. Station 6AXEO000.25 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_COV01A00 / Cove Creek / From headwaters south of Valley Institute to North Fork Holston River confluence south of Maces Spring.	4A	Escherichia coli (E. coli)	2006	L	13.36
VAS-O12R_XEO01A12 / Rich Valley unnamed tributary / Unnamed tributary to Fleenor Branch near Valley Institute.	4A	Escherichia coli (E. coli)	2018	L	0.85

Cove Creek and Tribs

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			14.21

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **O12R-03-BEN** Greendale Creek

Cause Location: This segment extends from the North Fork Holston River confluence upstream 4.1 miles.

Cause City/County: Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological station located at 6CGRN003.29 was impaired based on VSCI scores of 48.0 and 49.5 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_GRN01A00 / Greendale Creek / Greendale Creek from North Fork Holston confluence east of Rt. 19 bridge, upstream 4.1 miles to Black Hollow Road.	5A	Benthic Macroinvertebrates Bioassessments	2010	H	5.03

Greendale Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.03

Sources: Highway/Road/Bridge Runoff (Non-construction Related); Livestock (Grazing or Feeding Operations); Rural (Residential Areas)

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Tennessee and Big Sandy River Basins

Cause Group Code: **O12R-04-BAC** **Little Moccasin Creek**

Cause Location: Little Moccasin Creek is a North Fork Holston River tributary. This segment includes the mainstem from the headwaters to the North Fork Holston River confluence.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CLMC000.05 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_LMC01A02 / Little Moccasin Creek / Mainstem from headwaters on Brumley Mountain to North Fork Holston River confluence, west of Highway 19 bridge at Holston community.	4A	Escherichia coli (E. coli)	2006	L	5.02

Little Moccasin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.02

Sources: Rural (Residential Areas)

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: O12R-04-BEN Rich Valley Unnamed Tributary

Cause Location: Unnamed tributary to Fleenor Branch near Valley Institute Elementary School.

Cause City/County: Scott County; Washington County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6CXEO000.25 was impaired based on VSCI scores of 52.3 and 38.9 in 2017 and 53 and 42.9 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_XEO01A12 / Rich Valley unnamed tributary / Unnamed tributary to Fleenor Branch near Valley Institute.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	0.85

Rich Valley Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.85

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O12R-05-BAC** Nordyke Creek

Cause Location: A North Fork Holston River tributary originating near Rush Corner.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6CNOR000.14 had a 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_NOR01A02 / Nordyke Creek / A North Fork Holston tributary originating near Rush Corner.	4A	Escherichia coli (E. coli)	2006	L	6.15

Nordyke Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.15

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O12R-06-BAC** **Smith Creek and Gaspard Creek**

Cause Location: Smith Creek is a North Fork Holston River tributary. This segment includes the mainstem from the headwaters to the North Fork Holston River confluence and Gaspard Creek a Smith Creek tributary near Craigs Mill.

Cause City/County: Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6CSMI000.22 had a 42% exceedance and station 6CGAS000.45 had a 36% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O12R_GAS01A16 / Gaspard Creek / Smith Creek tributary near Craigs Mill.	4A	Escherichia coli (E. coli)	2016	L	1.38
VAS-O12R_SMI01A02 / Smith Creek / Tributary originating near Withers, confluences with North Fork Holston at Horseshoe Bend.	4A	Escherichia coli (E. coli)	2006	L	8.12

Smith Creek and Gaspard Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.5

Sources: Grazing in Riparian or Shoreline Zones; Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **O13R-02-BEN** **Hilton Creek**

Cause Location: Mainstem from the water intake downstream through the Hiltons community and Hilton Gap to the North Fork Holston River confluence.

Cause City/County: Scott County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 6CHIL000.42 was impaired based on a VSCI score of 29.2 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O13R_HIL01A08 / Hilton Creek / Mainstem segment from water intake downstream through Hilton community and Hilton Gap to North Fork Holston confluence.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	1.85

Hilton Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.85

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O13R-03-BAC North Fork Holston River Tributaries

Cause Location: These segments include: Blue Springs Branch, a tributary at Maces Spring from the headwaters to the confluence of the North Fork Holston River; Dowell Branch, the mainstem downstream to the confluence with the North Fork Holston River; Hilton Creek, from the water intake downstream to confluence with the North Fork Holston River; Possum Creek, from the TN state line near Kermit to the confluence with the North Fork Holston River; and 1.34 miles of an unnamed tributary immediately downstream of Hiltons Creek at Owen Corner,

Cause City/County: Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM stations 6CBLU000.15, 6CDOW000.02, 6CPSM000.04, 6CPSM015.79, and 6CXBV000.21 are impaired based on the previous bacteria water quality standard. Station 6CHIL000.02 has 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O13R_BLU01A08 / Blue Springs Branch & tributaries / Tributary at Maces Spring, flows through Eddington Gap.	4A	Escherichia coli (E. coli)	2008	L	3.74
VAS-O13R_DOW01A08 / Dowell Branch / North Fork Holston tributary that flows through Dowell Gap between Blue Springs Branch and Hilton Creek.	4A	Escherichia coli (E. coli)	2008	L	1.79
VAS-O13R_HIL01A08 / Hilton Creek / Mainstem segment from water intake downstream through Hilton community and Hilton Gap to North Fork Holston confluence.	4A	Escherichia coli (E. coli)	2008	L	1.85
VAS-O13R_PSM01A02 / Possum Creek / From Jones Branch confluence south of Kermit at SR 634, to North Fork Holston River confluence near Tennessee state line.	4A	Escherichia coli (E. coli)	2010	L	15.90
VAS-O13R_PSM02B06 / Possum Creek / From Tennessee state line to Jones Branch confluence south of Kermit.	4A	Escherichia coli (E. coli)	2018	L	6.04
VAS-O13R_XBV01A08 / Unnamed tributary at Owen Corner / Tributary from north confluences with North Fork Holston River at Brickyard Gap downstream of Hiltons Creek.	4A	Escherichia coli (E. coli)	2008	L	1.38

North Fork Holston River Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			30.7

Sources: Rural (Residential Areas); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: O14R-01-BAC Big Moccasin Creek

Cause Location: These segments begins 8.01 miles upstream of the PWS segment and continues downstream to rivermile 18.91 at unnamed tributary. It also includes the mainstem from Red Hill Branch confluence downstream to the North Fork Holston River confluence.

Cause City/County: Scott County; Washington County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM stations 6CBMC000.38, 6CBMC026.32, and 6CBMC042.54 are impaired based on the previous bacteria water quality standard.

Station 6CBMC049.05 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-O14R_BMC01A98 / Big Moccasin Creek / From confluence of Big Moccasin and Little Moccasin Creeks downstream to North Fork Holston River confluence.	4A	Escherichia coli (E. coli)	2012	L	2.87
VAS-O14R_BMC04A00 / Big Moccasin Creek / From Middle Fork Moccasin Creek and South Fork Moccasin Creek confluence downstream 7.87 miles to Lick Skillet Hollow.	4A	Escherichia coli (E. coli)	2010	L	8.24
VAS-O14R_BMC05A02 / Big Moccasin Creek / Upstream of Snowflake and downstream of Dean Branch confluence south of Nickelsville.	4A	Escherichia coli (E. coli)	2008	L	10.55
VAS-O14R_BMC06A02 / Big Moccasin Creek / Segment is approximately half in Scott County and half in Russell County, upstream at Fugues Hill and ends at Dean Branch confluence.	4A	Escherichia coli (E. coli)	2008	L	9.69
VAS-O14R_BMC07A02 / Big Moccasin Creek / From end of PWS segment at Fugate Hill upstream 8.01 miles to Lick Skillet Hollow.	4A	Escherichia coli (E. coli)	2008	L	8.25

Big Moccasin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		39.6

Sources: Rural (Residential Areas); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P01L-03-DO** **Lake Witten**

Cause Location: In Cavitts Creek Park, this recreation reservoir was constructed by the U.S. Natural Resource Conservation Service. The lake is owned by Tazewell County.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: At 6BCAV004.60, excursions of the dissolved oxygen WQS (45/102) were observed during the 2019 monitoring season. Trophic state index scores are < 60; impairment is due to natural sources.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01L_CAV01A10 / Lake Witten / In Cavitts Creek Park this recreation reservoir was constructed by the U.S. Natural Resource Conservation Service, the lake is owned by Tazewell County.	4C	Dissolved Oxygen	NA	NA	53.17

Lake Witten

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		53.17	

Sources: Natural Sources

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P01L-03-HG** **Lake Witten**

Cause Location: This Lake is located in Cavitts Creek Park in Tazewell County.

Cause City/County: Tazewell County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6BCAV002.88 on 5/11/2007 show mercury levels above the tissue value (300 ppb) in two composite largemouth bass samples. In 2008, VDH issued a fish consumption advisory limiting consumption of largemouth bass to no more than two meals per month. Fish tissue collected on 5/19/2020 show no elevated levels of mercury; however, the fish consumption advisory remains in effect.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01L_CAV01A10 / Lake Witten / In Cavitts Creek Park this recreation reservoir was constructed by the U.S. Natural Resource Conservation Service, the lake is owned by Tazewell County.	5A	Mercury in Fish Tissue	2010	L	53.17

Lake Witten

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		53.17	

Sources: Atmospheric Deposition - Toxics; Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P01R-01-BAC Clinch River

Cause Location: This segment includes the mainstream from Lincolnshire Branch confluence downstream to Deskin Creek.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BCLN346.60 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01R_CLN01A98 / Clinch River / Mainstem from North Fork Clinch River confluence through Town of Tazewell to Plum Creek confluence.	4A	Escherichia coli (E. coli)	2010	L	6.14
VAS-P02R_CLN01A98 / Clinch River / Mainstream from Plum Creek near Pisgah downstream to Deskins Creek near Maxwell.	4A	Escherichia coli (E. coli)	2010	L	6.11

Clinch River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.25

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01R_CLN01A98 / Clinch River / Mainstem from North Fork Clinch River confluence through Town of Tazewell to Plum Creek confluence.	4A	Fecal Coliform	2004	L	6.14
VAS-P02R_CLN01A98 / Clinch River / Mainstream from Plum Creek near Pisgah downstream to Deskins Creek near Maxwell.	4A	Fecal Coliform	2006	L	6.11

Clinch River

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.25

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P01R-01-BEN** Cavitts Creek

Cause Location: This segment includes the lower mainstem of Cavitts Creek from Johnson Branch to the confluence with the Clinch River at River Jack.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station at 6BCAV000.05 was impaired based on VSCI scores of 40.4 and 70.8 in 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01R_CAV01A00 / Cavitts Creek / Lower mainstem from Johnson Branch to confluence with Clinch River at River Jack.	4A	Benthic Macroinvertebrates Bioassessments	2016	L	2.4

Cavitts Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.4

Sources: Animal Feeding Operations (NPS); Loss of Riparian Habitat

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P01R-03-BAC South Fork Clinch River and Cavitts Creek

Cause Location: This segment includes the South Fork Clinch River and its tributaries from the Tazewell raw water intake upstream 5 miles and Cavitts Creek from the Johnson Branch confluence downstream to the confluence with the Clinch River at Riverjack.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BSFK000.77 had a 41% exceedance of the previous E.coli water quality standard and station 6BCAV000.02 had a 25% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P01R_CAV01A00 / Cavitts Creek / Lower mainstem from Johnson Branch to confluence with Clinch River at River Jack.	4A	Escherichia coli (E. coli)	2010	L	2.40
VAS-P01R_SFK01A10 / South Fork Clinch River / Portion of South Fork Clinch River from Tazewell raw water intake upstream 5 miles.	4A	Escherichia coli (E. coli)	2010	L	4.17

South Fork Clinch River and Cavitts Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.57

Sources: Rural (Residential Areas); Unrestricted Cattle Access; Wastes from Pets

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P02R-02-BAC Laurel Fork

Cause Location: An Indian Creek tributary parallel to Whetstone Ridge that confluences at the Mouth of Laurel.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BLRF000.03 had a 17% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P02R_LRF01A10 / Laurel Fork / Indian Creek tributary parallel Whetstone Ridge, confluences at Mouth of Laurel.	4A	Escherichia coli (E. coli)	2012	L	4.57

Laurel Fork

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.57

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P03R-01-BEN** **Big Creek**

Cause Location: This segment includes from the confluence with West Fork downstream to the confluence with the Clinch River.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6BBIG000.19 was impaired based on VSCI scores of 48.2 and 48.5 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P03R_BIG01A10 / Big Creek / Clinch River tributary from north of Richlands.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.39

Big Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.39

Sources: Coal Mining; Rural (Residential Areas); Silviculture Activities

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P03R-02-BAC Clinch River

Cause Location: The community of Raven is located here and the segment includes the mainstem from just upstream of the Town Hill Creek confluence downstream to the Mill Creek confluence. It also includes the mainstem of the Clinch River from the Mill Creek confluence upstream to former Raven-Doran raw water intake.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station located at 6BCLN315.11 had a 33% exceedance of the previous E.coli water quality standard and 6BCLN321.13 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P03R_CLN01A98 / Clinch River / From the former raw water intake just upstream of the Town Hill Creek confluence downstream to the Mill Creek confluence south of Raven.	4A	Fecal Coliform	2002	L	5.55

Clinch River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			5.55

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P03R_CLN01A98 / Clinch River / From the former raw water intake just upstream of the Town Hill Creek confluence downstream to the Mill Creek confluence south of Raven.	4A	Escherichia coli (E. coli)	2010	L	5.55
VAS-P03R_CLN02A00 / Clinch River / Clinch River from Town of Richlands former raw water raw water intake upstream to Dry Branch confluence, near Cedar Bluff.	4A	Escherichia coli (E. coli)	2004	L	3.01

Clinch River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.56

Sources: Rural (Residential Areas); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P03R-02-HG** **Clinch River**

Cause Location: This segment begins just upstream of the Town Hill confluence and continues downstream to the Mill Creek confluence.

Cause City/County: Tazewell County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Three fish samples collected in 2007 exceeded the Department of Environmental Quality's screening value for Mercury. Fish tissue was collected at 6BCLN315.11 on 11/19/2020. 2 samples, 2 species (green sunfish and rock bass); no samples exceeded the tissue value for mercury.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P03R_CLN01A98 / Clinch River / From the former raw water intake just upstream of the Town Hill Creek confluence downstream to the Mill Creek confluence south of Raven.	5A	Mercury in Fish Tissue	2010	L	5.55

Clinch River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			5.55

Sources: Atmospheric Deposition - Toxics

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P04R-01-BAC** Lewis Creek and Hess Creek

Cause Location: This segment includes the mainstem from the Stone Branch confluence downstream to the Clinch River confluence.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BLWS004.84 had a 29% exceedance of the previous E.coli water quality standard. Stations 6BLWS000.06 and 6BHES000.05 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_HES01A10 / Hess Creek / A Swords Creek tributary flowing from Groundhog Hollow to the east, south of Dye.	4A	Escherichia coli (E. coli)	2010	L	1.05
VAS-P04R_LWS01A10 / Lewis Creek / Grassy Creek confluence downstream to Stone Branch confluence, at Flatrock.	4A	Escherichia coli (E. coli)	2010	L	3.45
VAS-P04R_LWS01A98 / Lewis Creek / Mainstem from the Stone Branch confluence downstream through Putnam, to the Clinch River confluence.	4A	Escherichia coli (E. coli)	2010	L	4.98

Lewis Creek and Hess Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

Escherichia coli (E. coli) - Total Impaired Size by Water Type: 9.48

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_LWS01A98 / Lewis Creek / Mainstem from the Stone Branch confluence downstream through Putnam, to the Clinch River confluence.	4A	Fecal Coliform	2006	L	4.98

Lewis Creek and Hess Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

Fecal Coliform - Total Impaired Size by Water Type: 4.98

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P04R-01-BEN Lewis Creek

Cause Location: This segment includes the mainstem from the Stone Branch confluence downstream to the Clinch River confluence.

Cause City/County: Russell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6BLWS000.90 was impaired based on VSCI scores of 28.7 and 56.9 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_LWS01A98 / Lewis Creek / Mainstem from the Stone Branch confluence downstream through Putnam, to the Clinch River confluence.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	4.98

Lewis Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.98

Sources: Crop Production (Crop Land or Dry Land); Impacts from Abandoned Mine Lands (Inactive); Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P04R-01-TEMP Mill Creek

Cause Location: From the Clinch River confluence near West Raven upstream to the confluence of Right Fork Mill Creek

Cause City/County: Russell County; Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: 2 of 12 temperature measurements at 6BMLG000.55 exceeded the water quality standard for Class VI waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_MLG01A00 / Mill Creek / From Clinch River confluence near West Raven upstream 2.7 miles along Tazewell/Russell County line to the confluence of Right Fork Mill Creek.	5A	Temperature	2022	L	3.22

Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			3.22

Sources: Rural (Residential Areas); Source Unknown; Streambank Modifications/Destabilization

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P04R-02-BAC Swords Creek

Cause Location: This segment extends from the Sulphur Spring Branch confluence downstream to the confluence with the Clinch River.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6BSWO001.81 had 32% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_SWD01A00 / Swords Creek / Mainstem from Sulphur Spring Branch confluence at Dye downstream to confluence with Clinch River at the Swords Creek community,	4A	Escherichia coli (E. coli)	2010	L	2.92

Swords Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.92

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P04R-02-BEN** **Swords Creek**

Cause Location: This segment includes the mainstem from the Sculpture Spring Branch confluence downstream to the confluence with Clinch River.

Cause City/County: Russell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station located at 6BSWO000.11 was impaired based on VSCI scores of 46.5 and 67.5 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_SWD01A00 / Swords Creek / Mainstem from Sulphur Spring Branch confluence at Dye downstream to confluence with Clinch River at the Swords Creek community,	5A	Benthic Macroinvertebrates Bioassessments	2006	L	2.92

Swords Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.92

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P04R-03-BAC** Clinch River

Cause Location: Clinch River mainstem from the Lewis Creek confluence downstream to the Big Cedar Creek confluence.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6BCLN288.41 had 2 STV exceedances in the same 90-day window with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_CLN01A00 / Clinch River / Clinch River mainstem from Lewis Creek confluence downstream to Big Cedar Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	11.85

Clinch River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.85

Sources: Grazing in Riparian or Shoreline Zones; Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P04R-03-BEN** Mill Creek

Cause Location: From the Clinch River confluence near West Raven upstream to the confluence of Right Fork Mill Creek.

Cause City/County: Russell County; Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station located at 6BMLG000.55 was impaired based on VSCI scores of 55.5 and 53.4 in 2013. Recent VSCI data, 60.7 in 2019, is improving, but insufficient to delist.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_MLG01A00 / Mill Creek / From Clinch River confluence near West Raven upstream 2.7 miles along Tazewell/Russell County line to the confluence of Right Fork Mill Creek.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.22

Mill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.22

Sources: Rural (Residential Areas); Source Unknown; Streambank Modifications/Destabilization

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P04R-04-BEN** **Big Lick Creek**

Cause Location: A Sulphur Spring Branch tributary, enters from the east at Dye.

Cause City/County: Russell County; Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6BBLC000.19 was impaired based on VSCI scores of 55.7 and 59 in 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P04R_BLC01A10 / Big Lick Creek / Sulphur Spring Branch tributary, enters from east at Dye.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	5.21

Big Lick Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.21

Sources: Rural (Residential Areas); Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P05R-01-BAC** **Indian Creek**

Cause Location: This segment extends from the Highway 19 bridge to the Little River confluence at Wardell.

Cause City/County: Russell County; Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BIDN000.69 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_IDN01A04 / Indian Creek / Highway 19 crossing to Little River confluence at Wardell.	4A	Escherichia coli (E. coli)	2010	L	4.1

Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.1

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_IDN01A04 / Indian Creek / Highway 19 crossing to Little River confluence at Wardell.	4A	Fecal Coliform	2004	L	4.1

Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.1

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P05R-04-BAC Little River

Cause Location: These segments include the mainstem of Little River from the confluence with Grays Branch downstream to the confluence with the Clinch River.

Cause City/County: Russell County; Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BLTR0018.19 had a 57% exceedance of the previous E.coli water quality standard. 6BLTR000.75 had geomean exceedances in any 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_LTR01A00 / Little River / From the Grays Branch confluence at the Tazewell/Russell County line downstream to the confluence with Clinch River.	4A	Escherichia coli (E. coli)	2022	L	14.03
VAS-P05R_LTR02A00 / Little River / Little River above Claypool Hill STP downstream to Laurel Creek confluence near Wardell.	4A	Escherichia coli (E. coli)	2010	L	5.26
VAS-P05R_LTR02A02 / Little River / Laurel Creek confluence near Wardell downstream to Grays Branch confluence at Russell/Tazewell County line.	4A	Escherichia coli (E. coli)	2012	L	4.12

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			23.41

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_LTR02A00 / Little River / Little River above Claypool Hill STP downstream to Laurel Creek confluence near Wardell.	4A	Fecal Coliform	2004	L	5.26
VAS-P05R_LTR02A02 / Little River / Laurel Creek confluence near Wardell downstream to Grays Branch confluence at Russell/Tazewell County line.	4A	Fecal Coliform	2008	L	4.12

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			9.38

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P05R-05-BAC Maiden Spring Creek and Liberty Creek

Cause Location: This segment begins at the unnamed tributary at Buchanan Cemetery and continues downstream to the Little River confluence. Liberty Creek from the spring downstream of the Rt. 608 bridge upstream to an unnamed tributary.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station 6BMSC001.53 had a 43% exceedance of the previous bacteria water quality standard and station 6BMSC008.98 had a 29% exceedance of the previous bacteria standard. Station 6BLIB001.89 had 2 or more STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_LIB01A02 / Liberty Creek / Mainstem from mile 1.6 downstream to Little River confluence, west of Morris Knob.	4A	Escherichia coli (E. coli)	2020	L	1.88
VAS-P05R_LIB02A04 / Liberty Creek / At Liberty from spring downstream of Rt. 608 bridge upstream parallel to SR 91 to unnamed tributary confluence.	4A	Escherichia coli (E. coli)	2020	L	1.89
VAS-P05R_MSC01A02 / Maiden Spring Creek / From the Little River confluence upstream to foot of Morris Knob north of Robbins Gap,	4A	Escherichia coli (E. coli)	2016	L	6.70
VAS-P05R_MSC01C04 / Maiden Spring Creek / This is the middle segment of Maiden Spring Creek from unnamed tributary with Buchanan Cemetery downstream through Thompson Valley to a Morris Knob tributary.	4A	Escherichia coli (E. coli)	2010	L	9.52

Maiden Spring Creek and Liberty Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 19.99

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P05R_MSC01A02 / Maiden Spring Creek / From the Little River confluence upstream to foot of Morris Knob north of Robbins Gap,	4A	Fecal Coliform	2004	L	6.70
VAS-P05R_MSC01C04 / Maiden Spring Creek / This is the middle segment of Maiden Spring Creek from unnamed tributary with Buchanan Cemetery downstream through Thompson Valley to a Morris Knob tributary.	4A	Fecal Coliform	2004	L	9.52

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Maiden Spring Creek and Liberty Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			16.22

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P06R-01-BAC Big Cedar Creek and Tributaries

Cause Location: These segments begin 5 miles upstream of Lebanon’s raw water intake and continues downstream to the confluence with the Clinch River.

Tributaries included: Loop Creek, from Route 80 to the Elk Garden Creek confluence. Burgess Creek, from the Campbell Branch confluence to the Big Cedar Creek confluence. Elk Garden Creek, from Elk Garden to the confluence with Big Cedar Creek.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6BBCD001.89, 6BBCD006.66, 6BBCD009.83, 6BBUG000.10, 6BEKG004.18, 6BLOO004.25 and 6BLOO006.03 are impaired based on the previous bacteria water quality standard. 6BEKG008.48 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P06R_BCD01A98 / Big Cedar Creek / From vicinity of Daughertys Cave downstream to confluence with Clinch River.	4A	Escherichia coli (E. coli)	2006	L	4.20
VAS-P06R_BCD02A00 / Big Cedar Creek / East of Lebanon, from Lebanon raw water intake downstream to Little Cedar Creek confluence.	4A	Escherichia coli (E. coli)	2006	L	2.80
VAS-P06R_BCD02A02 / Big Cedar Creek / North of Lebanon, from Little Cedar Creek confluence to SR 640 bridge near Daughertys Cave.	4A	Escherichia coli (E. coli)	2008	L	1.11
VAS-P06R_BCD03A00 / Big Cedar Creek / Big Cedar Creek headwaters from Lebanon’s raw water intake to a point 5 miles upstream on Clinch Mountain.	4A	Escherichia coli (E. coli)	2006	L	3.30
VAS-P06R_BUG01A06 / Burgess Creek / South of Lebanon from Campbell Branch confluence to confluence with Big Cedar Creek.	4A	Escherichia coli (E. coli)	2006	L	1.56
VAS-P06R_EKG01A06 / Elk Garden Creek / From Elk Garden to confluence with Big Cedar Creek upstream to the end of PWS segment.	4A	Escherichia coli (E. coli)	2006	L	3.50
VAS-P06R_EKG01A10 / Elk Garden Creek / Enters Big Cedar Creek near Elk Garden to the north above Rosedale.	4A	Escherichia coli (E. coli)	2012	L	8.09
VAS-P06R_LOO01A06 / Loop Creek / West of Corn Valley, from near Rt. 80 upstream to Elk Garden Creek confluence.	4A	Escherichia coli (E. coli)	2006	L	2.60
VAS-P06R_LOO01B12 / Loop Creek / East of Lebanon from near Rt. 80, upstream to Sturgeon Branch confluence on the west side of Clinch Mountain.	4A	Escherichia coli (E. coli)	2012	L	3.99

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Impaired (Category 4 or 5) Waters in 2022

Big Cedar Creek and Tributaries

Recreation

Estuary
(Sq. Miles)
Reservoir
(Acres)
River
(Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 31.15

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P06R_BCD01A98 / Big Cedar Creek / From vicinity of Daughertys Cave downstream to confluence with Clinch River.	4A	Fecal Coliform	2006	L	4.20
VAS-P06R_BCD02A02 / Big Cedar Creek / North of Lebanon, from Little Cedar Creek confluence to SR 640 bridge near Daughertys Cave.	4A	Fecal Coliform	2004	L	1.11

Big Cedar Creek and Tributaries

Recreation

Estuary
(Sq. Miles)
Reservoir
(Acres)
River
(Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 5.31

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P06R-02-BAC** Little Cedar Creek

Cause Location: These segments include Little Cedar Creek from the western edge of Lebanon to the confluence with Big Cedar Creek.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BLTL001.11 had a 72% exceedance rate of the previous E. coli water quality standard. Station 6BLTL003.31 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P06R_LTL01A10 / Little Cedar Creek / Drains Lebanon, from the Campbell Branch confluence, Willis area, upstream to near SR 654.	4A	Escherichia coli (E. coli)	2018	L	6.04
VAS-P06R_LTL01A12 / Little Cedar Creek / A Big Cedar Creek tributary east of Lebanon.	4A	Escherichia coli (E. coli)	2012	L	2.20

Little Cedar Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.24

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P06R-02-BEN** Little Cedar Creek

Cause Location: Little Cedar Creek drains Lebanon from the Campbell Branch confluence, in the Willis area, upstream to near Rt. 654.

Cause City/County: Russell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 6BLTL003.31 was impaired based on VSCI scores of 48.5 and 51.9 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P06R_LTL01A10 / Little Cedar Creek / Drains Lebanon, from the Campbell Branch confluence, Willis area, upstream to near SR 654.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	6.04

Little Cedar Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.04

Sources: Loss of Riparian Habitat; Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P07R-01-BAC** Clinch River and Tributaries

Cause Location: This segment includes the mainstem from the Big Cedar Creek confluence downstream to the Dumps Creek confluence.

Tributaries included: Thompson Creek, from Coulwood to the confluence with the Clinch River.
 Weaver Creek, from the confluence with Hart Creek to the confluence with the Clinch River.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM stations 6BTMP003.58, 6BTMP006.26, and 6BWEA000.02 are impaired based on the previous bacteria water quality standard. Trend monitoring station 6BCLN271.50 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P07R_CLN01A00 / Clinch River / Mainstem from Big Cedar Creek confluence downstream to Dumps Creek confluence at Carbo.	4A	Escherichia coli (E. coli)	2006	L	14.11
VAS-P07R_TMP01A06 / Thompson Creek / From Coulwood to confluence with Clinch River at Artrip.	4A	Escherichia coli (E. coli)	2006	L	4.45
VAS-P07R_TMP02A10 / Thompson Creek / Headwaters, west of Honaker downstream to just east of Coulwood parallel to N&W Railroad.	4A	Escherichia coli (E. coli)	2012	L	3.41
VAS-P07R_WEA01A06 / Weaver Creek / From headwaters at Bradley Gap on Big A Mountain to confluence with Clinch River west of Artrip.	4A	Escherichia coli (E. coli)	2006	L	9.50

Clinch River and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			31.47

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **P07R-02-BEN** Mill Creek

Cause Location: A Clinch River tributary, from the headwaters on Copper Ridge to Pennus Hollow.

Cause City/County: Russell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station located at 6BMIF003.28 was impaired based on VSCI scores of 57.5 and 58 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P07R_MIF01A10 / Mill Creek / A Clinch River tributary, from headwaters on Copper Ridge to Pennus Hollow.	5A	Benthic Macroinvertebrates Bioassessments	2014	H	1.85

Mill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.85

Sources: Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: P09L-01-HG Bark Camp Lake

Cause Location: A Virginia DWR owned lake off Rt. 822 in Scott County. Also known as Corder Bottom Lake.

Cause City/County: Scott County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6BLSR008.12 on 5/18/2020 show mercury levels above the fish tissue value of 300 ppb in a largemouth bass composite sample.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09L_LSR01A02 / Bark Camp Lake / Virginia DWR owned lake off Rt. 822 in Scott County, also known as Corder Bottom Lake.	5A	Mercury in Fish Tissue	2010	L	41.07

Bark Camp Lake

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	41.07	

Sources: Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: P09R-01-BAC Clinch River

Cause Location: These segments include the mainstem of the Clinch River from the Guest River confluence downstream to Little Stony Creek and from Little Stony Creek downstream to the Staunton Creek confluence, and from the Dumps Creek confluence downstream of the Lick Creek confluence, and from Lick Creek at St. Paul downstream to PWS segment.

Cause City/County: Russell County; Scott County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6BCLN242.00 and 6BCLN250.67 are impaired based on the previous bacteria water quality standard. Station 6BCLN237.09 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_CLN01A00 / Clinch River / Mainstem Clinch from Little Stony Creek confluence north of Mill Island downstream, past Dungannon, to Staunton Creek confluence.	4A	Escherichia coli (E. coli)	2012	L	6.00
VAS-P09R_CLN01A08 / Clinch River / Mainstem from Lick Creek confluence at Saint Paul downstream to PWS segment, near Craigen Tunnel.	4A	Escherichia coli (E. coli)	2014	L	3.32
VAS-P09R_CLN01B00 / Clinch River / Five miles of Clinch River mainstem above Carfax raw water intake, from Bull Run upstream to near Craigen Tunnel.	4A	Escherichia coli (E. coli)	2014	L	4.94
VAS-P09R_CLN02B08 / Clinch River / Mainstem from Guest River confluence at Bangor, downstream to confluence of Little Stony Creek near Mill Island.	4A	Escherichia coli (E. coli)	2014	L	5.46

Clinch River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.72

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_CLN01A00 / Clinch River / Mainstem Clinch from Little Stony Creek confluence north of Mill Island downstream, past Dungannon, to Staunton Creek confluence.	4A	Fecal Coliform	2004	L	6

Clinch River

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6

Sources: Rural (Residential Areas)

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Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P09R-02-BAC** Clinch River

Cause Location: The Clinch River mainstem from the Lick Creek confluence at Boody, upstream to an unnamed tributary at rivermile 259.68.

Cause City/County: Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station at 6BCLN256.31 had a 30% exceedance of the previous bacteria water quality standard

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_CLN01C00 / Clinch River / Clinch River mainstem from Lick Creek confluence at Boody, upstream to unnamed tributary @ 259.68, includes Kiser Bend, site of Clinch River Steam Plant.	5A	Escherichia coli (E. coli)	2012	L	4.22

Clinch River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.22

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P09R-03-BAC** **Staunton Creek and Fall Creek**

Cause Location: This segment includes both Staunton and Fall Creek from their headwaters to their confluences with the Clinch River.

Cause City/County: Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BFLC000.52 had a 41% exceedance of the previous E.coli water quality standard and stations 6BSUT001.71 and 6BSUT004.66 had a 17% and a 41% exceedance of the previous E.coli standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_FLC01A02 / Fall Creek / Fall Creek from Beaver Hollow confluence to Clinch River east of Dungannon.	4A	Escherichia coli (E. coli)	2006	L	3.01
VAS-P09R_SUT01A02 / Staunton Creek & tributaries / Tributaries to Clinch River from Stone Mountain north of Buckner Ridge in Jefferson National Forest, east of Wood.	4A	Escherichia coli (E. coli)	2006	L	9.74

Staunton Creek and Fall Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.75

Sources: Rural (Residential Areas); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P09R-05-BAC Russell Creek

Cause Location: This segment includes the headwaters of Russell Creek downstream to the confluence with the Clinch River.

Cause City/County: Russell County; Scott County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BRUS001.25 had a 17% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_RUS01A06 / Russell Creek / Clinch River tributary near Shannon Tunnel, through Virginia City from Nancy Ridge.	4A	Escherichia coli (E. coli)	2008	L	5.23

Russell Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			5.23

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P09R-08-BAC** Cowan Creek

Cause Location: This segment includes from Copper Ridge near Sunny Point at rivermile 2.7 to the confluence with Sinking Creek.

Cause City/County: Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station 6BCOC001.19 had a 17% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_COC01A02 / Cowan Creek / Cowan Creek from Copper Ridge near Sunny Point at 2.7 to confluence with Sinking Creek.	5A	Escherichia coli (E. coli)	2018	L	4.16

Cowan Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.16

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P09R-09-BAC** **Ramey Branch**

Cause Location: A Corder Branch tributary west of Flatwoods.

Cause City/County: Scott County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6ARAM002.32 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P09R_RAM01A20 / Ramey Branch / Corder Branch tributary west of Flatwoods.	4A	Escherichia coli (E. coli)	2020	L	3.58

Ramey Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.58

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P10R-01-BAC Lick Creek and Tributaries

Cause Location: This segment includes the headwaters of Lick Creek and continues downstream to the confluence with the Clinch River, it also includes Cigarette Hollow and Right Fork Lick Creek and Gravel Lick Creek.

Cause City/County: Dickenson County; Russell County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station 6BLCC006.75 and citizen monitoring station 6BGRV-BLT1-MRRP are impaired based on the previous bacteria water quality standard. Station 6BLCC000.09 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P10R_GRV01A10 / Gravel Lick Creek / Lick Creek tributary from Hamlin upstream to Gravel Lick, north of Red Oak Ridge.	4A	Escherichia coli (E. coli)	2012	L	2.50
VAS-P10R_LCC01A98 / Lick Creek / Mainstem from unnamed tributary confluence at river mile 4.83, north of Sun, downstream to Clinch River confluence near Saint Paul.	4A	Escherichia coli (E. coli)	2006	L	4.92
VAS-P10R_LCC02A02 / Lick Creek / Mainstem from headwaters south of Trammel, through Dante, downstream to unnamed tributary confluence at river mile 4.85.	4A	Escherichia coli (E. coli)	2006	L	4.70

Lick Creek and Tributaries

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 12.12

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P10R_LCC01A98 / Lick Creek / Mainstem from unnamed tributary confluence at river mile 4.83, north of Sun, downstream to Clinch River confluence near Saint Paul.	4A	Fecal Coliform	2002	L	4.92
VAS-P10R_LCC02A02 / Lick Creek / Mainstem from headwaters south of Trammel, through Dante, downstream to unnamed tributary confluence at river mile 4.85.	4A	Fecal Coliform	2002	L	4.70
VAS-P10R_LCR01A98 / Right Fork Lick Creek / Headwaters at Flint Gap downstream to Lick Creek confluence in Dante.	4A	Fecal Coliform	2004	L	3.04
VAS-P10R_XBM01A98 / Cigarette Hollow / Headwaters on Flat Top Ridge to Right Fork confluence.	4A	Fecal Coliform	2004	L	1.14

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Lick Creek and Tributaries

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Fecal Coliform - Total Impaired Size by Water Type:			13.8

Sources: Rural (Residential Areas); Septage Disposal; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P10R-01-BEN** **Lick Creek and Tributaries**

Cause Location: This segment includes the headwaters of Lick Creek and continues downstream to the confluence with the Clinch River, it also includes Cigarette Hollow, Right Fork Lick and Laurel Branch.

Cause City/County: Dickenson County; Russell County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological station located at 6BLCC000.09 was impaired based on VSCI scores of 47.6 and 58 in 2016 and 57.4 and 59.7 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P10R_LCC01A98 / Lick Creek / Mainstem from unnamed tributary confluence at river mile 4.83, north of Sun, downstream to Clinch River confluence near Saint Paul.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	4.92
VAS-P10R_LCC02A02 / Lick Creek / Mainstem from headwaters south of Trammel, through Dante, downstream to unnamed tributary confluence at river mile 4.85.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	4.70
VAS-P10R_LCR01A98 / Right Fork Lick Creek / Headwaters at Flint Gap downstream to Lick Creek confluence in Dante.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.04
VAS-P10R_LEL01A98 / Laurel Branch / Headwaters of Laurel Branch and Left Fork through West Dante community to Lick Creek confluence at Dante,	4A	Benthic Macroinvertebrates Bioassessments	2004	L	5.53
VAS-P10R_XBM01A98 / Cigarette Hollow / Headwaters on Flat Top Ridge to Right Fork confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	1.14

Lick Creek and Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			19.33

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Loss of Riparian Habitat; Rural (Residential Areas)

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P10R-06-BAC Honey Branch

Cause Location: A Lick Creek tributary near Morefield, upstream to Honeycomb Branch, WQS Section 2.

Cause City/County: Dickenson County; Russell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: station 6BHON002.08 had a 23% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P10R_HON01A14 / Honey Branch / A Lick Creek tributary near Morefield, upstream to Honeycomb Branch.	4A	Escherichia coli (E. coli)	2018	L	2.89

Honey Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.89

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P11R-01-BEN Guest River and Tributaries

Cause Location: This segment begins at the confluence with Sepulcher Creek and extends downstream to the confluence with the Clinch River and also includes Critical Fork, Bear Creek, and Selcer Branch.

Cause City/County: Norton; Scott County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: DEQ biological stations 6BGUE006.50 and 6BGUE016.54 were impaired based on VSCI scores. Probabilistic monitoring station 6BSEL001.81 was impaired based on VSCI scored. Non agency data for Critical Fork, Bear Creek indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_BER02A00 / Bear Creek / Bear Creek from Town of Wise raw water intake downstream to Yellow Creek confluence, southeast of Wise.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	3.10
VAS-P11R_CRI01A14 / Critical Fork / Guest River tributary, origin on Indian Mountain and confluence at Dixiana.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.31
VAS-P11R_GUE01A00 / Guest River / Mainstem, from Crab Orchard Branch confluence downstream to confluence with Clinch River near Bangor.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	4.15
VAS-P11R_GUE02A98 / Guest River / Mainstem from Bad Branch confluence south of Coeburn downstream to Crab Orchard Branch confluence.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	3.10
VAS-P11R_GUE03A06 / Guest River / Mainstem from Sepulcher Creek confluence at Addington (mile 26.21) downstream to the Parson Branch confluence, immediately upstream of the Rt. 23 bridge near Esserville.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	2.62
VAS-P11R_GUE03A98 / Guest River / Mainstem from the Parson Branch confluence downstream to the Bad Branch confluence.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	16.78
VAS-P11R_GUE04A96 / Guest River / Mainstem from headwaters near Fox Gap downstream to the confluence of Sepulcher Creek at Addington.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	8.94
VAS-P11R_SEL01A14 / Selcer Branch / Hurricane Creek tributary east of Wise	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.06
VAS-P11R_XHW01A14 / Bear Creek tributary / South of Clinch Valley College, flows north from Gibson Cemetery area.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.21

Guest River and Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			43.27

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Rural (Residential Areas); Silviculture Activities; Surface Mining

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P11R-03-BAC Guest River and Bear Creek

Cause Location: This segment extends from the Guest River mainstem at the confluence with Crab Orchard Creek downstream to the confluence with the Clinch River and Bear Creek from the confluence with Yellow Creek confluence downstream to the Guest River confluence and also includes Glade Creek and Yellow Creek.

Cause City/County: Norton; Scott County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6BBER001.14, 6BGLA000.18, 6BGUE026.55, 6BGUE021.41, 6BGUE026.55, 6BGUE013.71, 6BGUE006.50, 6BSEP000.55, and 6BYLP001.50 are impaired based on the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_BER01A98 / Bear Creek / Bear Creek from Yellow Creek confluence downstream to the Guest River confluence west of Ramsey.	4A	Escherichia coli (E. coli)	2010	L	1.94
VAS-P11R_GLA01A14 / Glade Creek / Yellow Creek tributary, Town of Wise.	4A	Escherichia coli (E. coli)	2014	L	1.91
VAS-P11R_GUE01A00 / Guest River / Mainstem, from Crab Orchard Branch confluence downstream to confluence with Clinch River near Bangor.	4A	Escherichia coli (E. coli)	2004	L	4.15
VAS-P11R_GUE02A98 / Guest River / Mainstem from Bad Branch confluence south of Coeburn downstream to Crab Orchard Branch confluence.	4A	Escherichia coli (E. coli)	2006	L	3.10
VAS-P11R_GUE03A06 / Guest River / Mainstem from Sepulcher Creek confluence at Addington (mile 26.21) downstream to the Parson Branch confluence, immediately upstream of the Rt. 23 bridge near Esserville.	4A	Escherichia coli (E. coli)	2012	L	2.62
VAS-P11R_GUE03A98 / Guest River / Mainstem from the Parson Branch confluence downstream to the Bad Branch confluence.	4A	Escherichia coli (E. coli)	2012	L	16.78
VAS-P11R_GUE04A96 / Guest River / Mainstem from headwaters near Fox Gap downstream to the confluence of Sepulcher Creek at Addington.	4A	Escherichia coli (E. coli)	2012	L	8.94
VAS-P11R_SEP01A98 / Sepulcher Creek / Headwaters at Glamorgan to Guest River confluence near Addington.	4A	Escherichia coli (E. coli)	2018	L	2.93
VAS-P11R_YLO01A98 / Yellow Creek / Mainstem from headwaters at Berry Chapel, east of Wise, to Bear Creek confluence.	4A	Escherichia coli (E. coli)	2014	L	3.17

Guest River and Bear Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			45.54

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Appendix 4 - Fact Sheets for
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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_GUE01A00 / Guest River / Mainstem, from Crab Orchard Branch confluence downstream to confluence with Clinch River near Bangor.	4A	Fecal Coliform	2002	L	4.15

Guest River and Bear Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.15

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P11R-03-PCB Guest River and Bear Creek

Cause Location: This segment begins at the confluence with Parson's Branch and continues downstream to the confluence with the Clinch River and Bear Creek from the Yellow Creek confluence downstream to the Guest River confluence.

Cause City/County: Norton; Wise County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Sediment and Fish Tissue stations located at 6BGUE020.37, 6BGUE014.49 and 6BGUE009.33 indicated levels of polychlorinated biphenyls (PCBs) in carp that exceeded DEQ's screening value for PCBs. Sediment and Fish Tissue stations located at 6BGUE001.14 and 6BGUE006.45 found PCB levels that exceeded the Virginia Department of health's level of concern. PCBs were detected in carp and sediment at station 6BBER001.14.

Recent fish tissue collected at 6BGUE006.45 on 10/20/2020. 3 samples, 3 species (river chub, stoneroller, northern hogsucker); no samples exceeded the tissue screening value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_BER01A98 / Bear Creek / Bear Creek from Yellow Creek confluence downstream to the Guest River confluence west of Ramsey.	5A	PCBs in Fish Tissue	2004	L	1.94
VAS-P11R_GUE01A00 / Guest River / Mainstem, from Crab Orchard Branch confluence downstream to confluence with Clinch River near Bangor.	5A	PCBs in Fish Tissue	2004	L	4.15
VAS-P11R_GUE02A98 / Guest River / Mainstem from Bad Branch confluence south of Coeburn downstream to Crab Orchard Branch confluence.	5A	PCBs in Fish Tissue	2006	L	3.10
VAS-P11R_GUE03A98 / Guest River / Mainstem from the Parson Branch confluence downstream to the Bad Branch confluence.	5A	PCBs in Fish Tissue	2006	L	16.78

Guest River and Bear Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			25.97

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P11R-05-BAC** Crab Orchard Creek

Cause Location: This segment extends from the headwaters downstream to the Guest River confluence.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BCRA000.31 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_CRA01A98 / Crab Orchard (Branch) Creek / Headwaters south of Little Tom Tunnel to Guest River confluence, south of Crab Orchard.	4A	Escherichia coli (E. coli)	2006	L	2.75

Crab Orchard Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 2.75
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Sources: Sewage Discharges in Unsewered Areas

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P11R-06-BAC Little Tom's Creek

Cause Location: This segment includes the headwaters and continues downstream to the Tom's Creek confluence.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BLTF000.68 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_LTF01A98 / Little Tom's Creek / From origin on Stone Mountain through Banner to Tom's Creek confluence in Coeburn.	4A	Escherichia coli (E. coli)	2006	L	4.79

Little Tom's Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.79

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_LTF01A98 / Little Tom's Creek / From origin on Stone Mountain through Banner to Tom's Creek confluence in Coeburn.	4A	Fecal Coliform	2004	L	4.79

Little Tom's Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.79

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P11R-08-BAC** Toms Creek

Cause Location: This segment extends from the headwaters of Toms Creek downstream to the Guest River confluence.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM stations located at 6BTMS000.35 had 2 STV hits in the same 90-day period with less than 10 samples. Station 6BTMS001.51 had a 17% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_TMS01A98 / Toms Creek / Lower mainstem from raw water intake downstream to the Guest River confluence near Riverview.	4A	Escherichia coli (E. coli)	2006	L	6.36
VAS-P11R_TMS02A00 / Toms Creek & tributaries / Upper Toms Creek from Coeburn's raw water intake to its headwaters on Sandy Ridge including tributaries, WQS Section 2f.	4A	Escherichia coli (E. coli)	2006	L	6.26

Toms Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 12.62

Sources: Rural (Residential Areas); Septage Disposal; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P11R-12-PH** Mill Creek

Cause Location: Pine Camp Creek tributary from Stone Mountain in Jefferson National Forest south of Riverview.

Cause City/County: Norton; Scott County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Station 6BMIA000.36 had 1 of 5 pH measurements that did not meet water quality standards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P11R_MIA01A08 / Mill Creek / Pine Camp Creek tributary from Stone Mountain in Jefferson National Forest south of Riverview.	5A	pH	2020	L	2.24

Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.24

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: **P12R-01-BEN** **Bark Camp Branch**

Cause Location: This segment begins at the headwaters, includes the tributary, and continues downstream to the Stony Creek confluence.

Cause City/County: Scott County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: DEQ biological station 6BBAR000.97 was impaired based on a VSCI score of 59.3.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P12R_BAR01A02 / Bark Camp Branch & tributaries / Headwaters and tributary from Osborne Rock on Stone Mountain downstream to Stony Creek confluence in Glades Wildlife Management Area.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	3.07

Bark Camp Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.07

Sources: Atmospheric Deposition - Acidity

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P12R-01-PH** **Bark Camp Branch**

Cause Location: This segment begins at the headwaters, includes the tributary, and continues downstream to the Stony Creek confluence.

Cause City/County: Scott County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The biological station 6BBAR000.97 found that 8 of 8 pH measurements did not meet water quality standards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P12R_BAR01A02 / Bark Camp Branch & tributaries / Headwaters and tributary from Osborne Rock on Stone Mountain downstream to Stony Creek confluence in Glades Wildlife Management Area.	5A	pH	2010	L	3.07

Bark Camp Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.07

Sources: Atmospheric Deposition - Acidity

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Tennessee and Big Sandy River Basins

Cause Group Code: **P12R-02-PH** Devil Fork

Cause Location: Devil Fork is a tributary to Straight Fork in Jefferson National Forest, north of Stone Mountain.

Cause City/County: Scott County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The DEQ Biological monitoring station 6BDEV000.07 found that 10 of 13 pH measurements did not meet water quality standards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P12R_DEV01A02 / Devil Fork / Devil Fork is a tributary to Straight Fork in Jefferson National Forest, north of Stone Mountain located on the East Stone Gap USGS Quad Map.	5A	pH	2014	L	4.4

Devil Fork

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.4

Sources: Atmospheric Deposition - Acidity; Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P13R-02-PCB** **Stock Creek**

Cause Location: From stream mile 4.56 downstream to the Clinch River confluence at Clinchport.

Cause City/County: Scott County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: AWQM and sediment/fish tissue station located at 6BSTO004.56 had one fish that exceeded the DEQ screening value for PCBs.

Recent fish tissue collected on 10/22/2020. 2 samples, 2 species (rock bass and stoneroller); no samples exceeded the tissue screening value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P13R_STO01A00 / Stock Creek / From stream mile 4.56, near Sunbright, downstream to the Clinch River confluence at Clinchport.	5A	PCBs in Fish Tissue	2004	L	4.79

Stock Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.79

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P13R-03-BAC** Clinch River, Cove Creek and Stock Creek

Cause Location: This segment includes the mainstem Clinch River from Copper Creek upstream to the Cove Creek confluence, Lower Cove Creek from its confluence with Millstone Branch to the Clinch River, and Stock Creek from the impoundment east of Sunbright downstream to the Clinch River confluence.

Cause City/County: Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM stations 6BCLN213.02, 6BCLN227.34, 6BCOV001.68, 6BSTO000.45, 6BSTO004.56 are impaired based on the previous bacteria water quality standard. Trend monitoring station 6BCLN206.70 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P13R_CLN01A02 / Clinch River / Mainstem Clinch River from Copper Creek confluence near Speers Ferry downstream to the Tennessee state line near Shelby Creek.	4A	Escherichia coli (E. coli)	2008	L	9.63
VAS-P13R_CLN02A02 / Clinch River / Mainstem Clinch River from Copper Creek confluence upstream to Cove Creek confluence near Starnes Slant.	4A	Escherichia coli (E. coli)	2014	L	13.02
VAS-P13R_CLN03A02 / Clinch River / Mainstem Clinch River from Stony Creek confluence near Fort Blackmore downstream to Cove Creek confluence.	4A	Escherichia coli (E. coli)	2020	L	3.46
VAS-P13R_COV01B08 / Cove Creek / Lower Cove Creek from its confluence with Millstone Branch to confluence with Clinch River north of Starnes Slant.	4A	Escherichia coli (E. coli)	2008	L	7.14
VAS-P13R_STO01A00 / Stock Creek / From stream mile 4.56, near Sunbright, downstream to the Clinch River confluence at Clinchport.	4A	Escherichia coli (E. coli)	2008	L	4.79
VAS-P13R_STO02A98 / Stock Creek / From the impoundment east of Sunbright downstream to stream mile 4.56.	4A	Escherichia coli (E. coli)	2014	L	0.55

Clinch River, Cove Creek and Stock Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			38.59

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P14R-01-BAC Copper Creek and Tributaries

Cause Location: This segment extends from just above Dickensonville downstream to the Obeys Creek confluence, the lower most segment of Valley Creek that confluences with Copper Creek and Moll Creek from the headwaters to the confluence with Copper Creek and tributaries. The lower mainstem of Amos Branch from south of Crackers Neck downstream to the Copper Creek confluence and Obeys Creek from 2.5 miles above the Copper Creek confluence upstream to the headwaters.

Cause City/County: Russell County; Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM stations 6BAMO002.28, 6BCOP023.91, 6BCOP047.75, 6BCOP052.77, 6BMOL000.03, 6BMOL003.98, 6BPTR000.02, and 6BVAL000.25 are impaired based on the previous water quality standard. 6BOBE005.56 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P14R_AMO02A02 / Amos Branch / Headwaters on Copper Ridge, north of Crackers Neck.	4A	Escherichia coli (E. coli)	2020	L	1.34
VAS-P14R_COP02A02 / Copper Creek / From the Valley Creek confluence upstream to the Grassy Creek confluence.	4A	Escherichia coli (E. coli)	2014	L	21.26
VAS-P14R_COP02B08 / Copper Creek / From the Grassy Creek confluence upstream to beginning of WQS Class V waters.	4A	Escherichia coli (E. coli)	2008	L	10.02
VAS-P14R_COP03A02 / Copper Creek / Copper Creek from mile 52.5 through Dickensonville to 56.8.	4A	Escherichia coli (E. coli)	2008	L	4.53
VAS-P14R_COP03A08 / Copper Creek / From Valley Creek confluence downstream to Obeys Creek confluence.	4A	Escherichia coli (E. coli)	2014	L	7.71
VAS-P14R_MOL01A08 / Moll Creek & tributaries / From Copper Creek upstream, to second tributary, includes Porter Hollow.	4A	Escherichia coli (E. coli)	2008	L	2.78
VAS-P14R_MOL01B10 / Moll Creek & tributaries / Headwaters and tributaries of Moll Creek.	4A	Escherichia coli (E. coli)	2014	L	9.61
VAS-P14R_OBE02A02 / Obeys Creek / From 2.5 miles above Copper Creek confluence upstream to headwaters on Copper Ridge.	4A	Escherichia coli (E. coli)	2020	L	5.51
VAS-P14R_PTR01A14 / Porter Hollow / Moll Creek tributary.	4A	Escherichia coli (E. coli)	2014	L	1.85
VAS-P14R_VAL01A02 / Valley Creek, lower / Lower segment, from near Farley Chapel to confluence with Copper Creek.	4A	Escherichia coli (E. coli)	2008	L	1.05

Copper Creek and Tributaries

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		65.66

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Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P14R-02-BEN** **Blackoak Branch Tributary**

Cause Location: This segment is north of Spivey Mill parallel to Route 665.

Cause City/County: Scott County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological station located at 6BXGD000.01 was impaired based on VSCI scores of 54.7 and 74.3 in 2019

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P14R_XGD01A12 / Blackoak Branch tributary / North of Manville School flows from Copper Creek Knobs.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	0.77

Blackoak Branch Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.77

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P14R-03-BEN** Obeys Creek

Cause Location: This segment of Obeys Creek includes from the headwaters downstream to just north of Addington Store.

Cause City/County: Scott County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6BOBE005.85 is impaired based on a VSCI score of 43 in 2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P14R_OBE02A02 / Obeys Creek / From 2.5 miles above Copper Creek confluence upstream to headwaters on Copper Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2020	H	5.51

Obeys Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.51

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P15R-00-BAC North Fork Clinch River

Cause Location: This segment includes the upper mainstem from 5 miles above the Duffield raw water intake at Jasper. It also includes from the Fraley Branch confluence and extends downstream to the Tennessee political boundary and includes Drakes Branch, a North Fork Clinch River tributary near Pattonville.

Cause City/County: Lee County; Scott County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BNFC010.65 had a 42% exceedance of the previous E.coli water quality standard, station 6BNFC018.68 had a 33% exceedance, station 6BNFC003.80 had a 42% exceedance, station 6BNFC022.47 had a 17% exceedance, and station 6BDAK001.71 had a 25% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P15R_DAK01A10 / Drakes Branch / A North Fork Clinch tributary, south of Pattonville.	4A	Escherichia coli (E. coli)	2014	L	2.46
VAS-P15R_NFC01A00 / North Fork Clinch River / Upper mainstem from 5 miles above Duffield raw water intake at Jasper.	4A	Escherichia coli (E. coli)	2018	L	4.56
VAS-P15R_NFC01B00 / North Fork Clinch River / Mainstem from Pattonville Branch confluence downstream to Cox Branch confluence.	4A	Escherichia coli (E. coli)	2008	L	7.89
VAS-P15R_NFC01B08 / North Fork Clinch River / Mainstem from Fraley Branch confluence downstream to the Pattonville Branch confluence.	4A	Escherichia coli (E. coli)	2008	L	3.51
VAS-P15R_NFC01C02 / North Fork Clinch River / Mainstem from the Cox Branch confluence near Fairview downstream to Tennessee state line near Dona.	4A	Escherichia coli (E. coli)	2010	L	5.73
VAS-P15R_NFC02A10 / North Fork Clinch River / South of Duffield downstream to Fraley Branch confluence.	4A	Escherichia coli (E. coli)	2018	L	2.77

North Fork Clinch River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		26.92

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P15R_NFC01C02 / North Fork Clinch River / Mainstem from the Cox Branch confluence near Fairview downstream to Tennessee state line near Dona.	4A	Fecal Coliform	2002	L	5.73

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North Fork Clinch River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			5.73

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: P15R-01-BEN Dry Branch

Cause Location: North Fork Clinch tributary, north of Duffield.

Cause City/County: Lee County; Scott County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station at 6BDRA001.07 was impaired based on a VSCI score of 46.2 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P15R_DRA01A08 / Dry Branch / North Fork Clinch tributary, north of Duffield.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.22

Dry Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.22

Sources: Rural (Residential Areas); Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: P16R-01-BAC Blackwater Creek

Cause Location: This segment includes the Blackwater Creek mainstem from the East Fork Blackwater Creek confluence downstream to the Tennessee political boundary and the East Fork Blackwater Creek mainstem from the Confluence of North Fork Blackwater Creek to the Blackwater Creek confluence.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BBKW005.82 had a 41% exceedance of the previous E.coli water quality standard. Station 6BBCD001.05 had a 17% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P16R_BCE01A00 / East Fork Blackwater Creek / East Fork Blackwater Creek mainstem from the confluence of North Fork Blackwater Creek to the Blackwater Creek confluence.	4A	Escherichia coli (E. coli)	2016	L	1.94
VAS-P16R_BKW01A02 / Blackwater Creek / Blackwater Creek mainstem from East Fork Blackwater Creek confluence downstream to Tennessee state line.	4A	Escherichia coli (E. coli)	2008	L	2.10

Blackwater Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.04

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P16R_BKW01A02 / Blackwater Creek / Blackwater Creek mainstem from East Fork Blackwater Creek confluence downstream to Tennessee state line.	4A	Fecal Coliform	2004	L	2.1

Blackwater Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.1

Sources: Septage Disposal; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-00-BEN** **Dark Hollow**

Cause Location: This segment is a Powell River tributary south of Appalachia.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6BDAR000.26 was impaired based on VSCI scores of 48 and 54 in 2011.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_DAR01A02 / Dark Hollow / A Powell River tributary south of Appalachia and north of Little Stone Mountain.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	1.41

Dark Hollow

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.41

Sources: Atmospheric Deposition - Acidity; Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-00-PH** **Dark Hollow**

Cause Location: This segment is a Powell River tributary south of Appalachia.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: The biological monitoring station located at 6BDAR000.26 resulted in low VSCI scores. 11 of 11 pH measurements failed to meet water quality standards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_DAR01A02 / Dark Hollow / A Powell River tributary south of Appalachia and north of Little Stone Mountain.	5A	pH	2012	L	1.41

Dark Hollow

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.41

Sources: Atmospheric Deposition - Acidity; Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-01-BAC Callahan Creek

Cause Location: This segment includes the mainstem of Callahan Creek from above Appalachia at Possum Trot Hollow downstream to confluence with Preacher Creek.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6BCAL003.19 had a 64% exceedance and station 6BCAL001.57 had a 36% exceedance of the previous E.coli standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_CAL01A98 / Callahan Creek / Lower mainstem from the Preacher Creek confluence at Andover, downstream to the confluence with Powell River in Appalachia.	4A	Escherichia coli (E. coli)	2008	L	1.68
VAS-P17R_CAL01B04 / Callahan Creek / Above Appalachia from Possum Trot Hollow upstream of Stonega downstream to Preacher Creek confluence at Andover.	4A	Escherichia coli (E. coli)	2006	L	3.64

Callahan Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.32

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_CAL01B04 / Callahan Creek / Above Appalachia from Possum Trot Hollow upstream of Stonega downstream to Preacher Creek confluence at Andover.	4A	Fecal Coliform	2004	L	3.64

Callahan Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.64

Sources: Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P17R-01-BEN Callahan Creek and Tributaries

Cause Location: This segment includes the West Fork of Callahan Creek and the lower mainstem of Callahan Creek from the Preacher Creek confluence downstream to the confluence with Powell River, Mud Lick Creek, Halls Branch, and an unnamed tributary to Callahan Creek that flows from Ninemile Spur upstream of Stonega.

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological monitoring station located at 6BCAL000.03 was impaired based on VSCI scores. Non agency biological data from Appalachian Technical Services indicates impairment on West Fork Callahan Creek, Mud Lick Creek, Halls Branch and an unnamed tributary to Callahan Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_CAL01A98 / Callahan Creek / Lower mainstem from the Preacher Creek confluence at Andover, downstream to the confluence with Powell River in Appalachia.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	1.68
VAS-P17R_CAL01B04 / Callahan Creek / Above Appalachia from Possum Trot Hollow upstream of Stonega downstream to Preacher Creek confluence at Andover.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	3.64
VAS-P17R_CAL01C14 / Callahan Creek / Origin is near Stonega Gap on Black Mountain, upstream of coal company guard shack, access limited.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	3.80
VAS-P17R_CLA01A14 / West Fork Callahan Creek / Bluff Spur drainage.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.53
VAS-P17R_HLS01A14 / Halls Branch / A tributary to Mud Lick Creek from Bluff Spur, north of Osaka.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.94
VAS-P17R_MIK01A06 / Mud Lick Creek / From Roda to confluence with Callahan Creek near Osaka.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.91
VAS-P17R_MIK02A14 / Mud Lick Creek / Sawmill Hollow, upstream of Roda.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	3.13

Callahan Creek and Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			19.63

Sources: Coal Mining; Sewage Discharges in Unsewered Areas; Silviculture Activities; Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-02-BAC Powell River

Cause Location: This segment begins at the Benges Branch confluence and continues downstream to Roaring Fork and includes the mainstem from Pigeon Creek downstream to Dakota Street in Big Stone Gap, river mile 177.53 and from the Benges Branch confluence upstream to the Buckeye Branch confluence.

Cause City/County: Norton; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Stations 6BPOW179.20 and 6BPOW194.75 2 STV hits in the same 90-day period with less than 10 samples. Station 6BPOW193.38 is impaired based on the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_POW01A94 / Powell River / Powell River from Roaring Branch confluence, 180.83, downstream to South Fork Powell River confluence in the Town of Big Stone Gap, river mile 177.53.	4A	Escherichia coli (E. coli)	2006	L	2.71
VAS-P17R_POW01B02 / Powell River / Mainstem Powell River from Benges Branch confluence upstream of Josephine downstream to Roaring Fork confluence at Kent Junction.	4A	Escherichia coli (E. coli)	2010	L	5.47
VAS-P17R_POW01C02 / Powell River / Powell River, from the Benges Branch confluence upstream to the Buckeye Branch confluence, north of Rogers Ridge.	4A	Escherichia coli (E. coli)	2020	L	9.03
VAS-P17R_POW02C06 / Powell River / The mainstem of Powell River south of Appalachia from Pigeon Creek confluence to Roaring Creek confluence.	4A	Escherichia coli (E. coli)	2008	L	1.00

Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.21

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_POW01B02 / Powell River / Mainstem Powell River from Benges Branch confluence upstream of Josephine downstream to Roaring Fork confluence at Kent Junction.	4A	Fecal Coliform	2006	L	5.47

Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			5.47

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Sources: Agriculture; Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas; Wastes from Pets

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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-02-BEN Powell River

Cause Location: These segments include the headwaters of the mainstem of the Powell River, south of Divides Ridge to the Benges Branch confluence; the mainstem at Appalachia, from the Pigeon Creek confluence to the Roaring Creek confluence; and the Powell River from the Roaring Branch confluence downstream to the South Fork Powell River confluence.

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological monitoring stations located at 6BPOW179.20, 6BPOW184.19 were impaired based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_POW01A94 / Powell River / Powell River from Roaring Branch confluence, 180.83, downstream to South Fork Powell River confluence in the Town of Big Stone Gap, river mile 177.53.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	2.71
VAS-P17R_POW01C02 / Powell River / Powell River, from the Benges Branch confluence upstream to the Buckeye Branch confluence, north of Rogers Ridge.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	9.03
VAS-P17R_POW02B06 / Powell River / Mainstem at Appalachia, from Pigeon Creek confluence upstream to Roaring Fork confluence at Kent Junction.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	5.70
VAS-P17R_POW03C14 / Powell River / Headwaters of the mainstem, south of Divides Ridge.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.58

Powell River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			19.02

Sources: Agriculture; Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Mountaintop Mining; Non-Point Source; Rural (Residential Areas); Silviculture Activities; Streambank Modifications/Destabilization; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-03-BEN** **Black Creek**

Cause Location: This segment includes Black Creek and its tributaries from the impoundment downstream to the Powell River confluence.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The segment is impaired based on the VSCI scores of 48.22 and 54.18 at station 6BBLK000.13.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_BLK01A96 / Black Creek / Black Creek and tributaries from impoundment downstream to the Powell River confluence north of Blackwood.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	3.12

Black Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.12

Sources: Coal Mining; Coal Mining Discharges (Permitted); Impacts from Abandoned Mine Lands (Inactive)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-04-BEN** Unnamed tributary to Callahan Creek

Cause Location: Flows from Ninemile Spur upstream of Stonega, WQS Section 1.

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_XHO01A14 / Unnamed tributary to Callahan Creek. / Flows from Ninemile Spur upstream of Stonega, WQS Section 1 (TP03).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	0.59

Unnamed tributary to Callahan Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.59

Sources: Unspecified Land Disturbance

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-07-BEN** Pigeon Creek

Cause Location: This segment includes the headwaters of Pigeon Creek from Black Mtn, the KY line, through the Exeter community downstream to the Laurel Creek confluence.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological monitoring stations located at 6BPIG003.55 AND 6BPIG005.20 were impaired based on VSCI scores of 27 and 56 in 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_PIG01B12 / Pigeon Creek / Headwaters from Little Black Mountain, the KY line, through the Exeter community downstream to the Laurel Fork confluence.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	3.42

Pigeon Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.42

Sources: Coal Mining; Rural (Residential Areas); Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-09-BEN Roaring Fork and Potcamp Fork

Cause Location: This segment includes from the headwaters above the Roaring Fork community to the Powell River confluence at Kent Junction, parallel to Route 603, including Potcamp Fork and Canepatch Creek.

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station located at 6BRIN000.31 was impaired based on VSCI scores of 45 and 68.1 in the 2020 monitoring season. Non agency biological monitoring data provided by Appalachian Technical Services indicates impairment on Potcamp Fork and Canepatch Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_CPH01A14 / Canepatch Creek / Roaring Fork tributary from Rogers Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	8.73
VAS-P17R_POT01A14 / Potcamp Fork / A Roaring Fork tributary, segment is from headwaters downstream to Dunbar.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.86
VAS-P17R_RIN01A00 / Roaring Fork / Lower mainstem from Roaring Fork community to the Powell River confluence at Kent Junction.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	5.05
VAS-P17R_RIN01B14 / Roaring Fork / Headwaters on Black Mountain downstream to the Roaring Fork community.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	10.15

Roaring Fork and Potcamp Fork

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			26.79

Sources: Coal Mining; Mountaintop Mining; Silviculture Harvesting; Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-11-BEN Powell River

Cause Location: This segment includes the mainstem Powell River from the Benges Branch confluence upstream of Josephine downstream to the Roaring Fork confluence and from the Benges Branch confluence upstream to the Buckeye Branch confluence.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological data provided by Appalachian Technical Services indicates impaired VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_POW01B02 / Powell River / Mainstem Powell River from Benges Branch confluence upstream of Josephine downstream to Roaring Fork confluence at Kent Junction.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.47

Powell River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			5.47

Sources: Mountaintop Mining; Surface Mining

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-12-BEN** Powell River

Cause Location: This segment includes the mainstem of the Powell River south of Appalachia from Pigeon Creek to the Roaring Creek confluence

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This segment is bracketed by monitoring station 6BPOW179.20 with VSCI scores of 51.6 and 53.8 in 2016 and 45.2 in 2017 and by 6BPOW184.19 with VSCI scores of 47.32 and 46.55 in 2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_POW02C06 / Powell River / The mainstem of Powell River south of Appalachia from Pigeon Creek confluence to Roaring Creek confluence.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1

Powell River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Rural (Residential Areas)

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Tennessee and Big Sandy River Basins

Cause Group Code: P17R-13-BEN Looney Creek

Cause Location: This segment is a Powell River tributary west of Appalachia.

Cause City/County: Norton; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological data provided by Appalachian Technical Services indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_LOC01A12 / Looney Creek / Powell River tributary west of Appalachia.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	6.05

Looney Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.05

Sources: Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: **P17R-14-PH** **Roaring Branch**

Cause Location: North of Big Stone Gap from the headwaters near High Butte downstream to the confluence with the Powell River in Big Stone Gap, WQS Section 1.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: 64% of pH measurements failed to meet WQS at 6BRNN000.07.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P17R_RRN01A00 / Roaring Branch / North of Big Stone Gap from headwaters near High Butte downstream to the confluence with Powell River in Big Stone Gap.	5A	pH	2018	L	2.92

Roaring Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.92

Sources: Atmospheric Deposition - Acidity

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Tennessee and Big Sandy River Basins

Cause Group Code: P18L-01-HG Big Cherry Reservoir

Cause Location: This reservoir is located east of East Stone Gap on Powell Mountain.

Cause City/County: Wise County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: At 6BPLL012.99, two largemouth bass samples exceeded the tissue value for mercury. In 2008, VDH issued a fish consumption advisory limiting consumption of largemouth bass to no more than two meals per month.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18L_PLL01L02 / Big Cherry Reservoir / East of East Stone Gap on Powell Mountain.	5A	Mercury in Fish Tissue	2010	L	104.01

Big Cherry Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	104.01	

Sources: Atmospheric Deposition - Toxics

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Tennessee and Big Sandy River Basins

Cause Group Code: P18R-01-BAC South Fork Powell River

Cause Location: This segment begins at the Big Cherry Reservoir and continues downstream to the confluence with the Powell River.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station located at 6BPLL006.38 had a 33% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_PLL02A00 / South Fork Powell River / From Big Cherry Reservoir dam on Little Mountain downstream to Beaverdam Creek confluence southeast of East Stone Gap.	4A	Escherichia coli (E. coli)	2012	L	6.45

South Fork Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.45

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_PLL02A00 / South Fork Powell River / From Big Cherry Reservoir dam on Little Mountain downstream to Beaverdam Creek confluence southeast of East Stone Gap.	4A	Fecal Coliform	2004	L	6.45

South Fork Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			6.45

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: P18R-02-BAC Butcher Fork

Cause Location: This segment includes the headwaters downstream to the South Fork Powell River confluence.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station located at 6BBUH000.76 had a 22% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_BUH01A04 / Butcher Fork / From headwaters north of Buffalo Gap downstream to confluence with South Fork Powell River south of Big Stone Gap.	4A	Escherichia coli (E. coli)	2012	L	4.97

Butcher Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.97

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_BUH01A04 / Butcher Fork / From headwaters north of Buffalo Gap downstream to confluence with South Fork Powell River south of Big Stone Gap.	4A	Fecal Coliform	2004	L	4.97

Butcher Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.97

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: P18R-03-BAC South Fork Powell River

Cause Location: This segment includes the mainstem from the confluence of Beaverdam Creek, north of East Stone Gap, downstream to the confluence with the Powell River at Three Forks in Big Stone Gap.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station at 6BPLL001.61 had a 43% exceedance and station 6BPLL004.24 had a 50% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_PLL01A02 / South Fork Powell River / Mainstem from confluence of Beaverdam Creek downstream to Butcher Fork confluence at East Stone Gap.	4A	Escherichia coli (E. coli)	2010	L	1.98
VAS-P18R_PLL01A98 / South Fork Powell River / Mainstem from Butcher Fork confluence north of East Stone Gap downstream to confluence with Powell River at Three Forks in Big Stone Gap.	4A	Escherichia coli (E. coli)	2010	L	3.84

South Fork Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.82

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Tennessee and Big Sandy River Basins

Cause Group Code: **P18R-04-BAC** Beaverdam Creek

Cause Location: A South Fork Powell River tributary east of East Stone Gap, from the headwaters near Buffalo Gap downstream.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BBEV000.17 had a 42% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P18R_BEV01A10 / Beaverdam Creek / A South Fork Powell River tributary, east of East Stone Gap, from headwaters near Buffalo Gap, downstream.	5A	Escherichia coli (E. coli)	2018	L	4.04

Beaverdam Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.04

Sources: Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: P19R-01-BAC Mud Creek

Cause Location: This segment includes the mainstem from the Highway 58 crossing downstream to the Powell River confluence.

Cause City/County: Lee County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station located at 6BMDC000.33 had a 25% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P19R_MDC01A10 / Mud Creek / A Powell River tributary from Hwy 58 crossing to Powell River, east of Olinger.	4A	Escherichia coli (E. coli)	2010	L	1.82

Mud Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.82

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P19R-01-BEN** Powell River

Cause Location: This segment extends from confluence of Poor Valley Creek downstream to the Public Water Supply segment.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6BPOW162.89 was impaired based on a VSCI score of 54. Recent data at 6BPOW166.97 indicated the impairment continues with VSCI scores of 50.9 and 78.5 in 2013 and 44.6 and 78.2 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P19R_POW03A00 / Powell River / Near Dryden from confluence of Poor Valley Creek downstream to PWS segment.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	6.62

Powell River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.62

Sources: Agriculture

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Tennessee and Big Sandy River Basins

Cause Group Code: **P19R-02-BEN** **Poor Valley Creek**

Cause Location: This segment includes the headwaters of Poor Valley Creek downstream to its confluence with the Powell River.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4C

Cause Description: This segment was miss-categorized in 2004. USFS monitored site 9120 and found a moderate impairment due to drought conditions.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P19R_PVC01A02 / Poor Valley Creek / Powell River tributary north of Dryden, from headwaters near Dalton Gap.	4C	Benthic Macroinvertebrates Bioassessments	NA	NA	2.82

Poor Valley Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.82

Sources: Drought-related Impacts

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Tennessee and Big Sandy River Basins

Cause Group Code: **P20L-01-HG** **Lake Keokee**

Cause Location: This lake is located south of Exeter on Stone Mountain.

Cause City/County: Lee County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6BPWL025.32 on 5/21/2020 show mercury levels above the tissue value (300 ppb) in a composite sample of largemouth bass.

Previous fish tissue collected on 5/16/2007 show mercury levels above the tissue value in composite samples of largemouth bass and bluegill.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20L_PWL01L02 / Lake Keokee / This recreation impoundment was constructed in 1975, South of Exeter on Stone Mountain.	5A	Mercury in Fish Tissue	2010	L	96.22

Lake Keokee

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		96.22	

Sources: Atmospheric Deposition - Toxics

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Tennessee and Big Sandy River Basins

Cause Group Code: **P20L-01-TEMP** **Lake Keokee**

Cause Location: This lake is located south of Exeter on Stone Mountain.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: At 6BPWL024.64, 26% (17 of 65) temperature measurements exceed the WQS for Class V waters during the 2018 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20L_PWL01L02 / Lake Keokee / This recreation impoundment was constructed in 1975, South of Exeter on Stone Mountain.	5A	Temperature	2020	L	96.22

Lake Keokee

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:		96.22	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Tennessee and Big Sandy River Basins

Cause Group Code: P20R-00-BEN Straight Creek and Tributaries

Cause Location: This segment includes not only the headwaters of Straight Creek downstream to the North Fork Powell confluence but also its tributaries including Bailey's Trace, Ely Creek, Lick Branch, Puckett Creek, and Stone Creek.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The following DEQ biological stations were found to be moderately impaired: 6BSTA000.11, 6BSTA000.40, 6BSTA000.54, 6BSTA001.10, 6BSTA002.48, 6BSTA3.62, 6BSTC000.06, 6BSTC000.27 and 6BSTC003.27. A special study contracted by the Division of Mine Land Reclamation and the United States Corp of Engineers verified the benthic impairments of Lick Branch and Ely Creek.

Recent biological data at 6BSRA000.11 had VSCI scores of 58.7 and 44.1 in 2017. 6BSRA003.22 had VSCI score of 54.5 and 55.2 in 2017. 6BSTC000.04 had VSCI scores of 65.7 and 54.1 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_BAI01A00 / Bailey's Trace & tributaries / Headwaters on Black Mountain downstream to Straight Creek confluence near St Charles, including Fawn Branch.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	4.70
VAS-P20R_ELC01A00 / Ely Creek & tributaries / Ely Creek and tributaries downstream to the confluence with Stone Creek.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.28
VAS-P20R_LCK01A00 / Lick Branch / Headwaters downstream to Puckett Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.75
VAS-P20R_PCK01A00 / Puckett Creek & tributaries / A Straight Creek tributary from headwaters to mouth at Maness, including tributaries, west of St. Charles.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.37
VAS-P20R_SRA01A94 / Straight Creek / From headwaters on Little Black Mountain downstream to North Fork Powell confluence near Pockett.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	6.81
VAS-P20R_STC02A00 / Stone Creek & tributaries / Headwaters and tributaries downstream to the Ely Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.22

Straight Creek and Tributaries

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		28.13

Sources: Acid Mine Drainage; Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Sewage Discharges in Unsewered Areas; Silviculture Activities

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Tennessee and Big Sandy River Basins

Cause Group Code: P20R-01-BAC North Fork Powell River

Cause Location: This segment extends from the Straight Creek confluence, river mile 6.25, downstream to the Powell River confluence and also includes the mainstem from the Payne Branch confluence downstream to the Wolf Harbor confluence.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BPWL001.49 had a 27% exceedance, station 6BPWLL004.10 had a 45% exceedance, and station 6BPWL006.02 had a 25% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_PWL01A00 / North Fork Powell River / From Straight Creek confluence near Pocket, river mile 6.25, through Pennington Gap, downstream to Powell River confluence west of Woodway.	4A	Escherichia coli (E. coli)	2004	L	6.06
VAS-P20R_PWL03B02 / North Fork Powell River / Mainstem from Wolf Harbour Branch confluence downstream to confluence of Straight Creek near Pocket.	4A	Escherichia coli (E. coli)	2020	L	2.99

North Fork Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.05

Sources: Septage Disposal

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Tennessee and Big Sandy River Basins

Cause Group Code: P20R-01-BEN North Fork Powell River

Cause Location: This segment extends from the Straight Creek confluence at river mile 6.25, downstream to the Powell River confluence and also includes the mainstem from the Payne Branch confluence downstream to the Wolf Harbor confluence

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological monitoring stations 6BPWL004.40 was impaired based on VSCI scores of 49.4 and 72.5 in 2016 and 75.1 and 38.8 in 2019. Probabilistic monitoring station 6BPWL006.02 was impaired based on VSCI scores of 53.2 and 58.2 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_PWL01A00 / North Fork Powell River / From Straight Creek confluence near Pocket, river mile 6.25, through Pennington Gap, downstream to Powell River confluence west of Woodway.	4A	Benthic Macroinvertebrates Bioassessments	1994	L	6.06
VAS-P20R_PWL03B02 / North Fork Powell River / Mainstem from Wolf Harbour Branch confluence downstream to confluence of Straight Creek near Pocket.	4A	Benthic Macroinvertebrates Bioassessments	2020	L	2.99

North Fork Powell River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.05

Sources: Loss of Riparian Habitat; Silviculture Activities; Streambank Modifications/Destabilization; Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: P20R-01-TEMP North Fork Powell River

Cause Location: This segment includes the mainstem from the Payne Branch confluence at Sigma downstream to the confluence with Straight Creek.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Class V water quality standard for temperature was exceeded in 36% of the samples at the AWQM station located at 6BPWL006.59. Station 6BPWL010.36 had a 11% exceedance of the Class V water quality standard for temperature.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_PWL02A02 / North Fork Powell River / Mainstem from Payne Branch confluence at Sigma downstream to Wolf Harbor Branch confluence.	5A	Temperature	2016	L	7.67
VAS-P20R_PWL03B02 / North Fork Powell River / Mainstem from Wolf Harbour Branch confluence downstream to confluence of Straight Creek near Pocket.	5A	Temperature	2014	L	2.99

North Fork Powell River

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.66

Sources: Loss of Riparian Habitat; Silviculture Activities; Streambank Modifications/Destabilization; Surface Mining

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P20R-02-BAC** **Straight Creek and Tributaries**

Cause Location: This segment includes Stone Creek from the confluence of Ely Creek to the Straight Creek confluence at the Stone Creek community and also includes Straight Creek from the headwaters downstream to the North Fork Powell confluence.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM stations located at 6BSRA000.10 and 6BSR001.11 had 2 STV hits in the same 90-day period with less than 10 samples. Station 6BSTC000.04 had a 64% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_SRA01A94 / Straight Creek / From headwaters on Little Black Mountain downstream to North Fork Powell confluence near Pockett.	4A	Escherichia coli (E. coli)	2002	L	6.81
VAS-P20R_STC01A96 / Stone Creek & tributaries / From the confluence of Ely Creek to the Straight Creek confluence at the Stone Creek community, parallels Rt. 421.	4A	Escherichia coli (E. coli)	2016	L	3.33

Straight Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.14

Sources: Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P20R-03-BAC** Reeds Creek

Cause Location: This segment includes Reeds Creek from the Meadow Fork confluence downstream to the Jones Creek confluence parallel to Route 628.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BREE000.22 had a 27% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_REE01A12 / Reeds Creek / Lone Mountain drainage, from Meadow Fork confluence downstream to confluence with North Fork Powell River at Purcell.	4A	Escherichia coli (E. coli)	2012	L	1.35

Reeds Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.35

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P20R-04-BEN North Fork Powell River Tributaries

Cause Location: These segments include the headwaters of Bundy Creek at Calvin; Cox Creek near Delvale; and Jones Creek from the headwaters at Trace Gap to the confluence with Reeds Creek, northeast of Purcell

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological data provided by Appalachian Technical Services indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P20R_BUY01B14 / Bundy Creek / Headwaters, at Calvin, of a North Fork Powell River tributary.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.53
VAS-P20R_CXR01A14 / Cox Creek / Confluences with North Fork Powell River near Delvale.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.89
VAS-P20R_JON01A12 / Jones Creek / From Mud Creek confluence downstream to the confluence with Reeds Creek, Northeast of Purcell.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.93
VAS-P20R_JON01A14 / Jones Creek / Headwaters at Trace Gap down to the Mud Creek confluence.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.88

North Fork Powell River Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			8.23

Sources: Silviculture Activities; Surface Mining

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P21R-02-BAC Hardy Creek

Cause Location: This segment includes the Hardy Creek mainstem and its tributaries.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BHAR000.34 had a 27% exceedance and station 6BHAR002.41 has a 33% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_HAR01A02 / Hardy Creek & tributaries / Hardy Creek & tributaries from headwaters near Hagan downstream to Powell River confluence near White Shoals.	5A	Escherichia coli (E. coli)	2006	L	12.52

Hardy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.52

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P21R-03-BAC Powell River

Cause Location: This segment includes the Powell River from the confluence of Station Creek downstream to the confluence of Batie Creek, south of Jonesville.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BPOW138.91 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_POW02A02 / Powell River / Powell River from the confluence of Station Creek downstream to the confluence of Batie Creek south of Jonesville.	4A	Escherichia coli (E. coli)	2006	L	12.74

Powell River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.74

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P21R-03-BEN** Powell River

Cause Location: This segment includes the mainstem of the Powell River from the confluence of North Fork Powell River downstream to the Town Creek confluence.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Probabilistic biological monitoring station 6BPOW156.57 was impaired based on VSCI scores of 50 and 57.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_POW02A02 / Powell River / Powell River from the confluence of Station Creek downstream to the confluence of Batie Creek south of Jonesville.	4A	Benthic Macroinvertebrates Bioassessments	2012	L	12.74
VAS-P21R_POW03A02 / Powell River / Mainstem Powell River from the confluence of North Fork Powell River west of Woodway downstream to Station Creek confluence near Poteet Ferry Bridge.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	6.47

Powell River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		19.21

Sources: Agriculture; Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P21R-04-BAC** Dry Creek

Cause Location: From the Trading Creek confluence, along Route 656, downstream to the confluence with Hardy Creek near Route 650.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BDBR001.69 had a 18% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_DBR01A02 / Dry Creek / North of The Cedars, Dry Creek is a tributary to Hardy Creek arising south of Cumberland Mountain in Poor Valley.	5A	Escherichia coli (E. coli)	2012	L	8.87

Dry Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.87

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P21R-05-BAC** **Town Creek**

Cause Location: This segment includes the mainstem of Town Creek, originating on Chestnut Ridge, flowing southwest and draining the Town of Jonesville.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BTOW003.82 had a 63% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_TOW01B12 / Town Creek / Originates on Chestnut Ridge, flows south, then west, draining the Town of Jonesville.	5A	Escherichia coli (E. coli)	2012	L	3.74

Town Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.74

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P21R-06-BAC **Station Creek**

Cause Location: This segment is located north of Wallen Ridge, parallel to U.S. 58, to the confluence with the Powell River at the Poteet Ferry Bridge.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6BSTN000.14 has a 45% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P21R_STN01A12 / Station Creek / A Powell River tributary that confluences at Poteet Ferry Bridge, north of Wallen Ridge.	4A	Escherichia coli (E. coli)	2012	L	2.31

Station Creek

Recreation	Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 2.31
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Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P22R-01-BAC** Wallen Creek

Cause Location: This segment includes from the headwaters on Powell Mountain downstream, parallel to Route 612, to the Route 70 crossing.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 6BWAL014.54 had a 27% exceedance and station 6BWAL026.64 had a 36% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P22R_WAL02A02 / Wallen Creek, headwaters and tributaries / Upper Wallen Creek segment from headwaters on Powell Mountain downstream to Rasnic Hollow.	4A	Escherichia coli (E. coli)	2012	L	29.71
VAS-P22R_WAL02B02 / Wallen Creek / Middle Wallen Creek segment from Rasnic Hollow downstream to Route 70 crossing south of Wallen Ridge.	4A	Escherichia coli (E. coli)	2012	L	13.19

Wallen Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		42.9

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: P22R-01-TEMP Wallen Creek

Cause Location: North of Powell Mountain, from headwaters through Stickleyville, downstream to Rasnic Hollow.

Cause City/County: Lee County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Class V water quality standard for temperature was exceeded in 18% of the samples at the AWQM stations located at 6BWAL026.64 and 6BWAL014.54.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P22R_WAL02A02 / Wallen Creek, headwaters and tributaries / Upper Wallen Creek segment from headwaters on Powell Mountain downstream to Rasnic Hollow.	5A	Temperature	2012	L	29.71
VAS-P22R_WAL02B02 / Wallen Creek / Middle Wallen Creek segment from Rasnic Hollow downstream to Route 70 crossing south of Wallen Ridge.	5A	Temperature	2012	L	13.19

Wallen Creek

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 42.9
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Sources: Grazing in Riparian or Shoreline Zones; Loss of Riparian Habitat; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P23R-02-BAC** Martin Creek

Cause Location: This segment includes the headwaters and extends downstream to the Tennessee political boundary.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BMTN003.56 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P23R_MTN01A00 / Martin Creek / Mainstem; from headwaters near Rose Hill, downstream to Tennessee state line,	5A	Escherichia coli (E. coli)	2008	L	9.66

Martin Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.66

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **P23R-03-BAC** **Fourmile Creek**

Cause Location: This segment includes from the headwaters, south of Ingles Chapel, parallel to Route 744 and flows south into Tennessee.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BFOU003.59 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P23R_FOU01A14 / Fourmile Creek / South of Ewing, flows south into TN.	5A	Escherichia coli (E. coli)	2014	L	2.37

Fourmile Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.37

Sources: Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P23R-04-BAC** **Powell River**

Cause Location: From the Hardy Creek confluence downstream to the Yellow Creek confluence.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station 6BPOW120.69 had a 25% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P23R_POW02A00 / Powell River / From Hardy Creek confluence near White Shoals downstream to Yellow Creek confluence.	5A	Escherichia coli (E. coli)	2020	L	8.47

Powell River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 8.47
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Sources: Source Unknown; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **P24R-01-BAC** **Indian Creek**

Cause Location: This segment includes the mainstem from the confluence of Machine Branch downstream to the Tennessee political boundary and the mainstem from Ketron Mill to just south of Elydale School

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6BIND009.12 had a 50% exceedance of the previous bacteria water quality standard. Station 6BIND010.25 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P24R_IND01A00 / Indian Creek / Mainstem from the confluence of Machine Branch downstream to the Tennessee state line, near Gibson Station.	5A	Escherichia coli (E. coli)	2008	L	8.19
VAS-P24R_IND02A14 / Indian Creek / Indian Creek mainstem from the Meek Branch confluence, near Caylor, downstream to the confluence of Machine Branch, near Elydale.	5A	Escherichia coli (E. coli)	2014	L	4.45

Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.64

Sources: Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: P24R-02-BAC **Station Creek**

Cause Location: From Gibson Gap on Cumberland Mountain in Cumberland Gap National Park to the TN line.

Cause City/County: Lee County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 44% of samples collected by the National Park Service exceeded the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-P24R_STT01A14 / Station Creek / From Gibson Gap on Cumberland Mountain, in Cumberland Gap National Park, to TN line.	5A	Escherichia coli (E. coli)	2018	L	3.12

Station Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.12

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q01R-01-BAC** Dry Fork

Cause Location: This segment includes from the headwaters in upper Baptist Valley to the West Virginia state line near SR 637.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6ADRK035.86 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q01R_DRK01A98 / Dry Fork / Mainstem from headwaters in upper Baptist Valley to West Virginia state line near SR 637.	5A	Escherichia coli (E. coli)	2018	L	11.61

Dry Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.61

Sources: Source Unknown; Unspecified Domestic Waste

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q01R-02-BAC** **Jacobs Fork and Tributaries**

Cause Location: At the West Virginia state line; Jacobs Fork and Brewster Hollow, east and south of Bishop.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM station 6AJBF010.88 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q01R_JBF01A10 / Jacobs Fork & tributaries / At West Virginia state line; Jacobs Fork and Brewster Hollow East and South of Bishop.	5A	Escherichia coli (E. coli)	2010	L	2.35

Jacobs Fork and Tributaries

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.35

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q01R-03-BEN** **Beech Fork**

Cause Location: A Tug Fork tributary in the Amonate Community.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 6ABEJ001.14 was impaired based on VSCI scores of 42.7 and 35.8 in 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q01R_BEJ01A20 / Beech Fork / A Tug Fork tributary in the Amonate Community.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.68

Beech Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.68

Sources: Coal Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q03R-01-BEN** Pawpaw Creek

Cause Location: This segment includes the mainstem from the Kentucky state line downstream to the Knox Creek confluence, along State Route 643.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6APPW000.50 was impaired based on VSCI scores of 50, 36 and 57 in 2005 and 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_PPW01A94 / Pawpaw Creek / From Kentucky state line near Pawpaw downstream through Kelsa to Knox Creek confluence, along Rt. 643	4A	Benthic Macroinvertebrates Bioassessments	1994	L	4.23

Pawpaw Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.23

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Silviculture Activities

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q03R-02-BAC** **Knox Creek and Guess Fork**

Cause Location: This segment includes the mainstem from the headwaters to the Kentucky political boundary and Guess Fork, a Knox Creek tributary, north of Hurley.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6AGIE000.04, 6AKOX017.71, and 6AKOX014.17 are impaired based on the previous bacteria water quality standard. Trend monitoring station 6AKOX006.52 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_GIE01A04 / Guess Fork / Knox Creek tributary from State Line Ridge, north of Hurley, found on Panther and Hurley quad sheets.	4A	Fecal Coliform	2004	L	8.70
VAS-Q03R_KOX01A00 / Knox Creek / Mainstem from Straight Fork confluence at Blackey upstream to the headwaters near Paynesville, West Virginia.	4A	Fecal Coliform	2002	L	7.76

Knox Creek and Guess Fork

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 16.46

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_GIE01A04 / Guess Fork / Knox Creek tributary from State Line Ridge, north of Hurley, found on Panther and Hurley quad sheets.	4A	Escherichia coli (E. coli)	2010	L	8.70
VAS-Q03R_KOX01A00 / Knox Creek / Mainstem from Straight Fork confluence at Blackey upstream to the headwaters near Paynesville, West Virginia.	4A	Escherichia coli (E. coli)	2006	L	7.76
VAS-Q03R_KOX02A98 / Knox Creek / Mainstem from Kentucky state line upstream through Hurley to the Straight Fork confluence at Blackey, WQS Section 3 (BS07/BS05).	4A	Escherichia coli (E. coli)	2002	L	9.54

Knox Creek and Guess Fork

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 26

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q03R-02-BEN** **Knox Creek**

Cause Location: This segment includes the mainstem from the headwaters to the Kentucky political boundary.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6AKOX011.67 was impaired based on VSCI scores of 43.3 and 47.7 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_KOX01A00 / Knox Creek / Mainstem from Straight Fork confluence at Blackey upstream to the headwaters near Paynesville, West Virginia.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.76
VAS-Q03R_KOX02A98 / Knox Creek / Mainstem from Kentucky state line upstream through Hurley to the Straight Fork confluence at Blackey, WQS Section 3 (BS07/BS05).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	9.54

Knox Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		17.3

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Mountaintop Mining; Silviculture Activities; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: Q03R-02-PCB Knox Creek and Tributaries

Cause Location: This segment includes the mainstem from the headwaters to the Kentucky political boundary. It also includes all tributaries to Knox Creek that were included in the December 2005 Virginia Department of Health (VDH) Fish Consumption Ban update including Guess Fork, Big Butt Branch and tributaries, Long Bottom Branch and Pawpaw Creek.

Cause City/County: Buchanan County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: Fish Tissue stations located at 6AKOX023.25, 6AKOX020.36, 6AKOX019.30, 6AKOX017.97, 6AKOX014.37, 6AKOX012.06, 6AKOX010.98, 6AKOX008.14 indicated an exceedance of the DEQ screening value for polychlorinated biphenyls (PCBs) and the VDH human health criteria for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_BBB01A10 / Big Butt Branch & tributaries / A tributary to Knox Creek west of State Line Ridge.	5A	PCBs in Fish Tissue	2006	L	6.01
VAS-Q03R_CED01A16 / Cedar Branch / Knox Creek tributary NE of Kelsa.	5A	PCBs in Fish Tissue	2004	L	2.81
VAS-Q03R_GIE01A04 / Guess Fork / Knox Creek tributary from State Line Ridge, north of Hurley, found on Panther and Hurley quad sheets.	5A	PCBs in Fish Tissue	2006	L	8.70
VAS-Q03R_KOX01A00 / Knox Creek / Mainstem from Straight Fork confluence at Blackey upstream to the headwaters near Paynesville, West Virginia.	5A	PCBs in Fish Tissue	2004	L	7.76
VAS-Q03R_KOX02A98 / Knox Creek / Mainstem from Kentucky state line upstream through Hurley to the Straight Fork confluence at Blackey, WQS Section 3 (BS07/BS05).	5A	PCBs in Fish Tissue	2004	L	9.54
VAS-Q03R_LBT01A10 / Long Bottom Branch / Knox Creek tributary east of Blackey.	5A	PCBs in Fish Tissue	2004	L	1.42
VAS-Q03R_PPW01A94 / Pawpaw Creek / From Kentucky state line near Pawpaw downstream through Kelsa to Knox Creek confluence, along Rt. 643	5A	PCBs in Fish Tissue	2004	L	4.23
VAS-Q03R_PUM01A16 / Pumpkin Branch / Guess Fork tributary.	5A	PCBs in Fish Tissue	2004	L	1.64
VAS-Q03R_RAC02A16 / Race Fork / Knox Creek tributary.	5A	PCBs in Fish Tissue	2004	L	7.05
VAS-Q03R_VDH01A05 / Unsegmented rivers in BS04 / All tributaries to Knox Creek upstream of Blackey that were included in the December 2005 Virginia Department of Health Fish Consumption ban update.	5A	PCBs in Fish Tissue	2004	L	49.72

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_VDH02A05 / Unsegmented rivers in BS05 / All tributaries to Knox Creek between Blackey and Bee Branch that were included in the December 2005 Virginia Department of Health Fish Consumption ban update.	5A	PCBs in Fish Tissue	2004	L	71.56
VAS-Q03R_VDH03A05 / Unsegmented rivers in BS06 / All tributaries to Pawpaw Creek that were included in the December 2005 Virginia Department of Health Fish Consumption ban update.	5A	PCBs in Fish Tissue	2004	L	25.24
VAS-Q03R_VDH04A05 / Unsegmented rivers in BS07 / All tributaries to Knox Creek downstream of Pawpaw Creek that were included in the December 2005 Virginia Department of Health Fish Consumption ban update.	5A	PCBs in Fish Tissue	2004	L	5.15

Knox Creek and Tributaries

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			200.83

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q03R-03-BAC** Pawpaw Creek

Cause Location: This segment includes the Pawpaw Creek mainstem from the Kentucky political boundary to the confluence with Knox Creek.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM stations 6APPW000.03 had a 42% exceedance and 6APPW000.49 had a 50% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q03R_PPW01A94 / Pawpaw Creek / From Kentucky state line near Pawpaw downstream through Kelsa to Knox Creek confluence, along Rt. 643	5A	Escherichia coli (E. coli)	2010	L	4.23

Pawpaw Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.23

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: Q04R-01-BAC Levisa Fork and Tributaries

Cause Location: This segment includes the Levisa Fork mainstem from the headwaters downstream to the Slate Creek confluence, from the Bull Creek confluence downstream to the Kentucky state line, Slate Creek from the Upper Rockhouse Branch confluence downstream to the confluence with the Levisa Fork, the mainstem of Dismal Creek from the confluence of Hurricane Branch to the confluence with Levisa Fork and Little Prater Creek, a Levisa Fork tributary west of Tookland.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM stations 6ALEV152.46, 6ALEV156.82, 6ALEV143.80, 6BLRA000.10, and 6ASAT000.26 are impaired based on the previous bacteria water quality standard. Trend monitoring station 6ALEV131.52 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_LEV01A94 / Levisa Fork / Mainstem from the confluence of Garden Creek, river mile 155.94 at Oakwood, to the confluence of Dismal Creek at Route 460 crossing, river mile 151.84.	4A	Fecal Coliform	2004	L	3.95
VAS-Q04R_LEV01B02 / Levisa Fork / Levisa Fork downstream of Contrary Creek confluence through Keen Mountain to Garden Creek confluence.	4A	Fecal Coliform	2004	L	3.94
VAS-Q06R_LEV01A98 / Levisa Fork / Mainstem from Dismal Creek confluence, river mile 151.84, downstream to Slate Creek confluence in Grundy, river mile 143.71.	4A	Fecal Coliform	2004	L	8.27
VAS-Q07R_SAT01A00 / Slate Creek / Mainstem from the Upper Rockhouse Branch confluence near Matney downstream to the confluence with Levisa Fork in Grundy.	4A	Fecal Coliform	2002	L	9.37

Levisa Fork and Tributaries

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 25.53

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_LEV01A94 / Levisa Fork / Mainstem from the confluence of Garden Creek, river mile 155.94 at Oakwood, to the confluence of Dismal Creek at Route 460 crossing, river mile 151.84.	4A	Escherichia coli (E. coli)	2010	L	3.95
VAS-Q04R_LEV01B02 / Levisa Fork / Levisa Fork downstream of Contrary Creek confluence through Keen Mountain to Garden Creek confluence.	4A	Escherichia coli (E. coli)	2010	L	3.94

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q06R_LEV01A98 / Levisa Fork / Mainstem from Dismal Creek confluence, river mile 151.84, downstream to Slate Creek confluence in Grundy, river mile 143.71.	4A	Escherichia coli (E. coli)	2010	L	8.27
VAS-Q06R_LRA01A12 / Little Prater Creek / Levisa Fork tributary west of Tookland.	4A	Escherichia coli (E. coli)	2018	L	3.23
VAS-Q07R_SAT01A00 / Slate Creek / Mainstem from the Upper Rockhouse Branch confluence near Matney downstream to the confluence with Levisa Fork in Grundy.	4A	Escherichia coli (E. coli)	2008	L	9.37
VAS-Q08R_LEV01A00 / Levisa Fork / From Rocklick Branch at Big Rock downstream to the Kentucky state line. VPDES permit for Buchanan County PSA/Conaway WWTP is in this segment.	4A	Escherichia coli (E. coli)	2006	L	2.68
VAS-Q08R_LEV02A00 / Levisa Fork / From Rocklick Branch at Big Rock upstream parallel Route 460 to Bull Creek confluence near Harman Junction.	4A	Escherichia coli (E. coli)	2008	L	4.73
VAS-Q08R_LEV03A02 / Levisa Fork / From Slate Creek confluence in Grundy downstream parallel Route 460 to Bull Creek confluence.	4A	Escherichia coli (E. coli)	2006	L	6.31

Levisa Fork and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			42.48

Sources: Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q04R-01-BEN** **Levisa Fork and Slate Creek**

Cause Location: This segment includes the Levisa Fork mainstem from the confluence of Garden Creek, river mile 155.94, downstream to the confluence of Bull Creek and from the Rocklick Branch confluence downstream to the Kentucky state line. It also includes the Slate Creek mainstem from the Upper Rockhouse Branch confluence downstream to the confluence with the Levisa Fork.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The AWQM station located at 6ASAT000.05, 6ASAT004.52, 6ASAT007.71 were impaired based on VSCI scores. Station 6ALEV152.46 was impaired based on VSCI scores of 41 and 57 in 2007 and station 6ALEV130.29 was impaired based on VSCI scored of 38 and 54 in 2007.

Recent benthic data collected at 6ALEV158.93, 6ALEV138.19, 6ALEV143.80 and 6ASAT007.71 in inconclusive. VSCI score at 6ASAT000.26 were 62.6 and 45.2 in the 2018 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_LEV01A94 / Levisa Fork / Mainstem from the confluence of Garden Creek, river mile 155.94 at Oakwood, to the confluence of Dismal Creek at Route 460 crossing, river mile 151.84.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.95
VAS-Q06R_LEV01A98 / Levisa Fork / Mainstem from Dismal Creek confluence, river mile 151.84, downstream to Slate Creek confluence in Grundy, river mile 143.71.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	8.27
VAS-Q07R_SAT01A00 / Slate Creek / Mainstem from the Upper Rockhouse Branch confluence near Matney downstream to the confluence with Levisa Fork in Grundy.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	9.37
VAS-Q08R_LEV01A00 / Levisa Fork / From Rocklick Branch at Big Rock downstream to the Kentucky state line. VPDES permit for Buchanan County PSA/Conaway WWTP is in this segment.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	2.68
VAS-Q08R_LEV03A02 / Levisa Fork / From Slate Creek confluence in Grundy downstream parallel Route 460 to Bull Creek confluence.	4A	Benthic Macroinvertebrates Bioassessments	2006	L	6.31

Levisa Fork and Slate Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			30.58

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Non-Point Source

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q04R-01-PCB** **Levisa Fork and Garden Creek**

Cause Location: This segment begins at the Levisa Fork headwaters and continues downstream to the Kentucky state line and Garden Creek from the confluence of Right Fork Garden Creek downstream to the confluence with Levisa Fork.

Cause City/County: Buchanan County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/4A

Cause Description: The Fish Tissue station locate at 6AGAR000.16 found polychlorinated biphenyls (PCBs) in the sediment and station 6AGAR001.78 exceeded DEQ's screening value for PCBs. Station 6ALEV130.00 exceeded the Virginia Department of Health's (VDH)human health criteria for PCBs. PCBs were also detected a Fish Tissue station 6ALEV151.26, 6ALEV145.86, 6ALEV134.82, and 6ALEV130.00.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_GAR01A98 / Garden Creek / Garden Creek from confluence with Levisa Fork, upstream through Mavisdale to confluence of Right Fork Garden Creek near Mount Heron.	4A	PCBs in Fish Tissue	2004	L	1.84
VAS-Q04R_LEV01A94 / Levisa Fork / Mainstem from the confluence of Garden Creek, river mile 155.94 at Oakwood, to the confluence of Dismal Creek at Route 460 crossing, river mile 151.84.	4A	PCBs in Fish Tissue	2006	L	3.95
VAS-Q04R_LEV01B02 / Levisa Fork / Levisa Fork downstream of Contrary Creek confluence through Keen Mountain to Garden Creek confluence.	4A	PCBs in Fish Tissue	2006	L	3.94
VAS-Q06R_LEV01A98 / Levisa Fork / Mainstem from Dismal Creek confluence, river mile 151.84, downstream to Slate Creek confluence in Grundy, river mile 143.71.	4A	PCBs in Fish Tissue	2006	L	8.27
VAS-Q08R_LEV01A00 / Levisa Fork / From Rocklick Branch at Big Rock downstream to the Kentucky state line. VPDES permit for Buchanan County PSA/Conaway WWTP is in this segment.	4A	PCBs in Fish Tissue	2006	L	2.68
VAS-Q08R_LEV02A00 / Levisa Fork / From Rocklick Branch at Big Rock upstream parallel Route 460 to Bull Creek confluence near Harman Junction.	4A	PCBs in Fish Tissue	2006	L	4.73
VAS-Q08R_LEV03A02 / Levisa Fork / From Slate Creek confluence in Grundy downstream parallel Route 460 to Bull Creek confluence.	4A	PCBs in Fish Tissue	2006	L	6.31

Levisa Fork and Garden Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			31.72

Sources: Atmospheric Deposition; Contaminated Sediments; Non-Point Source

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q04R-02-BAC** **Garden Creek and Right Fork Garden Creek**

Cause Location: This segment includes the headwaters of Garden Creek downstream to the confluence with Levisa Fork and Right Fork Garden Creek from the headwaters downstream to the confluence with Garden Creek.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 6AGAR000.16 had a 18% exceedance, station 6AGRF002.36 had a 42% exceedance, station 6AGAR005.25 had a 25% exceedance, station 6AGRF004.97 had a 50% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_GAR01A98 / Garden Creek / Garden Creek from confluence with Levisa Fork, upstream through Mavisdale to confluence of Right Fork Garden Creek near Mount Heron.	4A	Fecal Coliform	2002	L	1.84

Garden Creek and Right Fork Garden Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			1.84

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_GAR01A98 / Garden Creek / Garden Creek from confluence with Levisa Fork, upstream through Mavisdale to confluence of Right Fork Garden Creek near Mount Heron.	4A	Escherichia coli (E. coli)	2008	L	1.84
VAS-Q04R_GAR01B02 / Garden Creek / From headwaters of Garden Creek near Lynn Spring Gap downstream to Right Fork confluence near Mount Heron.	4A	Escherichia coli (E. coli)	2008	L	6.02
VAS-Q04R_GRF01A02 / Right Fork Garden Creek / Headwaters of Right Fork Garden Creek downstream to Garden Creek confluence at Mount Heron.	4A	Escherichia coli (E. coli)	2008	L	10.40

Garden Creek and Right Fork Garden Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			18.26

Sources: Rural (Residential Areas); Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q04R-02-BEN** **Garden Creek and Right Fork Garden Creek**

Cause Location: This segment includes the headwaters of Garden Creek downstream to the confluence with Levisa Fork and Right Fork Garden Creek from the headwaters downstream to the confluence with Garden Creek.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological stations located at 6AGAR000.16, 6AGAR005.25 were impaired based on VSCI scores. Recent benthic data collection at 6AGRF000.56, 6AGRF002.36 and 6AGRF004.97 have VSCI scores ranging from 44.3 to 61.2 during the 2018 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q04R_GAR01A98 / Garden Creek / Garden Creek from confluence with Levisa Fork, upstream through Mavisdale to confluence of Right Fork Garden Creek near Mount Heron.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	1.84
VAS-Q04R_GAR01B02 / Garden Creek / From headwaters of Garden Creek near Lynn Spring Gap downstream to Right Fork confluence near Mount Heron.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	6.02
VAS-Q04R_GRF01A02 / Right Fork Garden Creek / Headwaters of Right Fork Garden Creek downstream to Garden Creek confluence at Mount Heron.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	10.40

Garden Creek and Right Fork Garden Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			18.26

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q05R-00-BEN** Dismal Creek

Cause Location: This segment includes the headwaters of Dismal Creek near Redoak Ridge downstream through Jewell Valley and Whitewood to the Laurel Fork confluence.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological monitoring station located at 6ADIS022.34 was impaired based on VSCI scores of 48.8 and 52.9 in 2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q05R_DIS02A00 / Dismal Creek / Headwaters of Dismal Creek near Redoak Ridge downstream through Jewell Valley and Whitewood to Laurel Fork confluence.	4A	Benthic Macroinvertebrates Bioassessments	2016	L	9.14

Dismal Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.14

Sources: Unspecified Land Disturbance

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q05R-00-TEMP** Dismal Creek

Cause Location: This segment includes Dismal Creek from the confluence of Long Branch to the confluence with Levisa Fork.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: The AWQM station located at 6ADIS001.24 had a 17% exceedance of the temperature water quality standard for WQS Class V waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q05R_DIS01A00 / Dismal Creek / Dismal River from confluence of Long Branch downstream parallel SR 638 to confluence with Levisa Fork.	5A	Temperature	2008	L	5.39

Dismal Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			5.39

Sources: Loss of Riparian Habitat; Silviculture Activities; Unspecified Land Disturbance

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q05R-01-BAC** Dismal Creek

Cause Location: This segment includes the mainstem of Dismal Creek from the Laurel Fork confluence downstream to the Long Branch confluence.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station 6ADIS014.33 had an 17% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q05R_DIS01B02 / Dismal Creek / Mainstem parallel to SR 638 from Laurel Fork confluence near Whitewood downstream through Pilgrims Knob to the Long Branch confluence.	4A	Escherichia coli (E. coli)	2010	L	12.45

Dismal Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			12.45

Sources: Sewage Discharges in Unsewered Areas

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q06R-01-BEN** **Big Prater Creek**

Cause Location: Mainstem from the Trace Fork Branch confluence downstream to the confluence with the Levisa Fork at Vasant.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station at 6ABIP000.65 was impaired based on VSCI scores of 54.7 and 31.0 in the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q06R_BIP01A98 / Big Prater Creek / Mainstem from the Trace Fork Branch confluence downstream to the confluence with Levisa Fork at Vasant.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	1.11

Big Prater Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.11

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive); Streambank Erosion; Unspecified Land Disturbance

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-01-BAC** **Bull Creek, Poplar Creek, and Home Creek**

Cause Location: This segment includes the Bull Creek mainstem and tributaries, including Convict Hollow, Belcher Branch, Deel Fork, Cove Hollow. This segment also includes Poplar Creek at the confluence with Knotty Poplar Fork and continues downstream to the confluence with Levisa Fork. This segment also includes Home Creek, a tributary to the Levisa Fork.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 6ABLC000.85 had a 25% exceedance, station 6ABLC002.30 had an 85% exceedance, station 6APLR000.06 had a 25% exceedance, and station 6AHME000.42 has a 16% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_BLC01A98 / Bull Creek & tributaries / Bull Creek mainstem and tributaries, including Convict Hollow, Belcher Branch, Deel Fork, Cove Hollow.	4A	Escherichia coli (E. coli)	2008	L	28.45
VAS-Q08R_HME01A04 / Home Creek / Levisa Fork tributary south of Big Rock upstream to Spencer Fork confluence.	4A	Escherichia coli (E. coli)	2014	L	4.79
VAS-Q08R_PLR01A08 / Poplar Creek / Mainstem from Poplar Fork confluence downstream to 0.19 river mile above confluence with Levisa Fork near Harman Junction.	4A	Escherichia coli (E. coli)	2008	L	3.04
VAS-Q08R_PLR01A14 / Poplar Creek / Mainstem from Levisa Fork near Harman Junction upstream to first tributary at river mile 0.19.	4A	Escherichia coli (E. coli)	2008	L	0.20

Bull Creek, Poplar Creek, and Home Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli (E. coli) - Total Impaired Size by Water Type: 36.48		

Sources: Illegal Dumps or Other Inappropriate Waste Disposal; Sewage Discharges in Unsewered Areas

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-01-BEN** **Bull Creek and Tributaries**

Cause Location: This segment includes the Bull Creek mainstem and tributaries, including Convict Hollow, Belcher Branch, Deel Fork and Cove Hollow.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6ABLC002.30 was impaired based on VSCI scores of 41 and 32 in 2006. Recent data indicated the benthic impairment continues.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_BLC01A98 / Bull Creek & tributaries / Bull Creek mainstem and tributaries, including Convict Hollow, Belcher Branch, Deel Fork, Cove Hollow.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	28.45

Bull Creek and Tributaries

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		28.45

Sources: Coal Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-02-BEN** Home Creek

Cause Location: This segment is a Levisa Fork tributary south of Big Rock, upstream to the Spencer Fork confluence, parallel to Route 650.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological monitoring station at 6AHME002.16 was impaired based on VSCI scores of 22.7 and 54.0 in 2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_HME01A04 / Home Creek / Levisa Fork tributary south of Big Rock upstream to Spencer Fork confluence.	4A	Benthic Macroinvertebrates Bioassessments	2010	L	4.79

Home Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.79

Sources: Coal Mining; Rural (Residential Areas); Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-05-BAC** Conaway Creek

Cause Location: This segment is a Levisa Fork tributary at Conaway near Kentucky state line upstream to Caney Fork confluence.

Cause City/County: Buchanan County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station 6ACNW000.07 had a 42% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_CNW01A08 / Conaway Creek / Levisa Fork tributary at Conaway near Kentucky state line upstream to Caney Fork confluence.	4A	Escherichia coli (E. coli)	2016	L	2.63

Conaway Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.63

Sources: Illegal Dumps or Other Inappropriate Waste Disposal; Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-05-BEN** **Conaway Creek**

Cause Location: Levisa Fork Tributary at Conaway near the Kentucky state line upstream to the Caney Fork confluence.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Biological monitoring station at 6ACNW000.07 was impaired based on VSCI scores of 36 and 52 in 2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_CNW01A08 / Conaway Creek / Levisa Fork tributary at Conaway near Kentucky state line upstream to Caney Fork confluence.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.63

Conaway Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.63

Sources: Coal Mining; Mountaintop Mining; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-06-BEN** **State Line Branch**

Cause Location: A tributary to Levisa Fork in KY north of Conaway.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station at 6ASLI000.06 had VSCI score of 49.5 and 56.5 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_SLB01A14 / State Line Branch / Tributary to Levisa Fork in KY north of Conaway.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.36

State Line Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.36

Sources: Coal Mining; Mountaintop Mining; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-07-BEN** **Home Creek Headwaters**

Cause Location: This segment includes the headwaters of Home Creek.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station has VSCI scores of 56.5 and 69.8 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_HME01B14 / Home Creek / Headwaters of Home Creek.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	0.8

Home Creek Headwaters

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.8

Sources: Coal Mining; Rural (Residential Areas); Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-08-BEN** **Conaway Creek and Tributaries**

Cause Location: Headwaters of Conaway Creek.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station 6ACNW003.48 has VSCI scores of 38.6 and 51.6 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_CEK01A20 / Caney Fork / Conaway Creek tributary.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.39
VAS-Q08R_CNW02A14 / Conaway Creek and tributaries / From Lick Branch down to the confluence with Caney Fork.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.85
VAS-Q08R_JIM01A20 / Jim Belcher Fork / Conaway Creek Tributary, WQS Section 3 (BS15).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.75

Conaway Creek and Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			6.99

Sources: Coal Mining; Mountaintop Mining; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q08R-09-BEN** **Poplar Creek**

Cause Location: This segment includes the mainstem of Poplar Creek from the Poplar Fork confluence downstream to rivermile 0.19, above the confluence with the Levisa Fork near Harman Junction.

Cause City/County: Buchanan County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q08R_PLR01A08 / Poplar Creek / Mainstem from Poplar Fork confluence downstream to 0.19 river mile above confluence with Levisa Fork near Harman Junction.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.04

Poplar Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.04

Sources: Rural (Residential Areas)

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Tennessee and Big Sandy River Basins

Cause Group Code: Q09R-01-BAC Russell Fork and Tributaries

Cause Location: This segment includes the unassessed stream segments in the headwaters of Russell Fork downstream to the confluence of the Pound River near Bartlick and from the Kentucky state line upstream 2.2 miles. Hurricane Creek from the confluence of Carver Branch downstream to the confluence with Russell Fork. It also includes Little Pawpaw Creek, a Russell Fork tributary north of Cannady, Sullivan Branch, an Indian Creek tributary from the headwaters on Long Ridge north of Duty, and Grassy Creek, a PWS segment for Elkhorn City, KY.

Cause City/County: Buchanan County; Dickenson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM station 6AHR000.05, 6ARSS034.53, 6ALPP001.60, 6AGSS002.37 and 6ARSS014.15 are impaired based on the previous bacteria water quality standard. Stations 6ARSS041.08, 6ASLV000.85, and 6ARSS024.30 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q09R_HRC01A02 / Hurricane Creek / Mainstem from confluence of Carver Branch downstream to the confluence with Russell Fork at Davenport.	5A	Escherichia coli (E. coli)	2010	L	0.86
VAS-Q09R_RSS01A00 / Russell Fork / Russell Fork mainstem form Hollow Poplar Creek downstream following Buchanan/ Dickenson County line to confluence of Pawpaw Creek near Cannady.	5A	Escherichia coli (E. coli)	2010	L	7.47
VAS-Q09R_RSS02A00 / Russell Fork headwaters / Headwaters of Russell Fork on Big A Mountain downstream through Davenport to the confluence of Hollow Poplar Branch.	5A	Escherichia coli (E. coli)	2004	L	8.88
VAS-Q09R_SLV01A08 / Sullivan Branch / Indian Creek tributary from headwaters on Long Ridge north of Duty.	5A	Escherichia coli (E. coli)	2018	L	1.63
VAS-Q10R_LPP01A18 / Little Pawpaw Creek / Russell Fork tributary, north of Cannady.	5A	Escherichia coli (E. coli)	2018	L	2.93
VAS-Q10R_RSS01A00 / Russell Fork / Upper mainstem from confluence of Pawpaw Creek at the county line, downstream to Fryingpan Creek confluence in WQS Section 4 (BS21).	5A	Escherichia coli (E. coli)	2010	L	4.35
VAS-Q12R_GSS01A12 / Grassy Creek / Kentucky state line, WQS Section 4e. This is the PWS for Elkhorn City, Kentucky.	5A	Escherichia coli (E. coli)	2020	L	2.09
VAS-Q12R_RSS02A04 / Russell Fork / From Kentucky state line upstream 2.2 miles to protect Elkhorn City, Kentucky, raw water intake.	5A	Escherichia coli (E. coli)	2006	L	2.25
VAS-Q12R_RSS03A02 / Russell Fork / Mainstem from the Pound River confluence near Bartlick, upstream through Splashdam to the McClure River confluence in Haysi.	5A	Escherichia coli (E. coli)	2012	L	3.90

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Russell Fork and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			34.36

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q09R-01-BEN** Indian Creek

Cause Location: A Russell Fork tributary from the Cane Creek confluence at Duty, parallel to Route 602, downstream to the Russell Fork confluence at the Buchanan/Dickenson County line.

Cause City/County: Buchanan County; Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The probabilistic monitoring station located at 6AIND000.52 was impaired based on VSCI scores of 48.3 and 51.5 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q09R_IND01A10 / Indian Creek / Russell Fork tributary from Cane Creek confluence at Duty downstream to the Russell Fork confluence on Buchanan/Dickenson County line between Indian Ridge and Long Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.7

Indian Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.7

Sources: Coal Mining; Mountaintop Mining; Rural (Residential Areas); Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q10R-01-BEN** **Fryingpan Creek**

Cause Location: From headwaters on Sandy Ridge near Carrie downstream to the Priest Fork confluence.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The probabilistic monitoring station 6AFRY006.70 indicates impairment based on VSCI scores of 42.6 and 36.9 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q10R_FRY02A04 / Fryingpan Creek / From headwaters on Sandy Ridge near Carrie downstream to the Priest Fork confluence, west of Sportsman Lake.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	9.45

Fryingpan Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.45

Sources: Coal Mining; Unspecified Land Disturbance

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q10R-02-BEN** **Little Pawpaw Creek**

Cause Location: A Russell Fork tributary, north of Cannady.

Cause City/County: Buchanan County; Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6ALPP001.60 was impaired based on VSCI scores of 23.3 and 51.4 in 2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q10R_LPP01A18 / Little Pawpaw Creek / Russell Fork tributary, north of Cannady.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.93

Little Pawpaw Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.93

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q11R-02-BAC** McClure River and Tributaries

Cause Location: This segment begins at the Buffalo Creek confluence and continues downstream to the Road Branch confluence and Buffalo Creek from the headwaters downstream to the confluence with McClure River and includes Roaring Fork

Cause City/County: Dickenson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The station identified as BC on Buffalo Creek had a 50% exceedance, station 6AMCR007.46 had a 16% exceedance, station 6AMCR014.69 had a 58% exceedance and station 6AROR-RF-MRRP had a 12% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q11R_BFF01A08 / Buffalo Creek / A McClure River tributary north of Nora, confluence is at Buffalo Tunnel.	4A	Escherichia coli (E. coli)	2008	L	3.25
VAS-Q11R_BSB01A10 / Big Spraddle Branch / A McClure River tributary, west of Stratton.	4A	Escherichia coli (E. coli)	2012	L	2.31
VAS-Q11R_MCR02A00 / McClure River / West of Reedy Ridge, from Caney Creek confluence north of McClure, downstream to Road Branch confluence near Steinman.	4A	Escherichia coli (E. coli)	2006	L	9.68
VAS-Q11R_MCR03A06 / McClure River / Upstream of Caney Creek confluence at McClure through Stratton to the Buffalo Creek confluence near Buffalo Tunnel, includes the communities of McClure and Stratton.	4A	Escherichia coli (E. coli)	2006	L	3.39
VAS-Q11R_MCR04A06 / McClure River / From Buffalo Creek confluence north of Nora upstream to headwaters, parallels Sandy Ridge to the west.	4A	Escherichia coli (E. coli)	2012	L	8.70
VAS-Q11R_ROR01A14 / Roaring Fork / Tributary to McClure Creek upstream of Nora to Dark Hollow.	4A	Escherichia coli (E. coli)	2014	L	1.08

McClure River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.41

Sources: Rural (Residential Areas)

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q11R-02-BEN** **Wakenva Branch**

Cause Location: A Honey Branch tributary, west of Trammel.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station 6AWAK000.04 had VSCI score of 57.5 and 71.0 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q11R_WAK01A14 / Wakenva Branch / Honey Branch tributary.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.8

Wakenva Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.8

Sources: Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q11R-04-BEN** **Cowan Rose Branch**

Cause Location: This segment includes Cowan Rose Branch, a tributary to Open Fork west of Carrico Ridge.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station 6ACRC000.19 had VSCI score of 54.6 and 61.8 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q11R_CRC01A14 / Cowan Rose Branch / Spring Fork tributary west of Carico Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.3

Cowan Rose Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.3

Sources: Coal Mining; Unspecified Land Disturbance

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q11R-05-BEN** Dismal Fork

Cause Location: This segment includes Dismal Fork, a Neece Creek tributary between Brushy Ridge and Dismal Ridge.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q11R_DIL01A14 / Dismal Fork / Neece Creek tributaries from Dismal Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	4.52

Dismal Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.52

Sources: Coal Mining (Subsurface); Surface Mining

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q12R-01-BAC** **Russell Prater Creek**

Cause Location: This segment extends from the headwaters at Poplar Gap downstream to the confluence with Russell Fork.

Cause City/County: Buchanan County; Dickenson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 6ARPC000.40 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q12R_RPC01A96 / Russell Prater Creek / Flows west from the headwaters at Poplar Gap downstream to Russell Fork confluence in Haysi.	5A	Escherichia coli (E. coli)	2008	L	11.72

Russell Prater Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.72

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q12R-01-BEN** **Russell Prater Creek**

Cause Location: This segment extends from the headwaters of Russell Prater Creek downstream to the confluence with Russell Fork.

Cause City/County: Buchanan County; Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6ARPC000.52 was impaired based on VSCI scores of 49.7 and 57.3 in 2018. 6ARPC002.45 was impaired based on VSCI scores of 33 and 46 in 2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q12R_RPC01A96 / Russell Prater Creek / Flows west from the headwaters at Poplar Gap downstream to Russell Fork confluence in Haysi.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	11.72

Russell Prater Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		11.72

Sources: Coal Mining; Impacts from Abandoned Mine Lands (Inactive)

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q12R-01-TEMP** **Russell Fork**

Cause Location: From the Kentucky state line upstream 2.2 miles.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Station 6ARSS014.15 had 21% of temperature measurements exceed the water quality standard for Class V waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q12R_RSS02A04 / Russell Fork / From Kentucky state line upstream 2.2 miles to protect Elkhorn City, Kentucky, raw water intake.	5A	Temperature	2020	L	2.25

Russell Fork

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			2.25

Sources: Source Unknown

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Tennessee and Big Sandy River Basins

Cause Group Code: **Q12R-05-BEN** Middle Fork (Hunts Creek)

Cause Location: This segment is located parallel to Route 631 near Breaks.

Cause City/County: Buchanan County; Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores. DEQ biological monitoring station had VSCI scores of 44.9 and 27.2 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q12R_XGN01A12 / Middle Fork (Hunts Creek) / A Hunts Creek tributary north of Breaks in WQS Section 4 (BS35).	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.94

Middle Fork (Hunts Creek)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.94

Sources: Loss of Riparian Habitat; Silviculture Activities; Surface Mining

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q12R-06-BEN** **Grassy Creek**

Cause Location: From the Kentucky state line upstream 2.2 miles.

Cause City/County: Buchanan County; Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 6AGSS002.37 was impaired based on VSCI scores of 52.5 and 59.3 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q12R_GSS01A12 / Grassy Creek / Kentucky state line, WQS Section 4e. This is the PWS for Elkhorn City, Kentucky.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	2.09

Grassy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.09

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: Q13L-01-DO John Flannagan Reservoir

Cause Location: Northeast of Clintwood near the Kentucky line.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: At 6APNR001.82, 65 excursions of the dissolved oxygen WQS were recorded in 171 observations during the 2015 and 2019 monitoring seasons.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13L_PNR01A02 / John Flannagan Reservoir / This reservoir was built by USACOE to provide flood control, pollution abatement, fish and wildlife habitat, and recreational opportunities. NE of Clintwood near Kentucky state line.	5A	Dissolved Oxygen	2022	L	1177.22

John Flannagan Reservoir

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		1177.22	

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: Q13L-01-HG John Flannagan Reservoir

Cause Location: This reservoir is located Northeast of Clintwood near the Kentucky state line.

Cause City/County: Dickenson County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected at 6APNR002.15 on 5/14/2007 show mercury levels above the tissue value (300 ppb) in two composite samples of largemouth bass.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13L_PNR01A02 / John Flannagan Reservoir / This reservoir was built by USACOE to provide flood control, pollution abatement, fish and wildlife habitat, and recreational opportunities. NE of Clintwood near Kentucky state line.	5A	Mercury in Fish Tissue	2010	L	1177.22

John Flannagan Reservoir

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1177.22	

Sources: Atmospheric Deposition - Toxics

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: Q13R-01-BEN South Fork Pound River and Tributaries

Cause Location: This segment includes the South Fork of the Pound River at the headwaters and continues downstream to the confluence with the North Fork Pound River including Phillips Creek, Hays Branch, and Glady Fork.

Cause City/County: Dickenson County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Biological stations located at 6APNS008.73, 6APNS004.98 and 6APNS000.40 were impaired based on VSCI scores. Non agency biological monitoring data provided by Appalachian Technical Services indicated impairment based on VSCI scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_GLD01A14 / Glady Fork / Tributaries to South Fork Pound River near Glady Fork School.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	1.91
VAS-Q13R_HAY01A14 / Hays Branch / Tributary to South Fork Pound River south of Pound.	4A	Benthic Macroinvertebrates Bioassessments	2014	L	0.86
VAS-Q13R_PNS01A02 / South Fork Pound River / From unnamed tributary parallel to SR 620 immediately upstream of Rat Creek at Dewey, downstream to the Glady Fork confluence.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.44
VAS-Q13R_PNS01A94 / South Fork Pound River / Mainstem from Glady Fork confluence downstream to confluence with Pound River west of Town of Pound, WQS Section 4 (BS28).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	3.59
VAS-Q13R_PNS02A02 / Phillips Creek (no longer exists) / Strip Mine at 37 03 25/-82 42 20	4A	Benthic Macroinvertebrates Bioassessments	2002	L	1.71
VAS-Q13R_PNS02B04 / South Fork Pound River / Mainstem only from Donald Branch downstream to unnamed tributary just upstream of Rat Creek, in Wise County.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	2.22

South Fork Pound River and Tributaries

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			13.73

Sources: Mountaintop Mining; Surface Mining

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-02-BEN** **North Fork Pound River**

Cause Location: This segment includes the mainstem from the headwaters downstream to the North Fork Pound Reservoir intake and from the backwaters of the North Fork Pound Lake downstream to the confluence with the Pound River.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station located at 6APNK000.08 was impaired based on 2006 VSCI scores of 53 and 58.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_PNK01A96 / North Fork Pound River / Mainstem south of Horse Gap from the dam of North Fork Pound Lake, river mile 1.08, downstream to the confluence with Pound River.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	1.3

North Fork Pound River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.3

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Rural (Residential Areas)

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: Q13R-03-BAC Pound River, North Fork Pound River, and Tributaries

Cause Location: These segments include from the Georges Fork confluence upstream to the confluence with the North and South Fork Pound Rivers west of the Town of Pound and from the Georges Fork confluence downstream to the lake backwaters at Jerry Branch. Also included is the mainstem of the North Fork Pound River, south of Horse Gap, from the dam of North Fork Pound Lake downstream to the confluence with the Pound River.

Tributaries included: Bold Camp Creek, from the confluence with the Pound River to the confluence of Dotson Fork and Mullins Fork. Georges Fork, from the confluence with the Pound River upstream to the confluence with Howell Branch near Freeling.

Cause City/County: Dickenson County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM station 6APNR017.79, 6APNR028.76 , 6APNR035.66 are impaired based on the previous bacteria water quality standard.

Stations 6APNR019.09, 6ABCP001.40, 6AGRE000.19, and 6APNK000.08 had 2 or more STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_BCP01A22 / Bold Camp Creek / From the confluence with the Pound River to the confluence of Dotson Fork and Mullins Fork.	5A	Escherichia coli (E. coli)	2022	L	1.18
VAS-Q13R_GRE02B22 / Georges Fork / From the confluence with the Pound River upstream to the confluence with Howell Branch near Freeling.	5A	Escherichia coli (E. coli)	2022	L	3.05
VAS-Q13R_PNK01A96 / North Fork Pound River / Mainstem south of Horse Gap from the dam of North Fork Pound Lake, river mile 1.08, downstream to the confluence with Pound River.	5A	Escherichia coli (E. coli)	2022	L	1.30
VAS-Q13R_PNR01A00 / Pound River / Pound River flows west from the Georges Fork confluence upstream to the confluence of North Fork and South Fork Pound Rivers west of the Town of Pound.	5A	Escherichia coli (E. coli)	2008	L	16.94
VAS-Q13R_PNR02B02 / Pound River / From Georges Fork confluence downstream to lake backwaters near Jerry Branch.	5A	Escherichia coli (E. coli)	2006	L	3.23

Pound River, North Fork Pound River, and Tributaries

Recreation	<table> <tr> <td>Estuary (Sq. Miles)</td> <td>Reservoir (Acres)</td> <td>River (Miles)</td> </tr> <tr> <td></td> <td></td> <td>25.7</td> </tr> </table>	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)			25.7
Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)					
		25.7					
Escherichia coli (E. coli) - Total Impaired Size by Water Type:							

Sources: Sewage Discharges in Unsewered Areas

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-03-TEMP** **North Fork Pound River**

Cause Location: This segment includes the mainstem, south of Horse Gap from the dam of North Fork Pound Lake, downstream to the confluence with the Pound River.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: Station 6APNK000.08 had a 26% exceedance of the water quality standard for temperature.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_PNK01A96 / North Fork Pound River / Mainstem south of Horse Gap from the dam of North Fork Pound Lake, river mile 1.08, downstream to the confluence with Pound River.	5C	Temperature	2010	L	1.3

North Fork Pound River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			1.3

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-04-BEN** Indian Creek

Cause Location: Pound River tributary south of the Town of Pound upstream to Barn Branch confluence.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 6AIAC000.42 was impaired based on VSCI scores of 46.6 and 37.9 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_IAC01A10 / Indian Creek / Lower segment, Pound River tributary that is parallel to Hwy 23, south of the Town of Pound upstream to Barn Branch confluence.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.98

Indian Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.98

Sources: Coal Mining; Rural (Residential Areas); Surface Mining

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: Q13R-06-BEN Pound River

Cause Location: This segment includes the Pound River from Georges Fork confluence upstream to the confluence of the North Fork and South Fork Pound Rivers.

Cause City/County: Dickenson County; Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological station located at 6APNR023.86 was impaired based on VSCI scores of 52 and 32 in 2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_PNR01A00 / Pound River / Pound River flows west from the Georges Fork confluence upstream to the confluence of North Fork and South Fork Pound Rivers west of the Town of Pound.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	16.94

Pound River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			16.94

Sources: Coal Mining; Rural (Residential Areas); Surface Mining

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-08-BAC** Indian Creek

Cause Location: Lower segment of Indian Creek, parallel to US Highway 23, south of the Town of Pound upstream to the Barn Branch confluence.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Stations 6AIAC000.23 and 6AIAC002.23 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_IAC01A10 / Indian Creek / Lower segment, Pound River tributary that is parallel to Hwy 23, south of the Town of Pound upstream to Barn Branch confluence.	5A	Escherichia coli (E. coli)	2020	L	2.98

Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.98

Sources: Sanitary Sewer Overflows (Collection System Failures); Sewage Discharges in Unsewered Areas

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-09-BAC** **Big Branch**

Cause Location: This segment includes Big Branch, a tributary to the South Fork Pound River off Route 671.

Cause City/County: Dickenson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Citizen monitoring station 6A-BIGBR-NF-MRRP has a 16% exceedance of the previous bacteria water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_BID01A14 / Big Branch / Tributary to South Fork Pound River south of North Fork Pound River Lake.	5A	Escherichia coli (E. coli)	2014	L	1.47

Big Branch

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.47

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-09-BEN** **North Fork Pound River**

Cause Location: This segment includes the headwaters of the North Fork Pound River north of Flat Gap, including Bear Fork, downstream to Bad Creek confluence at Gilley.

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Biological Monitoring station at 6APNK008.28 was impaired based on VSCI scores of 37.4 and 61.3 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_PNK01A06 / North Fork Pound River / Headwaters of North Fork Pound River north of Flat Gap, downstream to Bad Creek confluence at Gilley.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	4.3

North Fork Pound River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.3

Sources: Coal Mining; Mountaintop Mining; Silviculture Activities; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q13R-10-BAC** **South Fork Pound River**

Cause Location: These segments include the mainstem South Fork Pound River from the Donald Branch downstream to confluence with the Pound River west of the Town of Pound.

Cause City/County: Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM station 6APNS003.38 is impaired based on the previous bacteria water quality standard.

Station 6APNS000.40 had 2 STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q13R_PNS01A02 / South Fork Pound River / From unnamed tributary parallel to SR 620 immediately upstream of Rat Creek at Dewey, downstream to the Glady Fork confluence.	5A	Escherichia coli (E. coli)	2016	L	3.44
VAS-Q13R_PNS01A94 / South Fork Pound River / Mainstem from Glady Fork confluence downstream to confluence with Pound River west of Town of Pound, WQS Section 4 (BS28).	5A	Escherichia coli (E. coli)	2014	L	3.59
VAS-Q13R_PNS02B04 / South Fork Pound River / Mainstem only from Donald Branch downstream to unnamed tributary just upstream of Rat Creek, in Wise County.	5A	Escherichia coli (E. coli)	2014	L	2.22

South Fork Pound River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.25

Sources: Rural (Residential Areas)

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Tennessee and Big Sandy River Basins

Cause Group Code: **Q14R-01-BAC** **Cranesnest River and Tributaries**

Cause Location: These segments include the mainstem from the headwaters, southeast of Hurricane, downstream to the confluence with Bartley Branch at the backwaters of the Flannagan Reservoir.

Tributaries included: Birchfield Creek, a tributary from the confluence of Happy Hollow downstream, parallel to Rt. 634, to the confluence with the Cranesnest River, south of Darwin. Dotson Creek, A Birchfield Creek tributary fro the Hurricane Branch confluence, parallel to Rt. 636 south of Bold Camp Mountain.

Cause City/County: Dickenson County; Wise County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Stations 6ACNR009.17 and 6ACNR011.66 are impaired based on the previous bacteria water quality standard.

Stations 6ABLD000.90, 6ACNR017.24, 6ACNR021.72, and 6ADOT000.46 had 2 or more STV exceedances in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q14R_BLD01A10 / Birchfield Creek / A Cranesnest River tributary from confluence of Happy Hollow downstream parallel to SR 634 to Cranesnest River, south of Darwin.	5A	Escherichia coli (E. coli)	2020	L	2.52
VAS-Q14R_CNR01A00 / Cranesnest River / Mainstem Cranesnest River from headwaters southeast of Hurricane downstream to the Honeycamp Branch confluence, upstream of Clintwood.	5A	Escherichia coli (E. coli)	2010	L	12.93
VAS-Q14R_CNR02A02 / Cranesnest River / Mainstem Cranesnest River from Honeycamp Branch downstream to the Bartley Branch confluence at the backwaters of Flannagan Reservoir.	5A	Escherichia coli (E. coli)	2004	L	7.53
VAS-Q14R_DOT01A12 / Dotson Creek / A Birchfield Creek tributary from the Hurricane Branch confluence, parallel to SR 636 south of Bold Camp Mountain.	5A	Escherichia coli (E. coli)	2020	L	3.82

Cranesnest River and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			26.8

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q14R-01-BEN** Birchfield Creek

Cause Location: A Cranesnest River tributary from the confluence of Happy Hollow downstream, parallel to Rt. 634, to the Cranesnest River, south of Darwin.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Biological monitoring station 6ABLD000.90 were impaired based on VSCI scores of 58.6 in 2017 and 46.6 and 56.4 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q14R_BLD01A10 / Birchfield Creek / A Cranesnest River tributary from confluence of Happy Hollow downstream parallel to SR 634 to Cranesnest River, south of Darwin.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.52

Birchfield Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.52

Sources: Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q14R-02-BEN** **Dotson Creek**

Cause Location: A Birchfield Creek tributary parallel to Rt. 636, south of Bold Camp Mountain

Cause City/County: Wise County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The biological monitoring station at 6ADOT000.46 was impaired based on VSCI scores of 46.6 and 56.4 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q14R_DOT01A12 / Dotson Creek / A Birchfield Creek tributary from the Hurricane Branch confluence, parallel to SR 636 south of Bold Camp Mountain.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	3.82

Dotson Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.82

Sources: Coal Mining; Surface Mining

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Appendix 4 - Fact Sheets for
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Tennessee and Big Sandy River Basins

Cause Group Code: **Q14R-03-BEN** Left Fork Rush Creek

Cause Location: South of Bise Ridge.

Cause City/County: Dickenson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 6ARLF000.06 was impaired based on VSCI scores of 43.1 and 52.8 during the 2016 and 2020 monitoring seasons.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-Q14R_RLF01A14 / Left Fork Rush Creek / South of Bise Ridge.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	2.41

Left Fork Rush Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.41

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-01-SF **Great Wicomico River**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 89A, 5/28/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 013-089A, 6/15/2020

The upstream portion of the Great Wicomico River was included on the 1998 303(d) list due to VDH Shellfish Condemnation 89A, 5/28/1997. Although the condemnation later expanded larger than the 1998 condemnation (see C01E-01-SF2), the bacteria TMDL only addressed the original upstream portion, which is now considered Category 4A. The TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

During the 2010 cycle, it was determined that a portion of the 1998 condemnation is considered an administrative closure by the VDH; therefore, the Shellfish Use was removed from the administrative portion and the segment was partially delisted.

The downstream extent shrank in the 2022 cycle and the mainstem condemnation is currently smaller than the TMDL extent. The expansion is limited to Blackwells Creek. The seasonally condemned portion of the TMDL extent will be partially delisted as will the mainstem expansion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BMS01A12 / Bush Mill Stream / Tidal limit to mouth at Great Wicomico River CB5MH	4A	Fecal Coliform	1998	L	0.095
VAP-C01E_GWR01A98 / Great Wicomico River / Portion of condemnation notice 013-089A, 6/15/2020 which is not administratively closed, excluding Head River Branch and Bush Mill Stream CB5MH	4A	Fecal Coliform	1998	L	0.232
VAP-C01E_HRB01A12 / Head River Branch / Tidal limit to mouth at Bush Mill Stream. CB5MH	4A	Fecal Coliform	1998	L	0.020

Great Wicomico River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.346		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-01-SF2 **Blackwells Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 013-089D, 6/15/2020.

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Notice and Description of Shellfish Condemnation 013-089D, 6/15/2020

The upstream portion of the Great Wicomico River was included on the 1998 303(d) list due to VDH Shellfish Condemnation 89A, 5/28/1997. The condemnation later expanded downstream on the mainstem and also incorporated Blackwells Creek. The bacteria TMDL only addressed the original upstream portion.. As the segment first expanded in the 2004 cycle, the TMDL for this expanded portion is due in 2016.

Over several cycles, the expansion has reduced in size and split. In the 2022 cycle, the mainstem expansion was re-opened and will be partially delisted. The impairment is now limited to a portion of Blackwells Creek.

The impairment is nested within the Great Wicomico River Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. It is therefore considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BLA01A22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-08D, 6/15/2020 CB5MH	4A	Fecal Coliform	2004	L	0.045

Blackwells Creek

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.045		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-02-SF Balls Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 89B, 5/28/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 013-089F, 6/15/2020

The upstream portion of Balls Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 89B, 5/28/1997. The impairment was addressed in the Great Wicomico River Shellfish TMDL Report, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Although the condemnation is currently larger than the 1998 condemnation, the bacteria TMDL only addressed the original upstream portion, which is now considered Category 4A. As the segment first expanded in the 2002 cycle, the TMDL for the expansion will be due in 2014 (see C01E-02-SF2).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BLS01A02 / Balls Creek / Described in VDH-DSS condemnation notice 89B, 5/28/1997. CB5MH	4A	Fecal Coliform	1998	L	0.064

Balls Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.064		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-02-SF2 Balls Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 013-089F, 6/15/2020 not included in the 5/28/1997 condemnation.

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 013-089F, 6/15/2020

The upstream portion of Balls Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 89B, 5/28/1997. Although the condemnation is currently larger than the 1998 condemnation, the bacteria TMDL only addressed the original upstream portion, which is now considered Category 4A. As the segment first expanded in the 2002 cycle, the due date for the expansion is 2014.

The impairment is considered nested in the Balls Creek TMDL (Great Wicomico River Shellfish TMDL Report), which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

The size was reduced in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BLS02A08 / Balls Creek / Portion of condemnation notice 013-089F, 6/15/2020 not included in 89B, 5/28/1997. Size reduced in the 2022 cycle. CB5MH	4A	Fecal Coliform	2002	L	0.042

Balls Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.042		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-03-SF **Tipers Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 89C, 5/28/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 013-089E, 6/15/2020

The upstream portion of Tipers Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 89C, 5/28/1997. The TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Although the condemnation later expanded beyond the 1998 condemnation, the bacteria TMDL only addressed the original upstream portion, which is now considered Category 4A. The lower portion is addressed in fact sheet C01E-03-SF2.

In the 2022 cycle, the condemnation shrank and the downstream portion is now seasonally condemned. The expansion will be delisted (Category 2B). The portion of the seasonal condemnation within the approved TMDL will be partially delisted (Category 2C/2B).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_TIP01A98 / Tipers Creek / Described in VDH-DSS condemnation notice 013-089E, 6/15/2020 Split in the 2022 cycle. CB5MH	4A	Fecal Coliform	1998	L	0.052

Tipers Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.052		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-04-SF Henrys Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 016-057C, 11/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 016-057C, 11/15/2020

The TMDL for Henrys Creek was developed as part of the Indian Creek Shellfish TMDL, which was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. The TMDL was developed for the maximum extent of the condemnations, which occurred on 1/28/2005.

The condemnation expanded slightly in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HEN01A00 / Henrys Creek / Described in VDH condemnation 016-057C, 11/15/2020. Expanded in the 2020 cycle. CB5MH	4A	Fecal Coliform	2018	L	0.041

Henrys Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.04		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-05-SF Whays Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 089D, 4/3/2002

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 013-220B, 6/15/2020

The upstream portion of Whays Creek was included on the 1998 303(d) list as impaired of the Shellfish Consumption Use due to VDH Condemnation 89F, 5/28/1997. The shellfish TMDL , which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007, was based on condemnation 089D, 4/3/2002.

In the 2022 cycle, the condemnation shrank. The downstream re-opened area will be partially delisted (Category 2C.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_WHY01A98 / Whays Creek / Described in VDH-DSS condemnation notice 013-220B, 6/15/2020 CB5MH	4A	Fecal Coliform	1998	L	0.028

Whays Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.028		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-06-SF Warehouse Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 089E, 5/28/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 013-220A, 6/15/2020

The upper portion of Warehouse Creek was included on the 1998 303(d) list due to VDH Condemnation 89E, 5/28/1997. Although the condemnation has since expanded, the bacteria TMDL was completed only for the original upstream portion. The TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. The upper portion is considered Category 4A. The lower portion is addressed in fact sheet C01E-06-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_WCO01A98 / Warehouse Creek / Described in the condemnation notice 89E, 5/28/1997 CB5MH	4A	Fecal Coliform	1998	L	0.069

Warehouse Creek

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.069		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-06-SF2 Warehouse Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 013-220A, 6/15/2020 not included in condemnation 89E, 5/28/1997.

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 013-220A, 6/15/2020

The upper portion of Warehouse Creek was included on the 1998 303(d) list due to VDH Condemnation 89E, 5/28/1997. Although the condemnation has since expanded, the bacteria TMDL was completed only for the original upstream portion. The due date is 2018 since it first expanded in the 2006 cycle.

The impairment is considered nested within the upstream Warehouse Creek Shellfish TMDL. The TMDL was developed as part of the Great Wicomico River Watershed TMDL report and was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_WCO02A08 / Warehouse Creek / Portion of VDH condemnation notice 013-220A, 6/15/2020 not included in 89E, 5/28/1997 CB5MH	4A	Fecal Coliform	2006	L	0.008

Warehouse Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.008		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-08-BAC** **Cockrell Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 012-002A, 9/22/2005.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Due to monitoring around the Omega Protein facility during development of the Cockrell Creek Shellfish TMDL, the segment was listed for the Recreation Use due to enterococci exceedances at several stations. Monitoring at downstream station 7-COC000.27 was acceptable.

The enterococci TMDL was due in 2020, however it was addressed during the Shellfish TMDL, which was approved by the EPA on 12/8/2008 and by the SWCB on 4/28/2009. The segment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COC04A20 / Cockrell Creek / Portion of VDH-DSS Condemnation Notice 012-002A, 9/22/2005 open 8/15/2020 CB5MH	4A	Enterococcus	2008	L	0.202
VAP-C01E_COC04B10 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002A, 8/15/2020 CB5MH	4A	Enterococcus	2008	L	0.198
VAP-C01E_COC04C22 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002S194, 8/15/2020. CB5MH	4A	Enterococcus	2008	L	0.070

Cockrell Creek

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.47	Reservoir (Acres)	River (Miles)
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Sources: Agriculture; Industrial Point Source Discharge; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-09-SF Prentice Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 022D, 2/27/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Condemnation 015-022E, 6/15/2020

This portion of Prentice Creek was included on the 1998 303(d) list due to condemnation 022D, 2/27/1997. The bacteria TMDL for the 1998 impairment was completed as part of the Dividing Creek and Prentice Creek Bacteria TMDL report; the TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

During the 2010 cycle, the condemnation expanded and merged with another 1998 condemnation on an unnamed tributary. The 1998 segment is considered Category 4A for the Shellfish Use; the expanded area is addressed in fact sheet C01E-09-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_PNT03A02 / Prentice Creek / Described in VDH-DSS condemnation notice 022D, 2/27/1997. CB5MH	4A	Fecal Coliform	1998	L	0.015

Prentice Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.015		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-09-SF2 Prentice Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 015-022E, 6/15/2020 not included in 022D or 022C, 2/27/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Condemnation 015-022E, 6/15/2020

Two portions of Prentice Creek was included on the 1998 303(d) list due to condemnations 022C & 022D, 2/27/1997. The bacteria TMDL for the 1998 impairment was completed during the 2008 cycle as part of the Dividing Creek and Prentice Creek Bacteria TMDL report; the TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

During the 2010 cycle, the condemnations expanded and merged. The 1998 segments are considered Category 4A for the Shellfish Use; the TMDL for the expanded area is due in 2022. The impairment is nested in the Prentice Creek Bacterial TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_PNT02B10 / Prentice Creek / Portion of VDH-DSS condemnation 015-022E, 6/15/2020 that was open on 022, 2/27/1997. CB5MH	4A	Fecal Coliform	2010	L	0.014

Prentice Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.014		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-10-EBEN** **Cockrell Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 012-002B, 8/28/2018

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2020 cycle, upper Cockrell Creek was impaired of the Aquatic Life Use due to an altered benthic community at 2018 Coastal 2000 station 7-COC002.14.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COC01A98 / Cockrell Creek / As described in VDH-DSS Shellfish Condemnation 012-002B, 8/15/2020. CB5MH	5A	Estuarine Bioassessments	2020	L	0.612

Cockrell Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.612		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-12-BAC Mill Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 123, 6/2/1997

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The upper portion of Mill Creek was assessed as impaired of the Recreation Use during the 2010 cycle due to an enterococci violation rate of 5/12 at 7-MIL004.00, which is located at the end of Rt. 830.

During the 2012 cycle, additional sampling at 7-MIL005.19 confirmed the impairment (5/12).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Because bacteria reductions are already required due to the Mill Creek Shellfish TMDL, the enterococci impairment is considered nested (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_MIL01A98 / Mill Creek / Described in the condemnation notice 123, 6/2/1997. CB5MH	4A	Enterococcus	2010	L	0.241

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.241		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-12-SF Mill Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 123, 6/2/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 014-123A, 6/15/2020

The upper portion of Mill Creek was included on the 1998 303(d) list due to shellfish condemnation 123, 6/2/1997. The segment has expanded since then, however only the original portion was included in the TMDL for Mill Creek, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. The original upstream segment is considered Category 4A; the fact sheet for the downstream portion is C01E-12-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_MIL01A98 / Mill Creek / Described in the condemnation notice 123, 6/2/1997. CB5MH	4A	Fecal Coliform	1998	L	0.241

Mill Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.241		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-12-SF2 Mill Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 014-123A, 6/15/2020 not included in 123, 6/2/1997.

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 014-123A, 6/15/2020

The upper portion of Mill Creek was included on the 1998 303(d) list due to shellfish condemnation 123, 6/2/1997. The segment has since expanded; however, only the original portion was included in the TMDL for Mill Creek, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008. As the segment first expanded during the 2004 cycle, the TMDL is due in 2016. The impairment shortened slightly in the 2020 cycle.

The impairment is nested within the upstream Mill Creek Shellfish TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_MIL02A08 / Mill Creek / Portion of VDH Condemnation 014-123A, 6/15/2020 not included in the notice 123, 6/2/1997. CB5MH	4A	Fecal Coliform	2004	L	0.027

Mill Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.027		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-14-SF Gaskin Pond

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 011-122A, 7/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 011-122A, 8/15/2020

Gaskin Pond is considered nested in the TMDL for the neighboring Owens Pond shellfish condemnation. The TMDL was approved by the EPA on 6/19/2009 and by the SWCB on 11/14/2009.

The size of the condemnation has varied. In the 2022 cycle, the condemnation shrank again and a portion is now seasonally condemned and will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GSK01A10 / Gaskin Pond / As described in VDH-DSS condemnation 011-122A, 8/15/2020. Segment split in the 2022 cycle.	4A	Fecal Coliform	2010	L	0.076

Gaskin Pond

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.076		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-15-SF** **Dividing Creek, Lawrence Creek, Natty Point Cove, UT to Dividing Creek**

Cause Location: Described in VDH Shellfish Condemnation Number 22A, 2/27/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnations 015-022A, -B, and -D, 6/15/2020

The upstream section of Dividing Creek was included on the 1998 303(d) list for the Shellfish Use due to VDH condemnation 22A, 2/27/1997. The bacterial TMDL was completed for the 1998 impairment.

The condemnations have varied in size throughout the cycles. In the 2022 cycle, the mainstem condemnation expanded and merged with Natty Point Cove. Also, the UT (015-022G, 5/3/2018) was re-opened and partially delisted.

The open area that is within the TMDL study area is considered Category 2C. The closed areas remain Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DIV01A98 / Dividing Creek / Described in VDH-DSS condemnation 015-022A, 6/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Fecal Coliform	1998	L	0.091
VAP-C01E_LRC01A12 / Lawrence Cove / Described in the VDH-DSS condemnation 015-022B, 6/15/2020. CB5MH	4A	Fecal Coliform	1998	L	0.087
VAP-C01E_NPC01A16 / Natty Point Cove / Described in VDH-DSS condemnation 015-022C, 5/3/2018. CB5MH	4A	Fecal Coliform	1998	L	0.018
VAP-C01E_XES01A12 / XES - Dividing Creek, UT / Described in the VDH-DSS condemnation 015-022D, 6/15/2020. CB5MH	4A	Fecal Coliform	1998	L	0.029

Dividing Creek, Lawrence Creek, Natty Point Cove, UT to Dividing Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.224		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-17-PCB Chesapeake Bay and Tidal Tributaries

Cause Location: Chesapeake Bay mainstem and its small coastal tidal tributaries

Cause City/County: Accomack County; Chesapeake Bay - County Not Applicable; Gloucester County; Lancaster County; Mathews County; Middlesex County; Norfolk; Northampton County; Northumberland County; Poquoson City; Virginia Beach; York County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The Chesapeake Bay and its small coastal tidal tributaries are included under the 12/13/2004 VDH Fish Consumption Advisories for PCBs. No more than two meals/month are recommended of anadromous (coastal) striped bass.

Also, VDH issued additional fish consumption advisory for PCBs in the Mobjack Bay and its tributaries, particularly the East, West, and Ware Rivers (on 12/13/2004) and in the Piankatank River from Rt. 17 to Deep Point Boat Landing (10/7/2009). No more than two meals/month of gizzard shad are recommended.

The advisories are based on the results of DEQ's fish tissue monitoring program, which show elevated PCBs levels in several monitoring sites within the basin, including:

7-COC000.40 in Cockrell Creek 7-DYM000.00 in Dymmer Creek 7-DRN001.43 in Dragon Swamp 7-PNK019.85 and 7-PNK015.49 in the Piankatank River 7-MLF002.45 in Milford Haven 7-WIN000.88 in Winter Harbor 7-EST002.65 in the East River 7-WAR005.77 in the Ware River

Note: there were previous exceedances at 7-GWR007.97 in the Great Wicomico River, 7-IND001.80 in Indian Creek, and 7-NOR003.65 in the North River. Re-sampling at those stations was acceptable in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-C10E-POC / Chesapeake Bay - VA portion of CBP segment POCMH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment POCMH, located in the mesohaline area of Pocomoke sound. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	41.048
VACB-C10E-TAN / Chesapeake Bay - VA portion of CBP Segment TANMH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment TANMH, located in the northern part of the Virginia mainstem Bay around Tangier Sound. HUC: 02080101	5A	PCBs in Fish Tissue	2006	L	118.980
VACB-C10E_POC01B18 / Pocomoke Sound / Pocomoke Sound - VDH DSS condemnation #075-033 (Restricted)	5A	PCBs in Fish Tissue	2006	L	2.480
VACB-C10E_POC01C20 / Pocomoke Sound / Pocomoke Sound - VDH DSS #075-033 (Open)	5A	PCBs in Fish Tissue	2006	L	3.347
VACB-C10E_TNN01A06 / Tangier North Channel and Adjacent Waters, DSS Area A and B. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section A effective 11/6/2013	5A	PCBs in Fish Tissue	2006	L	1.366

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-C10E_TNN01B06 / Tangier North Channel and Adjacent Waters, DSS Area C. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section B effective 11/6/2013	5A	PCBs in Fish Tissue	2006	L	0.039
VACB-C10E_TNN01C16 / Tangier North Channel and Adjacent Waters, Open waters / Waters surrounding Tangier Island. Portion of CBP segment TANMH. Open waters of the DSS cond # 078-86 eff 11/06/2013. Split from VACB-C10E_TNN01A06 (2016).	5A	PCBs in Fish Tissue	2006	L	0.196
VACB-C10E_TNN01D18 / Tyler Creek, Shanks Creek, Tangier Sound / Tyler Creek, Shanks Creek, Tangier Sound - Portion of CBP segment TANMH. Restricted waters of the DSS cond # 074-226 eff 2/26/2015. Split from VACB-C10E-TAN.	5A	PCBs in Fish Tissue	2006	L	2.169
VACB-R01E-04CE / Chesapeake Bay - Cape Charles BSS #089-011, Section A. / Va Dept of Health Shellfish (administrative) condemnation #089-011, Opposite Cape Charles City, Section A. HUC: 02080101.[effective 2005-3-08]	5A	PCBs in Fish Tissue	2006	L	0.312
VACB-R01E-04DE / Chesapeake Bay - S. Thimble Island BSS Condemnation #163 / Va Dept of Health Shellfish zone #163. Open to shellfish harvesting as of 4/25/2007. S. Thimble Island. HUC: 02080101	5A	PCBs in Fish Tissue	2006	L	0.027
VACB-R01E-04EE / Chesapeake Bay - Off Little Creek BSS #068-017, Section C. / Va Dept of Health Shellfish (administrative) closure #068-017, A portion of section C. Off Little Creek. HUC: 02080101.[effective 2005-3-08]	5A	PCBs in Fish Tissue	2006	L	0.540
VACB-R01E-04GE / Chesapeake Bay - Off Little Creek BSS #068-017, Areas A & B / Va Dept of Health Shellfish (administrative) closure #068-017, Off Little Creek, Sections A and B. HUC: 02080101.[effective 2005-3-08]	5A	PCBs in Fish Tissue	2006	L	1.355
VACB-R01E-CB5 / Chesapeake Bay - VA portion of CBP Segment CB5MH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment CB5MH, located in the northern part of the Virginia mainstem Bay from the mouth of the Rappahannock River and northward. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	185.846
VACB-R01E-CB6N / Chesapeake Bay - Northern portion of CBP Segment CB6PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	127.195

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VACB-R01E-CB6S / Chesapeake Bay - Southern portion of CBP Segment CB6PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	160.307
VACB-R01E-CB7N / Chesapeake Bay - Northern portion of CBP Segment CB7PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB7PH, located in the northwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	168.603
VACB-R01E-CB7S / Chesapeake Bay - Southern portion of CBP Segment CB7PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB7PH, located in the southwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	372.814
VACB-R01E-CB8 / Chesapeake Bay - CBP Segment CB8PH / This assessment unit is the mainstem portion of Chesapeake Bay Program segment CB8PH, located in the Virginia Chesapeake Bay between the mouths of the James River and mouth of Chesapeake Bay. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	141.796
VACB-R01E-MOB / Chesapeake Bay - CBP Segment MOBPH / This assessment unit is the mainstem Chesapeake Bay and Mobjack Bay portions of Chesapeake Bay Program segment MOBPH, located off the mouth of the York River including Mobjack Bay. HUC: 02080101.	5A	PCBs in Fish Tissue	2006	L	92.951
VACB-R01E_CB7N01A20 / Chesapeake Bay - Northern portion of CBP Segment CB7PH / Chesapeake Bay - VDH DSS condemnation #079-112 (Open)	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C01E_ANT01A98 / Antipoison Creek / Described in the condemnation notice 017-188A, 11/15/2020. Expanded in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.083
VAP-C01E_ANT01B08 / Antipoison Creek, UT / Described in the condemnation notice 017-188C, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C01E_ANT01C08 / Antipoison Creek, UT / Described in VDH-DSS condemnation notice 017-188B, 11/15/2020. Size increased in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.013

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_ANT02A08 / Antipoison Creek / Downstream of condemnation notice 017-188, 11/15/2020 not otherwise segmented. Merged in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.325
VAP-C01E_ASH01A10 / Ashleys Cove / Described in VDH-DSS condemnation 016-024D, 1/28/2005 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.056
VAP-C01E_BAI01A16 / Bailey Prong / Described in VDH-DSS condemnation 013-220H, 4/1/2014. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.052
VAP-C01E_BAL01A02 / Ball Creek / Portion of VDH condemnation notice 014-124B, 6/2/1997 open in 014-124, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C01E_BAL01B20 / Ball Creek / Described in VDH condemnation notice 014-124S152, 6/15/2020. Size increased in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.039
VAP-C01E_BAL02A02 / Ball Creek / From VDH-DSS Condemnation 124B, 6/2/1997, downstream to its mouth. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.128
VAP-C01E_BAR01A98 / Barrett Creek / Described in the condemnation notice, 013-08S80, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.066
VAP-C01E_BAR02A08 / Barrett Creek, UT / Described in VDH-DSS SFC 013-08S81, 6/15/2020 Size decreased in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.007
VAP-C01E_BEL01A08 / Bells Creek / Described in VDH condemnation 016-057B, 12/13/2006. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.042
VAP-C01E_BLA01A22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-08D, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.045
VAP-C01E_BLA01B22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-089S181, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C01E_BLS01A02 / Balls Creek / Described in VDH-DSS condemnation notice 89B, 5/28/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.064

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BLS02A08 / Balls Creek / Portion of condemnation notice 013-089F, 6/15/2020 not included in 89B, 5/28/1997. Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.042
VAP-C01E_BLS03A22 / Balls Creek / Described in VDH-DSS Condemnation 013-089S179, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.022
VAP-C01E_BMC01A04 / Betts Mill Creek / Described in the VDH Shellfish Condemnation 013-089B, 6/15/2020. Split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.048
VAP-C01E_BMC01B22 / Betts Mill Creek / Described in VDH Shellfish Condemnation 013-089S181, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.034
VAP-C01E_BMS01A12 / Bush Mill Stream / Tidal limit to mouth at Great Wicomico River CB5MH	5A	PCBs in Fish Tissue	2006	L	0.095
VAP-C01E_BRS01A08 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. Split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.194
VAP-C01E_BRS01B20 / Barnes Creek / Portion of VDH-DSS condemnation 12/13/2006 open on 016-057, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C01E_BRS01C20 / Barnes Creek / Described in VDH-DSS condemnation 016-057B, 11/15/2020. Shrank in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.062
VAP-C01E_BRS01D22 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.031
VAP-C01E_CHA01A08 / Dymmer Creek, UT / Described in condemnation notice 016-024B, 12/30/2015. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C01E_CHA01B12 / Chases Cove / Described in VDH-DSS condemnation notice 016-024D, 12/30/2015 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C01E_CLE01A98 / Cloverdale Creek / Described in the condemnation notice 014-124A, 6/2/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.020

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_CLE02A06 / Cloverdale Creek / Downstream of condemnation notice 014-124A, 6/2/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.056
VAP-C01E_COC01A98 / Cockrell Creek / As described in VDH-DSS Shellfish Condemnation 012-002B, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.612
VAP-C01E_COC03A98 / Cockrell Creek / Described in the condemnation notice. VDH-DSS SFC 012-002C, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.035
VAP-C01E_COC04A20 / Cockrell Creek / Portion of VDH-DSS Condemnation Notice 012-002A, 9/22/2005 open 8/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.202
VAP-C01E_COC04B10 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002A, 8/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.198
VAP-C01E_COC04C22 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002S194, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.070
VAP-C01E_COC05A06 / Cockrell Creek / From VDH-DSS SFC 012-002A, 9/22/2005 downstream to mouth at Fleet Point. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.152
VAP-C01E_COL01A08 / Coles Creek / Described in VDH-DSS SFC 013-089C, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.019
VAP-C01E_CRN01A06 / Cranes Creek / Described in VDH-DSS Shellfish Condemnation 013-220C, 5/1/2018 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.019
VAP-C01E_CRN01B06 / Cranes Creek / Described in VDH-DSS Shellfish Condemnation 013-220M1, 8/9/2011 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C01E_DIV01A98 / Dividing Creek / Described in VDH-DSS condemnation 015-022A, 6/15/2020. Size increased in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.091
VAP-C01E_DIV01B12 / Dividing Creek / Portion of VDH-DSS condemnation 022, 2/27/1997 open on 015-022, 6/15/2020. Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.138

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DIV01C14 / Dividing Creek, UT / VDH-DSS condemnation 015-022G, 5/3/2018 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.009
VAP-C01E_DIV03A00 / Dividing Creek / From the downstream limit of VDH-DSS SFC 022, 2/27/1997, to the mouth at Chesapeake Bay. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.816
VAP-C01E_DVN01A04 / Davenport Creek / Described in VDH Shellfish Condemnation 017-188A, 5/12/2012. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.019
VAP-C01E_DYM01A98 / Dymer Creek / Described in VDH-DSS condemnation notice 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.190
VAP-C01E_DYM01B14 / Dymer Creek / Portion of VDH-DSS SFC 016-024A 1/28/2005 not condemned on 11/15/2020. Expanded in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.110
VAP-C01E_DYM02A00 / Dymer Creek / Dymer Creek downstream of VDH-DSS SFC 016-024A 1/28/2005 unless otherwise segmented. Size increased in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.665
VAP-C01E_DYM02B20 / Georges Cove / Portion of 016-024S114, 11/15/2020 not located within VDH-DSS SFC 016-024A or -E, 1/28/2005. Size reduced in the 2022 cycle and is now limited to Georges Cove. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C01E_FLB01A00 / Fleets Bay / Fleets Bay north of Bluff Point at Barnes Creek south to Fleets Island. CB5MH Size adjusted in 2006 cycle.	5A	PCBs in Fish Tissue	2006	L	5.177
VAP-C01E_GEO01A98 / Georges Cove / Portion of condemnation notice 016-024E, 1/28/2005 not closed 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C01E_GEO01B20 / Georges Cove / Described in condemnation notice 016-024B, 1/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C01E_GOU01A06 / Gougher Creek / Described in VDH-DSS Shellfish Condemnation 013-220S84, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GSK01A10 / Gaskin Pond / As described in VDH-DSS condemnation 011-122A, 8/15/2020. Segment split in the 2022 cycle.	5A	PCBs in Fish Tissue	2006	L	0.076
VAP-C01E_GSK01B22 / Gaskin Pond / As described in VDH-DSS condemnation 011-122S189, 8/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.042
VAP-C01E_GWR01A98 / Great Wicomico River / Portion of condemnation notice 013-089A, 6/15/2020 which is not administratively closed, excluding Head River Branch and Bush Mill Stream CB5MH	5A	PCBs in Fish Tissue	2006	L	0.232
VAP-C01E_GWR01B08 / Great Wicomico River / Portion of VDH-DSS condemnation 013-089S182, 6/15/2020 not included in 089A, 5/28/1997. Split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.070
VAP-C01E_GWR01C10 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is administratively closed CB5MH	5A	PCBs in Fish Tissue	2006	L	0.058
VAP-C01E_GWR01D22 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is within 013-089S182, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.036
VAP-C01E_GWR02A00 / Great Wicomico River / From VDH-DSS SFC 013-089S182, 6/15/2020 downstream to Rogue Point unless otherwise segmented. Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	1.883
VAP-C01E_GWR02B06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M2, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.017
VAP-C01E_GWR02C06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M1, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.008
VAP-C01E_GWR02D12 / Great Wicomico River / VDH-DSS Condemnation 013-089M3, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.008
VAP-C01E_GWR02E16 / Great Wicomico River, UT / Described in VDH-DSS condemnation 013-089S82, 5/1/2018 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.033

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GWR03A06 / Great Wicomico River / From Rogue Point (GWR02A00) downstream to Ingram Bay at Dameron Marsh. CB5MH	5A	PCBs in Fish Tissue	2006	L	5.651
VAP-C01E_GWR03B16 / Great Wicomico River / Described in VDH-DSS condemnation 013-220D, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.004
VAP-C01E_HAP01B10 / Harpers Creek / Described in VDH-DSS Condemnation 017-188E, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.022
VAP-C01E_HAV01A08 / Harveys Creek / Described in VDH Shellfish Condemnation 014-123C, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.045
VAP-C01E_HEN01A00 / Henrys Creek / Described in VDH condemnation 016-057C, 11/15/2020. Expanded in the 2020 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.041
VAP-C01E_HEN01B14 / Henrys Creek / Portion of VDH condemnation 016-057C, 1/28/2005 open on 11/15/2020. Merged in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C01E_HEN02A14 / Henrys Creek / Downstream of 016-057C, 1/28/2005 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.103
VAP-C01E_HHB01A98 / Horn Harbor / Described in the condemnation notice 013-089S183, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.071
VAP-C01E_HNT01A98 / Hunts Cove / Described in the condemnation notice 016-024B, 1/28/2005. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.040
VAP-C01E_HRB01A12 / Head River Branch / Tidal limit to mouth at Bush Mill Stream. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C01E_IND01A98 / Indian Creek / Portion of VDH-DSS condemnation notice 016-057A, 11/15/2020 that is not administratively condemned. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.331
VAP-C01E_IND01B10 / Indian Creek / Administratively condemned portion of VDH-DSS condemnation notice 016-057A, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.037
VAP-C01E_IND01C10 / Indian Creek / Portion of condemnation notice 016-057A, 12/13/2006 seasonally condemned on 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.042

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_IND02A98 / Indian Creek / Described in the condemnation notice 016-057E, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C01E_IND03A00 / Indian Creek / Indian Creek from end of condemnation 016-057A, 12/13/2006, downstream to mouth unless otherwise segmented. Expanded in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.595
VAP-C01E_IND03B06 / Indian Creek / Portion of VDH-DSS Seasonal Shellfish Condemnation 016-057S110, 11/15/2020 not addressed in the TMDL. Shortened and split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C01E_IND03C22 / Indian Creek / Described in VDH-DSS Condemnation 016-057M1, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.017
VAP-C01E_JAR01A02 / Jarvis Creek, UT / Described in VDH-DSS condemnation notice 015-022H, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.026
VAP-C01E_JAR01B08 / Jarvis Creek / As described in VDH-DSS condemnation 015-022C, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C01E_JAR02A10 / Jarvis Creek / Downstream of VDH condemnations CB5MH	5A	PCBs in Fish Tissue	2006	L	0.200
VAP-C01E_JOH01A06 / Johnson Creek / As described in VDH-DSS SFC 016-024S112, 11/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C01E_LEE01A02 / Lees Cove / As described in the condemnation notice 016-024C, 1/28/2005 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C01E_LEE02A12 / Lees Cove / Portion of VDH-DSS SFC 016-024C, 11/15/2020 not impaired in 016-024C, 1/28/2005. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C01E_LOC01A08 / Long Creek / Described in VDH condemnation 016-057D, 12/13/2006. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.017
VAP-C01E_LRC01A12 / Lawrence Cove / Described in the VDH-DSS condemnation 015-022B, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.087
VAP-C01E_LTB01A02 / Little Bay / Little Bay CB5MH	5A	PCBs in Fish Tissue	2006	L	1.147

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_LTM01A98 / Little Taskmakers Creek / Described in the condemnation notice 011-190S192, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.038
VAP-C01E_LTM01B22 / Little Taskmakers Creek / Portion of VDH condemnation notice 190, 4/13/1993 that is not included in 011-190, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.011
VAP-C01E_MIL01A98 / Mill Creek / Described in the condemnation notice 123, 6/2/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.241
VAP-C01E_MIL01B06 / Mill Creek / Mouth of Mill Creek at Ingram Bay CB5MH	5A	PCBs in Fish Tissue	2006	L	1.173
VAP-C01E_MIL02A08 / Mill Creek / Portion of VDH Condemnation 014-123A, 6/15/2020 not included in the notice 123, 6/2/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.027
VAP-C01E_MIL03A08 / Mill Creek / Middle Mill Creek downstream of condemnations to Ingrams Bay. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.146
VAP-C01E_MIL03B22 / Mill Creek / Described in VDH-DSS Condemnation 014-123S150, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.318
VAP-C01E_NPC01A16 / Natty Point Cove / Described in VDH-DSS condemnation 015-022C, 5/3/2018. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C01E_OHC01A08 / Old House Cove / Described in VDH-DSS SFC 015-022F, 5/9/2016. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.024
VAP-C01E_OWP01A98 / Owens Pond / Downstream of VDH-DSS condemnation 011-122, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.076
VAP-C01E_OWP02B12 / Owens Pond / Described in VDH-DSS condemnation 011-122S191, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.037
VAP-C01E_OWP02C12 / Owens Pond / VDH-DSS condemnation 011-122S190, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.073
VAP-C01E_OYS01A08 / Oyster Creek / Described in VDH condemnation 018-053A, 1/4/2005 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.103
VAP-C01E_PEN01A12 / Penny Creek / Described in VDH-DSS Condemnation 013-220S85, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.009

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_PNT02A02 / Prentice Creek / Downstream of VDH-DSS condemnation 015-022, 6/15/2020 to its mouth. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.156
VAP-C01E_PNT02B10 / Prentice Creek / Portion of VDH-DSS condemnation 015-022E, 6/15/2020 that was open on 022, 2/27/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.014
VAP-C01E_PNT02C22 / Prentice Creek, UT / Described in VDH-DSS condemnation 015-022F, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.004
VAP-C01E_PNT03A02 / Prentice Creek / Described in VDH-DSS condemnation notice 022D, 2/27/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C01E_REA01A10 / Reason Creek / Described in VDH-DSS condemnation 013-220C, 8/23/2010 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.025
VAP-C01E_TBS01A98 / Tabbs Creek / Described in VDH-DSS condemnation notice 016-133A, 11/15/2020 Size reduced in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.180
VAP-C01E_TBS01B10 / Tabbs Creek / Portion of VDH-DSS condemnation notice 016-133A, 12/13/2006 seasonally condemned in 016-133, 11/15/2020. Split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.025
VAP-C01E_TBS01C22 / Tabbs Creek / Portion of the condemnation notice 016-133A, 12/13/2006 open on 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C01E_TBS02A00 / Tabbs Creek / Tabbs Creek downstream of VDH-DSS Condemnation 016-133, 12/13/2006. Merged in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.175
VAP-C01E_TIP01A98 / Tipers Creek / Described in VDH-DSS condemnation notice 013-089E, 6/15/2020 Split in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.052
VAP-C01E_TIP01B22 / Tipers Creek / Portion of VDH-DSS condemnation notice 89C, 5/28/1997 included in 013-089S178, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.031
VAP-C01E_TIP02A08 / Tipers Creek / Portion of condemnation notice 013-089S178, 6/15/2020 not included in 89C, 5/28/1997 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.013

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_TOW01A06 / Towles Creek / Described in VDH-DSS Shellfish Condemnation 014-123B, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.027
VAP-C01E_TSK01A14 / Taskmakers Creek / As described in VDH-DSS condemnation 011-190S193, 8/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C01E_WCO01A98 / Warehouse Creek / Described in the condemnation notice 89E, 5/28/1997 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.069
VAP-C01E_WCO02A08 / Warehouse Creek / Portion of VDH condemnation notice 013-220A, 6/15/2020 not included in 89E, 5/28/1997 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.008
VAP-C01E_WHY01A98 / Whays Creek / Described in VDH-DSS condemnation notice 013-220B, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.028
VAP-C01E_WHY01B22 / Whays Creek / Portion of VDH-DSS condemnation notice 089D, 4/3/2002 open in 013-220, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.013
VAP-C01E_WHY03A10 / Whays Creek / Downstream of condemnation notice 013-089D, 4/3/2002. Merged in the 2022 cycle. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.099
VAP-C01E_XDL01A02 / XDL - Chesapeake Bay, UT (aka Big Fleets Pond) / As described in condemnation notice 011-190A, 8/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C01E_XDZ01A10 / XDZ - Mill Creek, UT (Gascony Cove) / Tidal limit to mouth at Mill Creek	5A	PCBs in Fish Tissue	2006	L	0.028
VAP-C01E_XEO01A10 / XEO - Reason Creek, UT / Described in VDH-DSS Condemnation 013-220C, 6/15/2020 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.001
VAP-C01E_XES01A12 / XES - Dividing Creek, UT / Described in the VDH-DSS condemnation 015-022D, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C01E_XEU01A02 / XEU - Prentice Creek, UT / Described in VDH-DSS condemnation notice 022C, 2/27/1997. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.011

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_XEV01A12 / XEV - Mill Creek, UT / Described in VDH-DSS condemnation 014-123C, 5/9/2016. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.007
VAP-C01E_XEW01A14 / XEW - Chesapeake Bay, UT / Tidal limit to mouth	5A	PCBs in Fish Tissue	2006	L	0.022
VAP-C01E_XFC02C12 / XFC - Antipoison Creek, UT / Described in VDH-DSS condemnation 017-188D, 11/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.002
VAP-C01E_XFJ01A22 / XFJ - Mill Creek, UT (Guarding Cove) / Described in VDH-DSS Condemnation 014-123S174, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.059
VAP-C01E_XUC01A98 / XUC - Dividing Creek, UT / Described in the condemnation notice 015-022G, 6/15/2020. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.013
VAP-C01E_ZZZ01A22 / Unsegmented estuaries in C01 / Unsegmented estuaries in CB02 CB5MH	5A	PCBs in Fish Tissue	2006	L	0.371
VAP-C01E_ZZZ01B14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB03. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.058
VAP-C01E_ZZZ01C14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB04. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.764
VAP-C01E_ZZZ01D14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB05. CB5MH	5A	PCBs in Fish Tissue	2006	L	0.065
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.823
VAP-C03E_COB02B20 / Cobbs Creek / Described in VDH-DSS condemnation 034-126S70, 12/15/2020. Expanded slightly in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.043
VAP-C03E_COB02C10 / Cobbs Creek / Described in VDH-DSS condemnation 034-126B, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.049
VAP-C03E_COR01A08 / Cores Creek / Described in VDH-DSS condemnation 034-208D, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C03E_DAN01A08 / Dancing Creek / Described in VDH-DSS condemnation 025-076C, 2/15/2020 PIAMH	5A	PCBs in Fish Tissue	2006	L	0.034

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_FER01A98 / Ferry Creek / Described in VDH-DSS condemnation notice 035-076B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C03E_FER01B20 / Ferry Creek / Portion of Ferry Creek that is not closed for oyster harvest. Expanded in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.115
VAP-C03E_FRE01A02 / Frenchs Creek / As described in the condemnation notice 035-076D, 2/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C03E_HEA01A02 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208A, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.047
VAP-C03E_HEA01B20 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208S67, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.024
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.062
VAP-C03E_JCK01A98 / Jackson Creek / Described in VDH-DSS condemnation notice 84A, 11/1/1996. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.019
VAP-C03E_JCK01B08 / Jackson Creek / Described in VDH-DSS condemnation notice 084B, 11/1/1996. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C03E_JCK01C08 / Jackson Creek / Mainstem portion of condemnation notice 033-084A, 12/11/2018 not included in 84A, 11/1/1996. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C03E_JCK01C14 / Jackson Creek, UT / Described in VDH-DSS condemnation notice 033-084B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.014
VAP-C03E_JCK02A20 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084D, 12/11/2018 not included in 084B, 11/1/1996. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.032
VAP-C03E_JCK02B16 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084E, 11/12/2014. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.011

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_JCK02C10 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084M1, 2/15/2020 not included in 033-084A, -B, or -D, 12/11/2018. Segment expanded in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.171
VAP-C03E_JCK03C10 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084B, 12/11/2018. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.013
VAP-C03E_MRE01A02 / Moore Creek / As described in the condemnation notice 034-208C, 12/15/2020. Split in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.034
VAP-C03E_MRE01B22 / Moore Creek / As described in the condemnation notice 034-208S69, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.035
VAP-C03E_PNK01A02 / Piankatank River / Downstream limit of VDH-DSS condemnation SFC 035-076A, 6/10/1997 to Deep Point Boat Landing. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.558
VAP-C03E_PNK01A98 / Piankatank River / Watershed limit (start of Piankatank River) downstream to limit of SFC 035-076A, 6/10/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	1.280
VAP-C03E_PNK02A00 / Piankatank River / Mainstem Piankatank from end of 035-076S65, 2/15/2020 downstream to PNK03A00, excluding the Berkley Island area. Size reduced in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	3.355
VAP-C03E_PNK02B08 / Piankatank River / Bend around Berkley Island PIAMH	5A	PCBs in Fish Tissue	2006	L	0.785
VAP-C03E_PNK02C20 / Piankatank River / Mainstem Piankatank from Deep Point Landing downstream to the boundary of 035-076S65, 2/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	1.210
VAP-C03E_PNK03A00 / Piankatank River / One-half mile radius around monitoring station 7-PNK005.36 on the Piankatank River between Pond Point and Iron Point. PIAMH	5A	PCBs in Fish Tissue	2006	L	1.167
VAP-C03E_PNK04A00 / Piankatank River / Mainstem Piankatank River from PNK03A00 downstream to the point at Fishing Bay. PIAMH	5A	PCBs in Fish Tissue	2006	L	3.528

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK04B06 / Piankatank River / As described in VDH-DSS SFC 034-208M1, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.040
VAP-C03E_PNK04C06 / Piankatank River - Fishing Bay / As described in VDH-DSS SFC 034-208 M2, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.085
VAP-C03E_PNK04D08 / Porpoise Cove / As described in VDH-DSS SFC 034-208B, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.011
VAP-C03E_PNK05A02 / Piankatank River / Piankatank River downstream of Fishing Bay at Stove Point to mouth at Chesapeake Bay PIAMH	5A	PCBs in Fish Tissue	2006	L	4.949
VAP-C03E_PNK07B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S71, 12/28/2018. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.007
VAP-C03E_PNK08B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S72, 12/28/2018 PIAMH	5A	PCBs in Fish Tissue	2006	L	0.003
VAP-C03E_WLT01A98 / Wilton Creek / Described in the condemnation notice 034-126A, 12/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.111
VAP-C03E_WLT01B20 / Wilton Creek / Portion of VDH-DSS condemnation 126, 3/2/1993 that is not condemned. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C03E_ZZZ01B14 / Unsegmented estuaries in C03 / Unsegmented portion of watershed CB11. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.146
VAP-C04E_BEV01A08 / Belleville Creek / Described in VDH Shellfish Condemnation 042-157S162, 7/15/2020. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.053
VAP-C04E_BKA01A98 / Back Creek / Described in VDH condemnation notice 042-157C, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.056
VAP-C04E_BKA01C20 / Back Creek / Portion of VDH condemnation notice 157C, 6/3/1997 not condemned on 7/15/2020 (seasonally condemned). Merged in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C04E_BLL01A16 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.002

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VAP-C04E_BLL01A98 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 closed on 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.044
VAP-C04E_BLL02A16 / Billups Creek / Billups Creek not otherwise segmented. Size reduced in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.185
VAP-C04E_BLL02B20 / Billups Creek / Portion of VDH-DSS condemnation 037-061B, 4/15/2020 open on 4/4/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.006
VAP-C04E_BLL02C12 / Billups Creek / Portion of VDH-DSS condemnation 037-061S129, 4/15/2020 open in 204, 4/4/1997. Size increased in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.137
VAP-C04E_BLW01A98 / Blackwater Creek / Described in the condemnation notice 042-131A, 6/3/1997. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.101
VAP-C04E_BLW02A22 / Blackwater Creek / Portion of VDH-DSS Condemnation 042-131S161, 7/15/2020 not included in 131A, 6/3/1997. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.008
VAP-C04E_BOR01A18 / Borum Creek / Described in VDH-DSS condemnation 039-026C, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.028
VAP-C04E_BRN01A04 / Barn Creek / Described in VDH-DSS condemnation notice 036-197C, 3/15/2019. Split in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C04E_BRN02A22 / Barn Creek / Described in VDH-DSS condemnation notice 036-197S126, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.026
VAP-C04E_BUR01A00 / Burke Mill Stream / From extent of tide to North River MOBPH	5A	PCBs in Fish Tissue	2010	L	0.025
VAP-C04E_DAV01A98 / Davis Creek / Described in VDH-DSS condemnation notice 042-131S22, 7/15/2020. Merged and expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.072
VAP-C04E_DOC01A98 / Doctors Creek / Described in VDH condemnation notice 26B, 2/25/1997. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.015

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_DVS01A98 / Davis Creek / Described in VDH-DSS condemnation notice 85, 9/22/1997. Merged in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C04E_DVS01B08 / Davis Creek / Described in the condemnation notice 040-085M2, 9/21/2010. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.011
VAP-C04E_DVS03A12 / Davis Creek / Described in VDH-DSS condemnation 040-085A, 9/24/2018. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.013
VAP-C04E_DYE01A08 / Dyer Creek / Described in VDH-DSS Condemnation 039-100S76, 4/15/2020. Expanded in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.052
VAP-C04E_DYE01B22 / Dyer Creek, UT / Described in VDH-DSS Condemnation 039-100S123, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.014
VAP-C04E_DYE02A04 / Dyer Creek / Downstream limit of condemnation to mouth. Shrank and split in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.220
VAP-C04E_EDW01B18 / Edwards Creek / Described in VDH condemnation notice 197A, 1/21/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.027
VAP-C04E_EDW02A98 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197B, 1/21/1997 open 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.041
VAP-C04E_EDW02B20 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197D, 3/15/2019 not included in 197B, 1/21/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.006
VAP-C04E_ELM01A98 / Elmington Creek / Described in the condemnation notice 157B, 6/3/1997. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C04E_ELM01B08 / Elmington Creek / Portion of VDH condemnation notice 042-157D, 7/15/2020 not included in 157B, 6/3/1997. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.009
VAP-C04E_EST01A98 / East River / Described in the condemnation notice 92, 1/3/1995. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.198

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST01B10 / East River / Portion of condemnation notice 041-092A, 10/15/2020 open in 92, 1/3/1995. Size increased in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.072
VAP-C04E_EST01D10 / East River, UT / Described in the condemnation notice 041-092S43, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C04E_EST02A00 / East River / East River from SFC 92 to mouth, not otherwise segmented. MOBPH	5A	PCBs in Fish Tissue	2006	L	2.473
VAP-C04E_EST02B20 / East River, UT / Described in VDH-DSS condemnation 041-092C, 10/15/2020. Size reduced in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.013
VAP-C04E_EST03A06 / East River, UT / Described in VDH-DSS SFC 041-212M1, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C04E_EST04A02 / East River, UT / Described in VDH-DSS Condemnation Notice 041-212S197, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.026
VAP-C04E_EST05A06 / East River, UT (aka Mill Creek) / Described in VDH-DSS SFC 041-212S198, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.026
VAP-C04E_EST06A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212G, 10/25/2005. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C04E_EST07A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212C, 9/30/2016. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.014
VAP-C04E_EST08A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212S46, 9/24/2018. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.004
VAP-C04E_EST09A22 / East River, UT / Described in VDH-DSS Condemnation 041-092S42, 10/15/2020 MOBPH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C04E_GDN01A06 / Garden Creek / Tidal limit to mouth. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.373
VAP-C04E_GRE01A08 / Greenmansion Cove / Described in VDH-DSS condemnation notice 042-131M1, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.054

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HAH01A98 / Horn Harbor / Described in VDH condemnation notices 039-026A and -026E, 4/15/2020. Shrank slightly in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.181
VAP-C04E_HAH01C12 / Horn Harbor / Portion of VDH-DSS condemnation 26A, 2/25/1997 not closed in the 039-026, 4/15/2020 condemnation. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.054
VAP-C04E_HAH02A02 / Horn Harbor / From VDH-DSS condemnation 26A, 2/25/1997 downstream to the mouth, unless otherwise segmented. Merged in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	1.367
VAP-C04E_HAH02B12 / Horn Harbor / Portion of VDH-DSS condemnation 039-026S73, 4/15/2020 downstream of 26A, 2/25/1997. Shortened and split in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.180
VAP-C04E_HAH02C20 / Horn Harbor / Described in VDH-DSS condemnation 039-026D, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.037
VAP-C04E_HAH02D18 / Horn Harbor, UT / Described in VDH-DSS condemnation 039-026B, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C04E_HAH02F22 / Horn Harbor / Described in VDH-DSS condemnation 039-026M1, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C04E_HAH04A06 / Horn Harbor, UT (Jacks Creek) / Described in VDH Shellfish Condemnation 039-100S170, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C04E_HKC01A08 / Hickorynut Cove / Tidal limit to mouth at Milford Haven PIAMH	5A	PCBs in Fish Tissue	2006	L	0.023
VAP-C04E_HUD01A08 / Hudgins Creek / Described in VDH-DSS Condemnation 037-061D, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C04E_LAN01A02 / Lanes Creek / As described in VDH-DSS condemnation notice 037-099C, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C04E_LAN01B08 / Lanes Creek, UT / Described in VDH Shellfish Condemnation 037-099E, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.002

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_LAN02A22 / Lanes Creek / Described in VDH-DSS Condemnation 037-099S127, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.054
VAP-C04E_MID01A02 / Winder Creek / As described in the condemnation notice 037-099B, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.025
VAP-C04E_MIS01A04 / Miles Creek / Described in VDH Condemnation Notice 041-212B, 10/15/2020. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.039
VAP-C04E_MLF01A98 / Milford Haven / Described in the condemnation notice 036-197A, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C04E_MLF02A98 / Milford Haven / Described in the condemnation notice 036-197E, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C04E_MLF03A00 / Milford Haven / Downstream of SFC 036-197, 3/15/2019 except as otherwise segmented. PIAMH	5A	PCBs in Fish Tissue	2006	L	1.411
VAP-C04E_MLF04A06 / Milford Haven / Hills Bay. PIAMH	5A	PCBs in Fish Tissue	2006	L	2.283
VAP-C04E_MLF05A06 / Milford Haven / Described in VDH-DSS condemnation 036-197M1, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.041
VAP-C04E_MRC01A98 / Morris Creek / Described in VDH-DSS condemnation notice 61B, 4/4/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.034
VAP-C04E_NOR01A02 / North River / Described in VDH-DSS condemnation notice 042-157A, 7/15/2020, excluding tidal Burke Mill Stream. Split in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.250
VAP-C04E_NOR01B08 / North River / Portion of condemnation notice 042-157S24, 7/15/2020 not included on the 6/3/1997 condemnation. Size expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.364
VAP-C04E_NOR01C22 / North River / Portion of VDH-DSS condemnation 042-057S24, 7/15/2020 closed in condemnation 157A, 6/3/1997. Split in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.067
VAP-C04E_NOR02A02 / North River / North River and tribs from SFC 157 to Mobjack Bay, except as otherwise segmented. MOBPH	5A	PCBs in Fish Tissue	2006	L	5.399

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_NOR03A20 / North River, UT / Described in VDH-DSS condemnation 042-157B, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C04E_NOR04A22 / North River, UT / Described in VDH-DSS Condemnation 042-157S159, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C04E_OAK01A08 / Oakland Creek / Described in VDH-DSS condemnation notice 042-131S160, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C04E_PEP01A06 / Pepper Creek / As described in the condemnation notice 040-085B, 9/26/2006. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.031
VAP-C04E_PUT01A98 / Put In Creek / Portion of VDH-DSS condemnation notice 041-005A, 10/15/2019 included in 5A, 6/5/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.077
VAP-C04E_PUT01C10 / Put In Creek / Portion of condemnation notice 5A, 6/5/1996 open in 041-005, 10/15/2019. Shortened in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C04E_PUT01D16 / Put In Creek / Described in condemnation notice 041-005B, 10/15/2019. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.005
VAP-C04E_PUT01E20 / Put In Creek / Described in VDH-DSS condemnation notice 041-005S44, 10/15/2019. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.044
VAP-C04E_PUT02A98 / Put In Creek / Described in the condemnation notice 5B, 6/5/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C04E_QUE01A98 / Queens Creek / Portion of VDH-DSS condemnation 99A, 4/9/1977 within 037-099A and -D, 4/15/2020. Split in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.094
VAP-C04E_QUE01B10 / Queens Creek / Described in VDH-DSS condemnation notice 037-099M1, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.031
VAP-C04E_QUE01C10 / Queens Creek / Below condemnation notice 99A, 4/7/1997, unless otherwise segmented. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.068

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_QUE01D22 / Queens Creek / Portion of VDH-DSS condemnation notice 99A, 4/9/1997 within 037-099S132, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.068
VAP-C04E_QUE02A12 / Queens Creek, UT / Described in VDH-DSS condemnation 037-099S169, 4/15/2020. Size reduced in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.011
VAP-C04E_RAN01A08 / Raines Creek / Described in VDH Shellfish Condemnation 041-212I, 10/25/2005. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.039
VAP-C04E_RAY01A12 / Raymond Creek / Described in VDH-DSS condemnation 042-131B, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.026
VAP-C04E_SLO01A08 / Sloop Creek / Described in VDH-DSS Condemnation 040-085A, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.028
VAP-C04E_STO01A08 / Stoakes Creek / Described in VDH Shellfish Condemnation 037-061M1, 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.006
VAP-C04E_STO01B14 / Stoakes Creek / Tidal limit to mouth unless otherwise segmented. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.292
VAP-C04E_STT01A98 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061A, 4/15/2020. Split in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.074
VAP-C04E_STT01B06 / Stutts Creek, UT (Hole in the Wall) / Described in VDH-DSS condemnation 037-061S130, 4/15/2020. Expanded in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.038
VAP-C04E_STT01B10 / Stutts Creek/Morris Creek / Portion of VDH condemnation notice 037-061C, 4/15/2020 not condemned on 4/4/1997. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.045
VAP-C04E_STT01C14 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061S128, 4/15/2020 excluding areas in 037-061D, 2/21/2017 and 61A, 4/4/1997. Merged and expanded in the 2022 cycle. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.109
VAP-C04E_STT01D22 / Stutts Creek / Portion of VDH-DSS condemnation 061A, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_STT02A00 / Stutts Creek / Downstream limit of condemnation to Fanneys Point, except as otherwise segmented. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.229
VAP-C04E_STT02B20 / Stutts Creek, UT / Described in VDH-DSS condemnation 037-061D, 2/21/2017. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.009
VAP-C04E_STT05A10 / Stutts Creek (Hole in the Wall) / From Point Breeze downstream to its mouth at the Chesapeake Bay. PIAMH	5A	PCBs in Fish Tissue	2006	L	1.037
VAP-C04E_TAB01A08 / Tabbs Creek / Described in VDH Shellfish Condemnation 041-212S166, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.034
VAP-C04E_THO01A08 / Thomas Creek / Described in VDH Shellfish Condemnation 041-212B, 9/25/2014. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.014
VAP-C04E_TOD01A20 / Toddsbury Creek / Described in VDH-DSS condemnation 042-157E, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C04E_WHA01A06 / Wharf Creek / Described in VDH-DSS SFC 036-197M2, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C04E_WHI01A08 / Whites Creek / Whites Creek around Festival Beach PIAMH	5A	PCBs in Fish Tissue	2006	L	0.074
VAP-C04E_WHI01B12 / Whites Creek / Stutts Creek to Festival Beach PIAMH	5A	PCBs in Fish Tissue	2006	L	0.243
VAP-C04E_WIN01A06 / Winter Harbor, UT / Described in the condemnation notice 038-178B, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.108
VAP-C04E_WIN01B00 / Winter Harbor / Lower Winter Harbor, not otherwise segmented. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.348
VAP-C04E_WIN01C20 / Winter Harbor / Described in VDH-DSS Condemnation 038-178S171, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C04E_WIN02B06 / Winter Harbor / Described in VDH-DSS SFC 038-178M1, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.037
VAP-C04E_WIN03A06 / Winter Harbor / Northern portion of Winter Harbor. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.715

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VAP-C04E_WIN03B18 / Winter Harbor / Described in VDH-DSS condemnation 038-176A and 038-178C, 4/15/2020. Split in the 2022 cycle. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.123
VAP-C04E_WIN03C22 / Winter Harbor / Described in VDH-DSS condemnation 038-176S122, 4/15/2020. CB6PH	5A	PCBs in Fish Tissue	2006	L	0.124
VAP-C04E_WON01A08 / Weston Creek / Described in VDH Shellfish Condemnation 041-212A, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.025
VAP-C04E_WOO01A10 / Woodas Creek / Described in VDH-DSS condemnation notice 041-092B, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.029
VAP-C04E_WOO02A20 / Woodas Creek / Described in VDH-DSS condemnation 041-09S45, 10/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C04E_WTS01A08 / Whites Creek / Described in VDH Shellfish Condemnation 041-212E, 10/25/2005. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.018
VAP-C04E_XFA03A14 / XFA - North River, UT / Described in VDH-DSS condemnation 042-131A, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.020
VAP-C04E_XFE01A16 / XFE - Piankatank River, UT (aka Kibble Pond) / Described in VDH-DSS condemnation 036-197B, 3/15/2019. PIAMH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C04E_ZZZ01A00 / Unsegmented estuaries in C04 / Unsegmented portion of the watershed within PIAMH	5A	PCBs in Fish Tissue	2006	L	0.664
VAP-C04E_ZZZ02A06 / Unsegmented estuaries in C04 / Unsegmented portion within CB6PH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C04E_ZZZ03A06 / Unsegmented estuaries in C04 / Unsegmented portion within MOBPH	5A	PCBs in Fish Tissue	2006	L	0.428
VAP-C05E_FOX01A08 / Fox Mill Run / Described in VDH condemnation notice 96B, 8/12/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.085
VAP-C05E_OLD01A12 / Oldhouse Creek / Tidal limit to mouth at Ware River MOBPH	5A	PCBs in Fish Tissue	2006	L	0.102
VAP-C05E_WAR01A02 / Ware River / Described in the condemnation notice 096A, 8/12/1996. Tidal extent adjusted in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.270

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WAR01B08 / Ware River / Portion of VDH condemnation notice 043-096A, 7/15/2020 not included in condemnation 96A and 96B, 8/12/1996. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.224
VAP-C05E_WAR02A02 / Ware River / Ware River downstream of SFC 096. MOBPH	5A	PCBs in Fish Tissue	2006	L	6.309
VAP-C05E_WAR02B18 / Ware River / Described in VDH-DSS condemnation 043-096CS188, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C05E_WAR02C20 / Ware River / Described in VDH-DSS condemnation 043-096S26, 7/15/2020. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.316
VAP-C05E_WIL01A98 / Wilson Creek / Described in the condemnation notice 106, 8/12/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.033
VAP-C05E_WIL01B08 / Wilson Creek / Portion of VDH condemnation notice 043-096B, 7/15/2020 not included in condemnation notice 106, 8/12/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.142
VAP-C05E_WIL02A22 / Wilson Creek / Described in VDH-DSS Condemnation 043-096S25, 7/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.137
VAP-C05E_XDJ01A08 / XDJ - Wilson Creek, UT / Tidal limit to mouth at Wilson Creek. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.010
VAP-C05E_ZZZ01A00 / Unsegmented estuaries in C05 / Unsegmented portion of the watershed. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.116
VAP-C06E_BLV01A20 / Blevins Creek / Described in VDH-DSS condemnation 045-125A, 12/15/2020. Size reduced slightly in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.049
VAP-C06E_BRB01A08 / Browns Bay / Described in VDH Shellfish Condemnation 125B, 12/31/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C06E_BRB01B12 / Browns Bay / Portion of VDH Shellfish Condemnation 045-125M1, 12/15/2020 not included in 125B, 12/31/1996. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.024
VAP-C06E_FSC01A98 / Free School Creek / Described in VDH Shellfish Condemnation 044-093A, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.039

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VAP-C06E_FSC01B12 / Free School Creek / Portion of TMDL study area open for harvest on 044-093, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.027
VAP-C06E_HEY01A98 / Heywood Creek / Described in the condemnation notice 044-054B, 6/15/2020. Expanded in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.106
VAP-C06E_HEY01B10 / Heywood Creek / Portion of condemnation notice 101, 4/1/1997 open in condemnation 044-054, 6/15/2020. Shortened in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.060
VAP-C06E_MNC01A98 / Monday Creek / Portion of VDH-DSS condemnation notice 25A, 12/31/1996 open on 12/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.030
VAP-C06E_MNC01B18 / Monday Creek / Described in VDH-DSS condemnation notice 045-125A, 12/12/2017. Tidal limit corrected in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.064
VAP-C06E_ROW01A06 / Rowes Creek / Described in VDH-DSS Shellfish Condemnation 044-054M2, 6/15/2020. Shortened in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.041
VAP-C06E_SEN01A02 / Northwest Branch Severn River / Described in condemnation notice 044-093B, 6/15/2020, excluding tributary XEE. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.127
VAP-C06E_SEN01B16 / Northwest Branch Severn River, UT / Described in VDH-DSS condemnation notice 044-093D, 5/30/2018. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.034
VAP-C06E_SEN01C10 / Northwest Branch Severn River / Portion of condemnation notice 93A, 4/1/1997 open on 044-093, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.167
VAP-C06E_SEN02A06 / Northwest Branch Severn River / Northwest Branch Severn Creek not otherwise segmented Segment adjusted in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.427
VAP-C06E_SES01A00 / Southwest Branch Severn River / Mainstem MOBPH	5A	PCBs in Fish Tissue	2006	L	0.635

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_SEV02A00 / Severn River / End of NW Branch to mouth, unless otherwise segmented. MOBPH	5A	PCBs in Fish Tissue	2006	L	3.258
VAP-C06E_STR01A08 / Sterling Creek / Described in VDH Shellfish Condemnation 044-093E, 4/2/2014. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.021
VAP-C06E_THC01A98 / Thorntons Creek / Described in the condemnation notice 044-054A, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.063
VAP-C06E_THC01B10 / Thorntons Creek / Portion of condemnation notice 054, 4/1/1997 open in condemnation 044-054, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.016
VAP-C06E_VGH01A98 / Vaughans Creek / Described in the condemnation notice 93B, 4/1/1997. Merged in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.121
VAP-C06E_VGH02A22 / Vaughans Creek / Portion of VDH-DSS Condemnation 044-093C, 6/15/2020 not included in 93B, 4/4/1997 MOBPH	5A	PCBs in Fish Tissue	2006	L	0.015
VAP-C06E_WET01A06 / Willetts Creek / Described in VDH Shellfish Condemnation 044-054M1, 6/15/2020. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.033
VAP-C06E_WET01B08 / Willetts Creek / Described in VDH Condemnation 044-054C, 2/15/2006. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.128
VAP-C06E_WTT01A08 / Whitaker Creek / Described in VDH-DSS Condemnation 044-093D, 6/15/2020 Size reduced in the 2022 cycle. MOBPH	5A	PCBs in Fish Tissue	2006	L	0.037
VAP-C06E_XEE01A10 / XEE - Northwest Branch Severn River, UT / Tidal limit to mouth at NW Branch Severn River MOBPH	5A	PCBs in Fish Tissue	2012	L	0.003
VAP-C06E_ZZZ01A00 / Unsegmented estuaries in C06 / Unsegmented portion of the watershed. MOBPH	5A	PCBs in Fish Tissue	2006	L	1.358
VAT-C07E_FMB01A12 / Fort Monroe Beaches / All of Fort Monroe Beach from the start of Mill Cr south to Lighthouse Old Point Comfort. Portion of CBP Segment CB8PH. No DSS shellfish condemnations.	5A	PCBs in Fish Tissue	2006	L	0.333

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_LCC01A08 / Little Creek & Harbor / Entire area of Little Creek and upper portion of Little Creek Harbor. From headwaters of Little Cr. downstream to lower portion of Harbor at mouth of Bay. CBP segment CB8PH. DSS (ADMINISTRATIVE) condemnation # 068-017 C (effective 20050308).	5A	PCBs in Fish Tissue	2006	L	1.064
VAT-C09E_BLB01A06 / Bulbeggan Creek / Located southeast of Pitts Neck area. From estuarine/riverine transition (end of tidal waters) downstream to mouth (confluence with Pocomoke Sound). Portion of CBP segment POCOH. No DSS condemnation or notice.	5A	PCBs in Fish Tissue	2006	L	0.134
VAT-C09E_POC01A06 / Pocomoke River / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line downstream to mouth (confluence with Pocomoke Sound) within VA. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.240
VAT-C09E_POC02A08 / Pocomoke Sound [C09 portion] / Pocomoke Sound downstream of the Pocomoke River (VA portion). Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.726
VAT-C09E_PTT01A06 / Pitts Creek / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line downstream to mouth (confluence with Pocomoke River) within VA. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.127
VAT-C09E_PTT01B10 / Pitts Creek - Upper [Admin Cond] / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line upstream to headwaters within VA at Dunns Swamp Road. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.069
VAT-C09E_ZZZ01A06 / Unsegmented tidal tributaries in C09E-POCOH / Evaluated non segmented portions of C09E. Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.006
VAT-C10E_BAG01A00 / Bagwell Creek / Northwest of Town of Justisville. Entirety of creek. Portion of CBP segment POCMH. DSS shellfish direct harvesting condemnation # 077-138 A (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.115
VAT-C10E_BAG02A10 / Bagwell Creek - Lower / Northwest of Town of Justisville. Lower DSS OPEN portion of Cr. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting area # 077-138 (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.101

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_DEP01A06 / Deep Creek - Middle / East of town of Bayside. Middle portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20170620).	5A	PCBs in Fish Tissue	2006	L	0.160
VAT-C10E_DEP01B10 / Deep Creek - Upper [DSS ADMIN] / East of town of Bayside. Upper portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.114
VAT-C10E_DEP02A06 / Deep Creek - Lower / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.420
VAT-C10E_DEP03A08 / Deep Creek - Lower [No DSS] / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.220
VAT-C10E_DIX01A08 / Dix Cove / Northwest of Town of Parksley. Adjacent to Bagwell & Hunting Creeks. Within CBP segment POCMH. Portion of DSS (OPEN) shellfish direct harvesting area # 077-138 (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.041
VAT-C10E_DOE01A22 / Doe Cr-Lower / Tributary of Chesapeake Bay off of Web Island in C10E-POCMH. DSS (OPEN) shellfish direct harvesting condemnation area # 077-138 (20200715).	5A	PCBs in Fish Tissue	2006	L	0.225
VAT-C10E_DOE01B22 / Doe Cr-Upper / Tributary of Chesapeake Bay off of Web Island in C10E-POCMH. DSS (Restricted) shellfish direct harvesting condemnation area # 077-138 D (20200715).	5A	PCBs in Fish Tissue	2006	L	0.140
VAT-C10E_GLF01A06 / Guilford Creek - Upper [TMDL] / Northeast of Town of Guilford. Upper portion of creek, from end of tidal waters downstream to end of DSS condemnation portion. Portion of CBP segment POCMH. DSS shellfish condemnation # 076-176 A (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.152
VAT-C10E_GLF02A06 / Guilford Creek - Lower / Northeast of Town of Guilford. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. DSS shellfish Restricted-condemnation direct harvesting condemnation # 076-176 A (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.106
VAT-C10E_GLF03A08 / Guilford Creek - Lower [No DSS] / Northeast of Town of Guilford. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.460

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_GSH01A06 / Guard Shore Beach / In Old Cove (Beasley Bay). Located at Bailey Ridge, west of Bloxom. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	0.026
VAT-C10E_HLD01A06 / Holdens Creek - Upper / Located southeast of Joeys Neck area. From confluence Sandy Bottom Br downstream to 0.5 mi of station @ 7-HLD002.67. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.034
VAT-C10E_HLD02A06 / Holdens Creek - Lower / Located southeast of Joeys Neck area. From 0.5 mi downstream of station @ 7-HLD002.67 downstream to mouth. Portion of CBP segment POCOH. Portion of DSS shellfish condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.050
VAT-C10E_HUN01A00 / Hunting Creek - Upper / W of Hopkins. Upper portion, from end of tidal waters downstream to end of DSS condemnation (downstream of Town of Hopkins). CBP segment POCMH. DSS shellfish direct harvesting condemnation # 077-138 B (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.194
VAT-C10E_HUN02A06 / Hunting Creek - Lower / West of Town of Hopkins. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting condemnation # 077-138 (effective 20200715).	5A	PCBs in Fish Tissue	2006	L	0.648
VAT-C10E_ISB01A06 / Island Bay - [No DSS] / Between Russell Island & Long Ridge area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	5A	PCBs in Fish Tissue	2006	L	0.953
VAT-C10E_MES01A06 / Messongo Creek - Upper / Located southeast of Marsh Market & start of Rec TMDL (213) . Running parallel with Rt 692 upstream to the end of tidal waters. POCMH. Upstream portion of DSS shellfish condemnation # 076-167 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.042
VAT-C10E_MES02A06 / Messongo Creek - Middle [TMDL-06] / South of Town of Belinda. Portion of CBP segment POCMH. TMDL P# 732- SF. DSS Condemnation # 076-167 (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.156
VAT-C10E_MES02B08 / Messongo Creek - Middle [No TMDL] / Located south of Saxis and Belinda Rd intersection. Portion of CBP segment POCMH. DSS Restricted condemnation # 076-167 (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.341

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_MES03A06 / Messongo Creek - Lower / Located south of Saxis and Belinda Rd intersection downstream to the mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	0.858
VAT-C10E_MUD01A04 / Muddy Creek - Upper / Located southeast of Byrds Marsh and northeast of Town of Bloxom. From end of tidal waters downstream to Poulson Pt. Portion of CBP segment POCMH. DSS shellfish condemnation # 076-176 B (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.301
VAT-C10E_MUD02A06 / Muddy Creek - Lower / Located southeast of Byrds Marsh and northeast of Town of Bloxom. Lower portion of creek, Pettigrew Bend to end of DSS Open condemnation. Portion of CBP segment POCMH. DSS shellfish Restricted condemnation # 076-176 B (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.048
VAT-C10E_MUD03A08 / Muddy Creek - Lower [No DSS] / Located southeast of Byrds Marsh and northeast of Town of Bloxom. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	0.060
VAT-C10E_PMC01A20 / Pompco Creek / Inlets of unnamed island on the eastern portion of Pompco Creek. Portion of CBP segment CB7PH.Shellfishing OPEN Condemnation (20180614).	5A	PCBs in Fish Tissue	2006	L	0.011
VAT-C10E_POC01A08 / Pocomoke Sound - Lower [C10 portion] / Pocomoke Sound downstream of the Pocomoke River (VA portion). Area adjacent to Holdens Creek. Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 A (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	1.452
VAT-C10E_STR01A08 / Starling Creek / Located on Saxis Island, southwest of Pocomoke Sound. Embayment at town of Saxis. From end of tidal waters downstream to end of DSS condemnation. Portion of CBP segment POCMH. DSS shellfish direct harvesting condemnation # 075-118 M1 (effective 20180725).	5A	PCBs in Fish Tissue	2006	L	0.091
VAT-C10E_YOU01A06 / Young Creek / Northeast of Town of Guilford and south of Jobes Island. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting condemnation # 076-176 C (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.072
VAT-C10E_YOU02A20 / Lower - Young Creek / Northeast of Town of Guilford and south of Jobes Island. Portion of CBP segment POCMH. DSS Restricted-condemnation shellfish direct harvesting condemnation # 076-176 (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.172

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_ZZZ01A06 / Unsegmented Bay Waters in C10E-CB7PH. / Evaluated non-segmented Bay Waters in C10E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	5A	PCBs in Fish Tissue	2006	L	1.405
VAT-C10E_ZZZ02A06 / Unsegmented estuaries in C10E-POCMH [No DSS] / Evaluated non-segmented portions of C10E not contained within VACB-R01E-CB7S. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation area identified.	5A	PCBs in Fish Tissue	2006	L	2.865
VAT-C10E_ZZZ03A22 / Unsegmented estuaries in C10E-POCMH [Restricted DSS] / Evaluated non-segmented portions of C10E not contained within VACB-R01E-CB7S. Portion of CBP segment POCMH. DSS shellfish Restricted direct harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	0.110
VAT-C11E_CED01A00 / Cedar Creek / Entire estuarine portion of creek. North shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.063
VAT-C11E_CSX01A00 / Chesconessex Creek - South Br. - Upper / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 A (effective 20180620).	5A	PCBs in Fish Tissue	2006	L	0.109
VAT-C11E_CSX01B10 / Chesconessex Creek - South Br. - Middle / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 Restricted(effective 20180614).	5A	PCBs in Fish Tissue	2006	L	0.100
VAT-C11E_CSX02A06 / Chesconessex Creek - N. Branch / Lower portion of Creek, including tidal tribs., from the end DSS condemnation # 079-112 downstream to mouth. Portion of CBP segment CB7PH. Part of area contains no DSS Condemnation remainder is OPEN 079-112 (20180614).	5A	PCBs in Fish Tissue	2006	L	1.832
VAT-C11E_CSX02B10 / Chesconessex Creek - N. Branch / North Branch portion of creek at marina area. DSS Admin condemnation # 079-112 B (effective 20180614). Portion of CBP segment CB7PH.	5A	PCBs in Fish Tissue	2006	L	0.030
VAT-C11E_FNN01A00 / Finneys Creek - Upper / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.069

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_FNN02A00 / Finneys Creek - Lower / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.119
VAT-C11E_LTH01A00 / Leatherberry Creek / Entire estuarine portion of creek. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.070
VAT-C11E_MTC01A06 / Matchotank Creek - Upper / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-169 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.069
VAT-C11E_MTC02A06 / Matchotank Creek - Lower / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-169 A (effective 20200515)	5A	PCBs in Fish Tissue	2006	L	0.116
VAT-C11E_OCB01A00 / Central Branch, Onancock Creek / CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.018
VAT-C11E_OCN01A04 / Onancock Creek Mainstem - Upper [Admin Cond] / Near Town of Onancock. From junction of N, Central & S Brs downstream to end of Admin DSS condemnation. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.129
VAT-C11E_OCN01C10 / Onancock Creek Mainstem - Upper / Near Town of Onancock. From junction of N, Central & S Brs downstream to north of Cedar Cr. CBP segment CB7PH. Portion of DSS shellfish condemnation # 081-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.097
VAT-C11E_OCN02A04 / Onancock Creek Mainstem - Lower / East of Bailey Neck area. Mainstem of Onancock Creek- lower. From Parker Cr downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	1.163
VAT-C11E_OCN02B08 / Onancock Creek Mainstem - Poplar Cove / East of Bailey Neck area. Mainstem of Onancock Creek. Marina in area of Poplar Cove. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_OCN02C22 / Onancock Creek Mainstem - Lower / Mainstem of Onancock Creek- Upper. From area near Cedar Creek downstream to Parker Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.790
VAT-C11E_ONB01A02 / North Branch, Onancock Creek / Located near Town of Onancock. Entire North Branch, Onancock Creek. CBP segment CB7PH. DSS shellfish condemnation (Admin Cond-PROHIBITION) # 081-013 D (effective 20180327).	5A	PCBs in Fish Tissue	2006	L	0.021
VAT-C11E_OSB01A02 / Southern Branch, Onancock Creek / Near Town of Onancock. Entire Southern Branch Onancock Creek. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20180327).	5A	PCBs in Fish Tissue	2006	L	0.058
VAT-C11E_PMC01B20 / Lower Pompcro Creek / Portions of Pompcro Creek encompassing Tobacco Island and Rogue Island.	5A	PCBs in Fish Tissue	2006	L	0.934
VAT-C11E_PMC02B20 / Pompcro Cr- SW Inlet of UT off of Rogue Island / Southwest Inlet of Pompcro Creek trib at Tobacco Island. VDH DSS Restricted-Condemnation #079-112 (20180614).	5A	PCBs in Fish Tissue	2006	L	0.010
VAT-C11E_PRK01A08 / Parkers Creek - Upper / South shore tributary of Onancock Creek at Finneys Neck. Upstream portion of creek. Portion of CBP segment CB7PH. DSS shellfish Restricted-condemnation direct harvesting condemnation # 080-013 (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.035
VAT-C11E_PRK02A08 / Parkers Creek - Middle / South shore tributary of Onancock Creek at Finneys Neck. Middle portion of creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-013 (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.041
VAT-C11E_PRK03A08 / Parkers Creek - Lower / South shore tributary of Onancock Creek at Finneys Neck. Area around marina at mouth of Parkers Creek. Portion of CBP segment CB7PH. DSS shellfish seasonal condemnation # 080-013 A (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.086
VAT-C11E_TAR01A06 / Tarkill Creek / Located in Sluitkill Neck area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.190
VAT-C11E_ZZZ01A00 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (20200515).	5A	PCBs in Fish Tissue	2006	L	0.550

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VAT-C11E_ZZZ01B22 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 (20200515).	5A	PCBs in Fish Tissue	2006	L	0.050
VAT-C12E_PUN01A06 / Pungoteague Creek - Upper / W of Melfa. Upper portion of Pungoteague Cr. from the end of tidal waters downstream to Boggs Wharf and Route 634. CBP segment CB7PH. DSS condemnation # 081-119 B (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.232
VAT-C12E_PUN01B16 / Pungoteague Creek - Middle-Upper / W of Melfa. Upper portion of Pungoteague Cr. from the Boggs Warf to Horse Hole Creek. CBP segment CB7PH. DSS condemnation Conditionally Approved # 081-119 C4 (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.265
VAT-C12E_PUN02A06 / Pungoteague Creek - Lower / Located west of Town of Melfa. Lower portion of Pungoteague Cr. from Horse Hole Creek downstream to mouth. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 081-119 (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	1.186
VAT-C12E_TAY01A06 / Taylor Creek / Located southwest of Harborton. From the end of tidal waters downstream Route 628 and Eastern Shore Yacht Club. Portion of CBP segment CB7PH. Portion of DSS condemnation # 081-119 C (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.130
VAT-C12E_TAY02A14 / Taylor Creek- Mouth / Located southwest of Harborton. From Route 628 and Eastern Shore Yacht Club to Puncoteague confluence. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 C (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.033
VAT-C12E_UNR01A06 / Underhill Creek / In area of Mount Nebo. North shore tributary to Pungoteague Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 081-119 A (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.070
VAT-C12E_WRP01A06 / Warehouse Prong - Upper / Located north of Bobtown and east of Boggs Wharf. Upper portion, from headwaters to confluence with UT. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 B (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.042
VAT-C12E_WRP02A06 / Warehouse Prong - Lower / Located north of Bobtown and east of Boggs Wharf. Lower portion, from confluence with UT downstream to confluence with Pungoteague Cr. Portion of CBP segment CB7PH. DSS (Admin Cond) condemnation # 081-119 B (effective 20200518).	5A	PCBs in Fish Tissue	2006	L	0.054

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_ZZZ01A00 / Unsegmented Bay Waters in C12E. / Evaluated non segmented portions of C12E, UT south of Pungoteague Cr. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.002
VAT-C13E_BCE01A08 / Back Creek / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. Portion of CBP segment CB7PH. DSS Open and Conditionally Approved shellfish direct harvesting condemnation # 082-160 C7 (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.141
VAT-C13E_BOS01A08 / Boggs Gut / Southwest of Fairview Neck area. South shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 D (effective 20200515)	5A	PCBs in Fish Tissue	2006	L	0.034
VAT-C13E_CHC01A00 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting OPEN # 085-185 (effective 20191115).	5A	PCBs in Fish Tissue	2006	L	0.323
VAT-C13E_CHC01B16 / Church Creek -Upper / In area of Elliotts Neck. Tributary to Nassawadox Creek, upstream portion of Church Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115).	5A	PCBs in Fish Tissue	2006	L	0.165
VAT-C13E_CHC01C10 / Church Creek - Middle-UT North Cove / In area of Elliotts Neck. Tributary to Church Creek - Middle, UT North Cove. Portion of CBP segment CB7PH. DSS shellfish harvesting condemnation # 085-185 A (effective 20191115).	5A	PCBs in Fish Tissue	2006	L	0.059
VAT-C13E_CHC01D22 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted # 085-185 D (effective 20191115).	5A	PCBs in Fish Tissue	2006	L	0.050
VAT-C13E_CRA01A06 / Craddock Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to end of shellfish condemnation (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 083-195 A (effective 20121210).	5A	PCBs in Fish Tissue	2006	L	0.082
VAT-C13E_CRA02A08 / Craddock Creek - Lower and UT / Most of Craddock Cr. excluding SF condemnation in upper creek. Including all tribs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 083-195 (effective 20121210).	5A	PCBs in Fish Tissue	2006	L	0.911

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CRR01A08 / Curratuck Creek / Southwest of Fairview Neck area. Lower south shore tributary of middle Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN & Conditionally Approved) shellfish direct harvesting condemnation # 082-160 C6(effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.277
VAT-C13E_HGC01A06 / Holly Grove Cove- Upper / Located near Wellington Neck. From end of tidal waters downstream to mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-110 E (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.143
VAT-C13E_KLL01A06 / Kelley Cove / From end of tidal waters downstream to confluence with Nassawadox Cr. (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.026
VAT-C13E_MAG01A08 / McLean Gut - Upper / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.038
VAT-C13E_MAG02A08 / McLean Gut - Lower / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.032
VAT-C13E_NAN01A00 / Nandua Creek - Upper [TMDL-bact.] / Southeast of Hacks Neck area. The two most upstream branches of Nandua Creek, incl. Kusian Cove. Portion of CBP segment CB7PH. DSS condemnation # 082-160 A&C (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.144
VAT-C13E_NAN01B08 / Nandua Creek - Lower Upper / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 082-160 (effective 20200515).	5A	PCBs in Fish Tissue	2006	L	0.223
VAT-C13E_NAN02A06 / Nandua Creek - Lower / Lower portion of Nandua Creek including unsegmented tidal tribs., from the confluence of Boggs Gut downstream to mouth (RM 0.0). Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	3.150
VAT-C13E_NSS01A06 / Nassawadox Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to confluence with Kelly Cove (RM 5.2) area of TMDL-bact 6/07. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.205

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS01B08 / Nassawadox Creek - Upper [No TMDL-bact] / From confluence with Kelly Cove (RM 5.2) downstream to mainstem (outside of area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.169
VAT-C13E_NSS02A06 / Nassawadox Creek - Lower / Mainstem of lower portion of creek to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 & 085-185 (effective 20191115).	5A	PCBs in Fish Tissue	2006	L	2.121
VAT-C13E_NSS03A08 / Nassawadox Creek - Middle, N. Shore Tribs / Occohannock Neck Area. North Shore UTs to lower-middle mainstem Nassawadox. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 A & C (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.126
VAT-C13E_OCH01A06 / Occohannock Creek - Upper / Upper portion of Occohannock Creek and tidal tribs., from end of tidal waters downstream to Creekside Dr at end of SF restricted area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 A (effective 20201215).	5A	PCBs in Fish Tissue	2006	L	0.538
VAT-C13E_OCH02A06 / Occohannock Creek - Lower / Lower portion of Occohannock Creek and tidal tribs., from downstream of Youngs Pt. to mouth (RM 0.0). Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 084-043 (effective 20201215).	5A	PCBs in Fish Tissue	2006	L	2.469
VAT-C13E_OCH02B08 / Occohannock Creek - Middle Marina Area / In middle portion of Occohannock Creek, marina area of Davis Wharf. Portion of CBP segment CB7PH. DSS SEASONAL shellfish direct harvesting condemnation # 084-043 M1 (effective 20201215).	5A	PCBs in Fish Tissue	2006	L	0.034
VAT-C13E_OCH03A08 / Shields Cove & Fisher Cove / West of Belle Haven area. North and South shore tributaries of Occohannock Cr., NW of Youngs Pt. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 B & C (effective 20201215).	5A	PCBs in Fish Tissue	2006	L	0.087
VAT-C13E_WHC01A06 / Warehouse Creek - Upper / Southeast fork of upper portion of creek. Portion of CBP segment CB7PH. DSS ADMIN-PROHIB shellfish direct harvesting condemnation # 085-110 F (effective 20201115) (VPDES outfall condemnation for Shore Memorial Hospital STP VA0027537).	5A	PCBs in Fish Tissue	2006	L	0.032

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_WHC01B10 / Warehouse Creek - Upper Middle (Admin Cond) / Including northern fork and continuing downstream to bend near Wellington Neck. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 085-110C (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.166
VAT-C13E_WHC02A06 / Warehouse Creek - Lower / Including bend near Wellington Neck to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.246
VAT-C13E_ZZZ01A00 / Unsegmented estuaries in C13E. / Evaluated non segmented portions of C13E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.752
VAT-C14E_BRL01A06 / Barlow Creek / In area of Old Town Neck. South shore tributary to lower Mattawoman Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 086-136 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.049
VAT-C14E_HUG01A00 / Hungars Creek - Upper / Upper portion of Hungars Creek from end tidal waters downstream to end of TMDL boundary near Holloway Dr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.058
VAT-C14E_HUG01B22 / Hungars Creek - Upper / Upper portion of Hungars Creek from end of TMDL boundary near Holloway Dr to start of open shellfish area near Park Ln. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A & S195 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.080
VAT-C14E_HUG02A00 / Hungars Creek - Lower / Lower portion of Hungars Creek near Park Ln upstream of confluence with Jacobus Cr. downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	1.187
VAT-C14E_HUG02B12 / UT to Hungars Creek / Northern trib between Great Neck and Sparrow Point. Restricted portion of SF. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.039
VAT-C14E_HUG02C14 / Hungars Creek - Northern Trib / Lower portion of Hungars Creek, Trib north of the mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 S196 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.073

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_JAC01A06 / Jacobus Creek - Upper South Fork / West of Johnstown. Trib to Hungars Cr. Uppermost portion of south branch. Portion of CBP segment CB7PH. DSS (Admin - Prohibition) due to STP VA0023817 Outfall) shellfish direct harvesting condemnation # 086-136F (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.028
VAT-C14E_JAC02A06 / Jacobus Creek - Upper Forks / West of Johnstown. Trib to Hungars Cr. Middle mainstem, north fork and lower portion of south fork. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 086-136 B (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.152
VAT-C14E_JAC03A06 / Jacobus Creek - Lower / West of Johnstown. South shore trib. to Hungars Cr. Lower mainstem portion. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.187
VAT-C14E_MAT01A06 / Mattawoman Creek - Upper / South of Wilsonia Neck. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 D & S48 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.155
VAT-C14E_MAT02A10 / Mattawoman Creek - Lower / South of Wilsonia Neck - mouth of Mattawoman Cr. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.357
VAT-C14E_THG01A06 / The Gulf - Upper / From end of tidal waters downstream to narrowing 0.45 mi. from mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 087-174 A (effective 20150827).	5A	PCBs in Fish Tissue	2006	L	0.090
VAT-C14E_THG02A06 / The Gulf - Lower / From narrowing 0.45 mi. from mouth downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish condemnation # 087-174 (20150827) & no DSS.	5A	PCBs in Fish Tissue	2006	L	0.204
VAT-C14E_WHS01A06 / Westerhouse Creek - North Branch [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-199 (20181115).	5A	PCBs in Fish Tissue	2006	L	0.214
VAT-C14E_WHS02A06 / Westerhouse Creek - Upper South Branch [TMDL] / In Church Neck area, west of Bridgetown. Upper portion of Westerhouse Creek South Branch. Portion of CBP segment CB7PH. Portion DSS shellfish direct harvesting condemnation # 085-199 A (effective 20181115).	5A	PCBs in Fish Tissue	2006	L	0.019

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_WHS03A20 / Upper Westerhouse Creek - North Branch& Upper Middle [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted-condemnation # 085-199 (20181115).	5A	PCBs in Fish Tissue	2006	L	0.030
VAT-C14E_ZZZ01A00 / Unsegmented estuaries in C14E. / Evaluated non segmented portions of C14E - mouth of Matchotank & Hungars Crs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 20200915.	5A	PCBs in Fish Tissue	2006	L	0.838
VAT-C15E_CCB01A06 / Cape Charles Beach / Located west of Town of Cape Charles, along Chesapeake Bay. Portion of CBP segment CB7PH. DSS (Administrative) shellfish harvesting condemnation 089-011 A (effective 20051202) which is present.	5A	PCBs in Fish Tissue	2006	L	0.079
VAT-C15E_CRS01A06 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to confluence with Chesapeake Bay. Including Old Castle Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815)	5A	PCBs in Fish Tissue	2006	L	2.138
VAT-C15E_CRS01B18 / Cherrystone Inlet - Eyrehall Cr / SE trib to Cherrystone Inlet. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815).	5A	PCBs in Fish Tissue	2006	L	0.103
VAT-C15E_CRS02A20 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to the mouth of the inlet. Portion of CBP segment CB7PH. DSS shellfish OPEN # 088-139 (20200815).	5A	PCBs in Fish Tissue	2006	L	0.243
VAT-C15E_KNS01A00 / Kings Creek - Upper Forks and Middle / From end of tidal waters downstream 0.16 mi. past confluence of the two most upstream forks. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 088-139 A (20180821).	5A	PCBs in Fish Tissue	2006	L	0.093
VAT-C15E_KNS03A08 / Kings Creek - Lower Middle / From start of DSS marina area downstream to Cherrystone. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 088-139 (20200815) &Seasonal Condemnation M1.	5A	PCBs in Fish Tissue	2006	L	0.167
VAT-C15E_KNS03B22 / Kings Creek - Lower Middle / DSS marina area DSS (Admin) shellfish direct harvesting condemnation # 088-139 (20200815) Section B. Portion of CBP segment CB7PH	5A	PCBs in Fish Tissue	2006	L	0.040
VAT-C15E_KNS04A22 / Kings Creek - Lower Middle / From Townfield Dr to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation OPEN # 088-139 (20200815).	5A	PCBs in Fish Tissue	2006	L	0.040

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C15E_ZZZ01A08 / Unsegmented estuaries in C15E. / Evaluated non segmented portions of C15E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	5A	PCBs in Fish Tissue	2006	L	0.587
VAT-C16E_CCH01A04 / Cape Charles Harbor - Upper / From most upstream end of harbor downstream to 1/2 distance to mouth (RM 0.23). Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 B (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	5A	PCBs in Fish Tissue	2006	L	0.056
VAT-C16E_CCH02A00 / Cape Charles Harbor - Lower / From 1/2 distance to mouth (RM 0.23) downstream to mouth. Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 A (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	5A	PCBs in Fish Tissue	2006	L	0.060
VAT-C16E_KPT01A06 / Kiptopeke Beach / Located west of Cedar Grove, along Chesapeake Bay, near southern tip of Eastern Shore. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation present.	5A	PCBs in Fish Tissue	2006	L	0.044
VAT-C16E_OPC01A06 / Old Plantation Creek - Upper [TMDL-bact] / Upper portion of Old Plantation Creek within TMDL-Bact (33771). CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.044
VAT-C16E_OPC01B08 / Old Plantation Creek - Upper [No TMDL-bact] / Upper portion of Old Plantation Creek and one southeast embayment not within TMDL-Bact (33771). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	5A	PCBs in Fish Tissue	2006	L	0.152
VAT-C16E_OPC02A00 / Old Plantation Creek - Lower / Lower portion of Old Plantation Creek, from approx. Red Bank (RM 2.0) downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 090-152 (20190815).	5A	PCBs in Fish Tissue	2006	L	0.926
VAT-C16E_ZZZ01A00 / Unsegmented estuaries in C16E. / Evaluated non segmented portions of C16E. Portion of CBP segment CB7PH. DSS Shellfish OPEN condemnation 20190815.	5A	PCBs in Fish Tissue	2006	L	0.146

Chesapeake Bay and Tidal Tributaries

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
1548.062		

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Sources: Atmospheric Deposition - Toxics; Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-19-SF XEU - Prentice Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 022C, 2/27/1997

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Condemnation 015-022E, 6/15/2020

This tributary of Prentice Creek was included on the 1998 303(d) list due to condemnation 022C, 2/27/1997. The bacteria TMDL for the 1998 impairment was completed as part of the Dividing Creek and Prentice Creek Bacteria TMDL report; the TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

During the 2010 cycle, the condemnation expanded and merged with the 1998 mainstem condemnation. The 1998 segment is considered Category 4A for the Shellfish Use; the TMDL for the expanded area is addressed in fact sheet C01E-09-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_XEU01A02 / XEU - Prentice Creek, UT / Described in VDH-DSS condemnation notice 022C, 2/27/1997. CB5MH	4A	Fecal Coliform	1998	L	0.011

XEU - Prentice Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.011		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-21-SF** XDL - Great Wicomico River, UT (Big Fleets Pond)

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 011-190A, 8/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 011-190A, 8/15/2020

The Shellfish TMDL was approved by the EPA on 6/19/2009 and by the SWCB on 11/14/2009. The segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_XDL01A02 / XDL - Chesapeake Bay, UT (aka Big Fleets Pond) / As described in condemnation notice 011-190A, 8/15/2020. CB5MH	4A	Fecal Coliform	2002	L	0.018

XDL - Great Wicomico River, UT (Big Fleets Pond)

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.018		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-22-SF** Indian Creek and Pitman Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-057A, 11/15/2020 (excludes administrative portion)

Cause City/County: Lancaster County; Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnations 016-057A, 11/15/2020 (excluding admin)

During the 1998 cycle, Pitmans Cove and Indian Creek were assessed as impaired of the Shellfish Consumption Use due to VDH-DSS condemnations 57A and 57C, 3/5/1997. The condemnations have since grown and shrunk several times. At their maximum extent (016-057A, 1/28/2005 and 12/13/2006), the condemnations had merged. The Shellfish TMDL was developed for this maximum extent and was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

The condemnation shrunk and split again in the 2016 cycle and 0.0400 mi2 was partially delisted. Condemnation M2 extended upstream in the 2018 cycle and the segments were split. (VDH-DSS Condemnation 016-067A was entirely administratively condemned in the 2018 cycle and was not included.)

The condemnations merged again in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_IND01A98 / Indian Creek / Portion of VDH-DSS condemnation notice 016-057A, 11/15/2020 that is not administratively condemned. CB5MH	4A	Fecal Coliform	1998	L	0.331

Indian Creek and Pitman Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.331		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-23-SF XUC - Dividing Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 015-022G, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 015-022G, 6/15/2020

The cove was included on the 1998 303(d) list as impaired for the Shellfish Use due to condemnation 22B, 2/27/1997. The bacteria TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

However, the area was later reopened for harvest.

It was relisted in the 2020 cycle (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_XUC01A98 / XUC - Dividing Creek, UT / Described in the condemnation notice 015-022G, 6/15/2020. CB5MH	4A	Fecal Coliform	2020	L	0.013

XUC - Dividing Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.013		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-24-SF** Dymer Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek

The upper portion of Dymer Creek was included on the 1998 303(d) list due to VDH condemnation 24A, 3/5/1997. During the 2006 cycle, the condemnation expanded downstream into Chases Cove. However, during the 2008 cycle, the condemnations shrank and split into two separate condemnations - 016-024A Dymer Creek and 016-024F, Chases Cove. The Chases Cove impairment was addressed in fact sheet C01E-48-SF.

The Shellfish TMDL for Dymer Creek was developed during the 2010 cycle. The TMDL addressed the maximum extent of the condemnation, which occurred on 1/28/2005. The segment is considered Category 4A.

The impairment expanded in the 2020 cycle to address the portion of the Chases Cove condemnation that expanded into mainstem Dymer Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DYM01A98 / Dymer Creek / Described in VDH-DSS condemnation notice 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek. CB5MH	4A	Fecal Coliform	1998	L	0.19

Dymer Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.19		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-25-SF Barnes Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-057B, 11/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 016-057B, 11/15/2020

Barnes Creek was impaired of the Shellfish Use during the 2008 cycle due to VDH-DSS Shellfish Condemnation Notice 016-057C, 12/13/2006. It was subsequently delisted, however, the TMDL was completed as part of the Indian Creek Shellfish TMDL, which was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

A portion was relisted in the 2020 cycle (Category 4A.) It shrank in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BRS01C20 / Barnes Creek / Described in VDH-DSS condemnation 016-057B, 11/15/2020. Shrank in the 2022 cycle. CB5MH	4A	Fecal Coliform	2020	L	0.062

Barnes Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.062		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-27-BAC Tabbs Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-133A, 12/13/2006

Cause City/County: Lancaster County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, the upper portion of Tabbs Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 2/12 at 7-TBS001.69.

The area is within the study area for the Tabbs Creek Shellfish Bacterial TMDL, which was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. Implementation of the TMDL is expected to cause attainment of the Recreation impairment; therefore, it is considered nested (Category 4A).

In the 2020 cycle, the size was corrected to match the shellfish TMDL.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_TBS01A98 / Tabbs Creek / Described in VDH-DSS condemnation notice 016-133A, 11/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Enterococcus	2012	L	0.180
VAP-C01E_TBS01B10 / Tabbs Creek / Portion of VDH-DSS condemnation notice 016-133A, 12/13/2006 seasonally condemned in 016-133, 11/15/2020. Split in the 2022 cycle. CB5MH	4A	Enterococcus	2020	L	0.025
VAP-C01E_TBS01C22 / Tabbs Creek / Portion of the condemnation notice 016-133A, 12/13/2006 open on 11/15/2020. CB5MH	4A	Enterococcus	2020	L	0.029

Tabbs Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.234		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-27-SF Tabbs Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-133A, 12/13/2006

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 016-133A and -133B, 11/15/2020

A portion of Tabbs Creek was impaired of the Shellfish Consumption Use during the 1998 cycle due to VDH-DSS Shellfish Condemnation Notice 133, 3/5/1997.

During the 2010 cycle, the TMDL was developed for the maximum extent (016-133A, 12/13/2006.). It was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

The condemnation has expanded and contracted over multiple cycles. Open/seasonally condemned areas have been partially delisted (Category 2C). Condemned areas are considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_TBS01A98 / Tabbs Creek / Described in VDH-DSS condemnation notice 016-133A, 11/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Fecal Coliform	1998	L	0.18

Tabbs Creek

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.18		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-28-SF Antipoison Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 017-188A, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 017-188A, 11/15/2020

The upper portion of Antipoison Creek was included on the 1998 303(d) list due to condemnation 188, 6/3/1996. During the 2006 cycle the condemnation expanded considerably. However, during the 2008 cycle, the condemnation was reduced and split into 3 condemnations. As the lower sections were first impaired in the 2006 cycle, the TMDLs for those portions were due in 2018 and are addressed in fact sheets C01E-50-SF and C01E-51-SF.

The Shellfish TMDL for Antipoison Creek was developed for Antipoison Creek in its entirety to match the maximum extent of condemnation, which occurred on 7/13/2004. The condemned areas within Antipoison Creek shrunk during the 2010 cycle. The non-condemned waters are considered Category 2C. The condemned areas are considered Category 4A.

The condemnation has continued to vary in size.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_ANT01A98 / Antipoison Creek / Described in the condemnation notice 017-188A, 11/15/2020. Expanded in the 2022 cycle. CB5MH	4A	Fecal Coliform	1998	L	0.083

Antipoison Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.083		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-29-BAC** **Indian Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 016-057A, 12/13/2006

Cause City/County: Lancaster County; Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: In 2014, Indian Creek was assessed as not supporting for the Recreation Use due to an enterococci exceedance rate of 4/36 at station 7-IND002.26.

The bacterial TMDL for Indian Creek was developed by the DEQ and approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. Allocations were given to point and nonpoint sources. Indian Creek is considered a Category 4A water.

The exceedance rate was 5/35 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_IND01A98 / Indian Creek / Portion of VDH-DSS condemnation notice 016-057A, 11/15/2020 that is not administratively condemned. CB5MH	4A	Enterococcus	2014	L	0.331
VAP-C01E_IND01B10 / Indian Creek / Administratively condemned portion of VDH-DSS condemnation notice 016-057A, 11/15/2020. CB5MH	4A	Enterococcus	2014	L	0.037
VAP-C01E_IND01C10 / Indian Creek / Portion of condemnation notice 016-057A, 12/13/2006 seasonally condemned on 11/15/2020. CB5MH	4A	Enterococcus	2014	L	0.042
VAP-C01E_IND02A98 / Indian Creek / Described in the condemnation notice 016-057E, 11/15/2020. CB5MH	4A	Enterococcus	2014	L	0.015

Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.426		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-30-SF Dymer Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-024B, 12/30/2015

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation Notice 016-024D, 11/15/2020

The Shellfish TMDL for Dymer Creek was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

The Chases Cove and Dymer Creek, UT condemnations merged in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_CHA01A08 / Dymer Creek, UT / Described in condemnation notice 016-024B, 12/30/2015. CB5MH	4A	Fecal Coliform	2016	L	0.018

Dymer Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.018		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-31-SF Georges Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-024B, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation notice 016-024B, 11/15/2020

A portion of Georges Cove was impaired of the Shellfish Use in the 1998 cycle due to VDH-DSS condemnation 024B, 3/5/1997. It was listed under the name “Dymer Creek”.

The condemnation had expanded during subsequent cycles. The Shellfish TMDL was developed during the 2010 cycle and was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. The TMDL addressed the maximum extent of the impairment, which was 1/28/2005. However, the condemnation was rescinded on 12/28/2007 and the area was reopened for harvest and Georges Cove was delisted (Category 2C).

A portion was relisted in the 2020 cycle. (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GEO01B20 / Georges Cove / Described in condemnation notice 016-024B, 1/15/2020. CB5MH	4A	Fecal Coliform	2020	L	0.018

Georges Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.018		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-32-SF Lees Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-024C, 1/28/2005

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 016-024C, 11/15/2020

The TMDL for this portion of Lees Cove was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. It was later delisted.

It was relisted in the 2020 cycle (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_LEE01A02 / Lees Cove / As described in the condemnation notice 016-024C, 1/28/2005 CB5MH	4A	Fecal Coliform	2020	L	0.015

Lees Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.015		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-33-SF **Betts Mill Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 013-089B, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 013-089B, 6/15/2020

The condemnation shrank in the 2022 cycle and the lower portion is now seasonally condemned and will be partially delisted.

The impairment is nested within the Great Wicomico River Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. It is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BMC01A04 / Betts Mill Creek / Described in the VDH Shellfish Condemnation 013-089B, 6/15/2020. Split in the 2022 cycle. CB5MH	4A	Fecal Coliform	2004	L	0.048

Betts Mill Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.048		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-34-SF Lees Cove

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 016-024C, 11/15/2020 not included in 016-024C, 1/28/2005.

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 016-024C, 11/15/2020

The TMDL for an upstream portion of Lees Cove was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

Lees Cove was relisted in the 2020 cycle. This portion is nested within the upstream TMDL (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_LEE02A12 / Lees Cove / Portion of VDH-DSS SFC 016-024C, 11/15/2020 not impaired in 016-024C, 1/28/2005. CB5MH	4A	Fecal Coliform	2020	L	0.01

Lees Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.01		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-36-SF Harpers Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 017-188E, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 017-188E, 11/15/2020

The upper portion of Antipoison Creek was included on the 1998 303(d) list due to condemnation 188, 6/3/1996. During the 2006 cycle the condemnation expanded considerably. The Shellfish TMDL for Antipoison Creek was developed for Antipoison Creek in its entirety to match the maximum extent of condemnation, which occurred on 7/13/2004. It was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009.

Harpers Creek was relisted in the 2020 cycle and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HAP01B10 / Harpers Creek / Described in VDH-DSS Condemnation 017-188E, 11/15/2020. CB5MH	4A	Fecal Coliform	2020	L	0.022

Harpers Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.022		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-40-SF Coles Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 013-089C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Number 013-089C, 6/15/2020

The impairment is nested within the Tipers Creek Shellfish TMDL. The TMDL was developed in the Great Wicomico River Watershed TMDL Report and was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COL01A08 / Coles Creek / Described in VDH-DSS SFC 013-089C, 6/15/2020. CB5MH	4A	Fecal Coliform	2008	L	0.019

Coles Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.019		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-42-SF Jarvis Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 015-022C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 015-022C, 6/15/2020

The impairment is considered nested within the nearby Prentice Creek Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007, and is Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_JAR01B08 / Jarvis Creek / As described in VDH-DSS condemnation 015-022C, 6/15/2020. CB5MH	4A	Fecal Coliform	2016	L	0.016

Jarvis Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.016		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-48-SF Chases Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 016-024D, 12/30/2015

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 016-024D, 11/15/2020

The upper portion of Dyer Creek was included on the 1998 303(d) list due to VDH condemnation 24A, 3/5/1997. During the 2006 cycle, the condemnation expanded downstream into Chases Cove. However, during the 2008 cycle, the condemnations shrank and split into two separate condemnations - 016-024A Dyer Creek and 016-024F, Chases Cove. Since Chases Cove was first impaired during the 2006 cycle, the TMDL was due in 2018.

The Shellfish TMDL for Dyer Creek (which included Chases Cove) was developed during the 2010 cycle. The TMDL addressed the maximum extent of the condemnation, which occurred on 1/28/2005.

The condemnation has subsequently shortened and split. The open area was partially delisted (Cat 2C).

The Chases Cove and Dyer Creek, UT condemnations merged and expanded into mainstem Dyer Creek in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_CHA01B12 / Chases Cove / Described in VDH-DSS condemnation notice 016-024D, 12/30/2015 CB5MH	4A	Fecal Coliform	2006	L	0.023

Chases Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.023		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-50-SF Antipoison Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 017-188B, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 017-188B, 11/15/2020

The upper portion of Antipoison Creek was included on the 1998 303(d) list due to condemnation 188, 6/3/1996. During the 2006 cycle the condemnation expanded considerably. As the lower sections were first impaired in the 2006 cycle, the TMDLs for those portions were due in 2018 (also see C01E-51-SF).

The Shellfish TMDL for Antipoison Creek was developed for Antipoison Creek in its entirety to match the maximum extent of condemnation, which occurred on 7/13/2004. The condemned area is considered Category 4A.

It has vacillated in size.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_ANT01C08 / Antipoison Creek, UT / Described in VDH-DSS condemnation notice 017-188B, 11/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Fecal Coliform	2006	L	0.013

Antipoison Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.013		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-51-SF Antipoison Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 017-188C, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 017-188C, 11/15/2020

The upper portion of Antipoison Creek was included on the 1998 303(d) list due to condemnation 188, 6/3/1996. During the 2006 cycle the condemnation expanded considerably. As the lower sections were first impaired in the 2006 cycle, the TMDLs for those portions were due in 2018 (also see C01E-50-SF).

The Shellfish TMDL for Antipoison Creek was developed for Antipoison Creek in its entirety to match the maximum extent of condemnation, which occurred on 7/13/2004. The condemned areas are considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_ANT01B08 / Antipoison Creek, UT / Described in the condemnation notice 017-188C, 11/15/2020. CB5MH	4A	Fecal Coliform	2006	L	0.005

Antipoison Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.005		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-55-BAC Head River Branch

Cause Location: Tidal extent of Head River Branch downstream to mouth at Bush Mill Stream.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Head River Branch was impaired of the Recreation Use due to an enterococci exceedance rate of 7/12 at 7-HRB000.54, which is located at Route 642.

The area is within the study area for the Great Wicomico River Shellfish Bacterial TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. The bacterial impairment is considered nested.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HRB01A12 / Head River Branch / Tidal limit to mouth at Bush Mill Stream. CB5MH	4A	Enterococcus	2012	L	0.02

Head River Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-59-BAC** **Dividing Creek and XDB - Dividing Creek, UT**

Cause Location: Tributary XDB and the Dividing Creek mainstem within VDH Condemnation Number 015-022A, 6/15/2020

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, upper tidal Dividing Creek was impaired of the Recreation Use due to an enterococci exceedance rate of 3/4 at 7-XDB000.08. The exceedance rate was 7/24 during the 2016 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The area is within the study area for the Dividing Creek Shellfish Bacterial TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. Implementation of the TMDL is expected to address the Recreation Use impairment; therefore, it is considered nested.

The size has been changed in multiple cycles to remain coincident with the shellfish condemnation.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DIV01A98 / Dividing Creek / Described in VDH-DSS condemnation 015-022A, 6/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Enterococcus	2012	L	0.091

Dividing Creek and XDB - Dividing Creek, UT

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Enterococcus - Total Impaired Size by Water Type:	0.091	

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-64-BAC Bush Mill Stream

Cause Location: Tidal extent of Bush Mill Stream downstream to mouth at the Great Wicomico River.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2012 cycle, Bush Mill Stream was impaired of the Recreation Use due to an enterococci exceedance rate of 4/12 at 7-BMS002.08, which is located at Route 201.

The area is within the study area for the Great Wicomico River Shellfish Bacterial TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007. The bacterial impairment is considered nested.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BMS01A12 / Bush Mill Stream / Tidal limit to mouth at Great Wicomico River CB5MH	4A	Enterococcus	2012	L	0.095

Bush Mill Stream

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.095		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-65-BAC** **Cockrell Creek**

Cause Location: Upper Cockrell Creek as described in VDH-DSS condemnation 012-002B, 8/15/2020

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: New bacteria criteria were implemented in the 2022 cycle. Upper Cockrell Creek is impaired due to two or more enterococci STV exceedances in the same 90-day period with <10 samples at 7-COC001.61. The station is located at the dock at the end of Main Street in Reedville.

The Cockrell Creek Bacterial TMDL addressed Recreation Use impairments within condemned areas, therefore the impairment is considered Category 4A. The TMDL was approved by the EPA on 12/8/2009 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COC01A98 / Cockrell Creek / As described in VDH-DSS Shellfish Condemnation 012-002B, 8/15/2020. CB5MH	4A	Enterococcus	2022	L	0.612

Cockrell Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.612		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-66-SF** Towles Creek

Cause Location: Described in VDH-DSS condemnation 014-123B, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 014-123B, 6/15/2020

The Towles Creek shellfish impairment is proposed for nesting in the nearby Mill Creek Shellfish TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_TOW01A06 / Towles Creek / Described in VDH-DSS Shellfish Condemnation 014-123B, 6/15/2020. CB5MH	4A	Fecal Coliform	2022	L	0.027

Towles Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.027		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-67-SF **Harveys Creek**

Cause Location: Described in VDH-DSS condemnation 014-123C, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 014-123C, 6/15/2020

The Harveys Creek shellfish impairment is proposed for nesting in the nearby Mill Creek Shellfish TMDL, which was approved by the EPA on 8/22/2007 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HAV01A08 / Harveys Creek / Described in VDH Shellfish Condemnation 014-123C, 6/15/2020. CB5MH	4A	Fecal Coliform	2022	L	0.045

Harveys Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.045		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-68-SF Prentice Creek, UT

Cause Location: Described in VDH-DSS Condemnation 015-022F, 6/15/2020

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 015-022F, 6/15/2020

The UT was impaired in the 2022 cycle. It is proposed for nesting in the adjacent Prentice Creek, UT TMDL. The TMDL was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_PNT02C22 / Prentice Creek, UT / Described in VDH-DSS condemnation 015-022F, 6/15/2020 CB5MH	4A	Fecal Coliform	2022	L	0.004

Prentice Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.004		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C01E-69-SF** Jarvis Creek, UT

Cause Location: Described in VDH-DSS condemnation notice 015-022H, 6/15/2020.

Cause City/County: Northumberland County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 015-022H, 6/15/2020

The tributary was re-closed in the 2022 cycle. The impairment is proposed for nesting within the nearby Prentice Creek Shellfish TMDL, which was approved by the EPA on 6/8/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_JAR01A02 / Jarvis Creek, UT / Described in VDH-DSS condemnation notice 015-022H, 6/15/2020. CB5MH	4A	Fecal Coliform	2022	L	0.026

Jarvis Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.026		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-70-SF Long Creek

Cause Location: Described in VDH-DSS Condemnation 016-057D, 12/13/2006

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 016-057D, 11/15/2020

Long Creek was originally assessed as impaired of the Shellfish Consumption Use in the 2008 cycle due to VDH-DSS Shellfish Condemnation Number 016-057D, 12/13/2006. The TMDL was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. The condemnation was rescinded during the 2010 cycle; therefore Long Creek was delisted.

It was relisted in the 2022 cycle (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_LOC01A08 / Long Creek / Described in VDH condemnation 016-057D, 12/13/2006. CB5MH	4A	Fecal Coliform	2022	L	0.017

Long Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.017		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01E-71-SF **Hunts Cove**

Cause Location: Described in VDH-DSS Condemnation 016-024E, 11/15/2020

Cause City/County: Lancaster County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 016-024E, 11/15/2020

Hunts Cove was impaired of the Shellfish Consumption Use during the 2010 cycle due to VDH-DSS Shellfish Condemnation 016-057B, 12/13/2006. The TMDL was approved by the EPA on 4/8/2009 and by the SWCB on 7/27/2009. However, the condemnation was rescinded and was open for harvest on 12/28/2007; Hunts Cove was delisted.

It was relisted in the 2022 cycle (Category 4A).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HNT01A98 / Hunts Cove / Described in the condemnation notice 016-024B, 1/28/2005. CB5MH	4A	Fecal Coliform	2022	L	0.04

Hunts Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.04		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01R-01-BAC **Crabbe Mill Stream**

Cause Location: The nontidal mainstem of Crabbe Mill Stream.

Cause City/County: Northumberland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: During the 2012 cycle, Crabbe Mill Stream was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 7-CMS002.00, which is located at Route 201.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Although Crabbe Mill Stream is within the TMDL study area for the Great Wicomico River Shellfish Bacterial TMDL, there is a VPDES discharger which drains to the stream that was not addressed in the TMDL; therefore, the impairment cannot be nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01R_CMS01A00 / Crabbe Mill Stream / From its headwaters to the tidal limit.	5A	Escherichia coli (E. coli)	2012	L	3.91

Crabbe Mill Stream

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.91

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01R-01-DO Crabbe Mill Stream

Cause Location: The nontidal mainstem of Crabbe Mill Stream.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, Crabbe Mill Stream was impaired of the Aquatic Life Use due to a dissolved oxygen violation rate of 3/14 at 7-CMS002.00. Monitoring at 7-CMS000.12 was acceptable (1/17).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01R_CMS01A00 / Crabbe Mill Stream / From its headwaters to the tidal limit.	5C	Dissolved Oxygen	2012	L	3.91

Crabbe Mill Stream

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.91

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01R-01-PH **Crabbe Mill Stream**

Cause Location: The nontidal mainstem of Crabbe Mill Stream.

Cause City/County: Northumberland County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Crabbe Mill Stream was impaired of the Aquatic Life Use due to pH violation rates of 2/17 at 7-CMS000.12 and 2/14 at 7-CMS002.00.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01R_CMS01A00 / Crabbe Mill Stream / From its headwaters to the tidal limit.	5C	pH	2012	L	3.91

Crabbe Mill Stream

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.91

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C01R-02-BEN Dymer Creek

Cause Location: The nontidal mainstem of Dymer Creek

Cause City/County: Lancaster County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2014 cycle, nontidal Dymer Creek was impaired of the Aquatic Life Use due to an impacted benthic community at 7-DYM003.52, which is located at the Route 200 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01R_DYM01A14 / Dymer Creek / Headwaters to tidal limit	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.07

Dymer Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.07

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C02R-03-HG Dragon Swamp/Piankatank River

Cause Location: Dragon Swamp and the Piankatank River from the headwaters near the State Route 620 bridge downstream to Deep Point Boat Landing (Rt. 606) across from Piankatank Shores.

Cause City/County: Essex County; Gloucester County; King And Queen County; Middlesex County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Dragon Swamp and the Piankatank River are considered impaired of the Fish Consumption Use.

A portion of this area was considered fully supporting but threatened in 2002 based on DEQ monitoring which has indicated elevated levels of mercury (see below). VDH subsequently issued a fish consumption advisory and the stream was downgraded to impaired.

In July 2005, VDH extended the Fish Consumption Advisory boundary to include the entire length of Dragon Swamp from the headwaters near Rt. 620 downstream to Deep Point Boat Landing. No more than two meals/month of largemouth bass are recommended.

Mercury exceedances at: 7-DRN003.40 7-DRN010.48 7-DRN015.09 7-DRN023.41 7-DRN001.43 7-PNK017.47
 7-PNK020.42

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	5A	Mercury in Fish Tissue	2004	L	0.823
VAP-C02R_DRN01A98 / Dragon Swamp / From Route 602 (rm 15.08) to the tidal limit.	5A	Mercury in Fish Tissue	2006	L	12.370
VAP-C02R_DRN02A04 / Dragon Swamp / Headwaters near Route 620 to Exol Swamp. Merged in the 2022 cycle.	5A	Mercury in Fish Tissue	2006	L	15.240
VAP-C02R_DRN02B20 / Dragon Swamp / Exol Swamp to Route 602 (rm 15.08).	5A	Mercury in Fish Tissue	2006	L	4.360
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	5A	Mercury in Fish Tissue	2008	L	0.062
VAP-C03E_PNK01A02 / Piankatank River / Downstream limit of VDH-DSS condemnation SFC 035-076A, 6/10/1997 to Deep Point Boat Landing. PIAMH	5A	Mercury in Fish Tissue	2004	L	0.558
VAP-C03E_PNK01A98 / Piankatank River / Watershed limit (start of Piankatank River) downstream to limit of SFC 035-076A, 6/10/1997. PIAMH	5A	Mercury in Fish Tissue	2004	L	1.280

Dragon Swamp/Piankatank River

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:	2.722		31.97

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Sources: Atmospheric Deposition - Toxics; Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C02R-04-BAC Exol Swamp

Cause Location: Exol Swamp from its perennial headwaters to mouth at Dragon Swamp

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Exol Swamp was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 7-EXE000.81, which is located at the Route 614 bridge.

Exol Swamp is located within the study area for the Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the 3/23/2007. As the TMDL sets bacteria reductions for the watershed, the Recreation Use impairment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02R_EXE01A06 / Exol Swamp / Perennial headwaters downstream to mouth at Dragon Swamp.	4A	Escherichia coli (E. coli)	2016	L	11.35

Exol Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.35

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C02R-11-BAC XFB - Dragon Swamp, UT

Cause Location: Headwaters to mouth at Dragon Swamp

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, the tributary was impaired of the Recreation Use due to an E. coli exceedance rate of 6/11 at 7-XFB000.13, which is located at Route 603.

The stream is located within the study area for the Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the 3/23/2007. As the TMDL sets bacteria reductions for the watershed, the Recreation Use impairment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02R_XFB01A18 / XFB - Dragon Swamp, UT / Headwaters to mouth at Dragon Swamp	4A	Escherichia coli (E. coli)	2018	L	1.47

XFB - Dragon Swamp, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.47

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C02R-12-BAC Dragon Swamp

Cause Location: Dragon Swamp from the confluence with Exol Swamp downstream to the Route 602 bridge.

Cause City/County: King And Queen County; Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Dragon Swamp from Exol Swamp to Route 602 was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 7-DRN015.51 (Route 602.)

Dragon Swamp is located within the study area for the Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the 3/23/2007. As the TMDL sets bacteria reductions for the watershed, the Recreation Use impairment is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02R_DRN02B20 / Dragon Swamp / Exol Swamp to Route 602 (rm 15.08).	4A	Escherichia coli (E. coli)	2020	L	4.36

Dragon Swamp

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 4.36

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-01-BAC Harpers Creek

Cause Location: Tidal limit to downstream extent of VDH-DSS condemnation 076B, 6/10/1997

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2010 cycle, tidal Harpers Creek was assessed as not supporting of the Recreation Use due to a enterococci exceedance rate of 7/10 at 7-HRP001.15, which is located at Rt. 198.

This impairment is considered nested within the area addressed by the Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	4A	Enterococcus	2010	L	0.062

Harpers Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.062		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-02-SF Piankatank River / Harpers Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations 076A and 076B, 6/10/1997.

Cause City/County: Gloucester County; Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnations 035-076A and -076E, 2/15/2020

During the 1998 cycle, the tidal Piankatank River above Anderson Point and Harpers Creek were included on the 303(d) list due to VDH condemnations 76A and 76B (6/10/1997), respectively.

The Upper Piankatank River Shellfish TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

The condemnations have vacillated in size. It shrank and split in the 2020 cycle and they now match the extent of the 1997 condemnations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	4A	Fecal Coliform	1998	L	0.823
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	4A	Fecal Coliform	1998	L	0.062
VAP-C03E_PNK01A98 / Piankatank River / Watershed limit (start of Piankatank River) downstream to limit of SFC 035-076A, 6/10/1997. PIAMH	4A	Fecal Coliform	1998	L	1.280

Piankatank River / Harpers Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	2.164		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-03-SF Frenchs Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 035-076D, 2/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 035-076D, 2/15/2020

Frenchs Creek was initially listed as impaired of the Shellfish Consumption Use during the 2002 cycle based on VDH-DSS Shellfish Condemnation Notice 076B, 6/6/2000.

Frenchs Creek is nested within the Upper Piankatank River (Harper Creek) Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_FRE01A02 / Frenchs Creek / As described in the condemnation notice 035-076D, 2/15/2020. PIAMH	4A	Fecal Coliform	2002	L	0.01

Frenchs Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.01		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-04-BAC **Ferry Creek**

Cause Location: The tidal portion of Ferry Creek.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2010 cycle, Ferry Creek was assessed as impaired of the Recreation Use due to an enterococci exceedance rate of 2/10 at 7-FER000.92, which is located at a private dock off of Route 608.

The impairment is nested in the Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Segment adjusted in the 2020 cycle to represent that the entire portion of Ferry Creek is impaired.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_FER01A98 / Ferry Creek / Described in VDH-DSS condemnation notice 035-076B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	4A	Enterococcus	2010	L	0.010
VAP-C03E_FER01B20 / Ferry Creek / Portion of Ferry Creek that is not closed for oyster harvest. Expanded in the 2022 cycle. PIAMH	4A	Enterococcus	2010	L	0.115

Ferry Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.124		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-04-SF **Ferry Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 035-076B, 2/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notices 035-076B, 2/15/2020

It is nested in the upstream Upper Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

The condemnation shrank and split in the 2020 cycle (035-076B and -076F, 12/28/2018). A portion is now seasonally condemned and was delisted (Category 2B.)

The condemned area shrank further in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_FER01A98 / Ferry Creek / Described in VDH-DSS condemnation notice 035-076B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	4A	Fecal Coliform	2014	L	0.01

Ferry Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.01		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-05-SF **Wilton Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-126, 3/2/1993

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 034-126A, 12/15/2020

This segment was originally listed in 1998 as not supporting for the Shellfish Use based on VDH-DSS Shellfish Condemnation 126, 3/2/1993. The “Piankatank River, Lower Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination” was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

The condemnation shrank in the 2020 cycle and a portion converted to seasonally condemned (034-126S109, 12/28/2018). It was partially delisted (Category 2C/2B.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_WLT01A98 / Wilton Creek / Described in the condemnation notice 034-126A, 12/15/2020. PIAMH	4A	Fecal Coliform	1998	L	0.111

Wilton Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.111		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-06-SF Healy Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-208A, 12/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 034-208A, 12/15/2020

The upper portion of Healy Creek was originally listed in 1998 as not supporting for the Shellfish Use based on VDH-DSS Shellfish Condemnation 129, 3/3/1997. The Piankatank River, Lower Watershed TMDL Report was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

The condemnation expanded in the 2016 cycle.

In the 2020 cycle, the condemnation shrank a portion converted to seasonally condemned (034-208S67, 12/28/2018). It was partially delisted (Category 2C/2B.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_HEA01A02 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208A, 12/15/2020. PIAMH	4A	Fecal Coliform	1998	L	0.047

Healy Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.047		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-10-EBEN Piankatank River

Cause Location: Piankatank River Mesohaline Estuary

Cause City/County: Gloucester County; Mathews County; Middlesex County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2006 cycle, the Piankatank River from Pond Point to just upstream of Iron Point was impaired of the Aquatic Life Use based on information collected from the Coastal 2000 station 7-PNK005.20 in 2003.

During the 2008 cycle, Coastal 2000 monitoring in 2004 at station 7-PNK005.35 also indicated benthic impairment. In addition, estuarine probabilistic monitoring was conducted at Coastal 2000 station 7-PNK010.41. The data was assessed by DEQ's Central Office staff who considered the area around Berkley Island as impaired due to alteration of the benthic community (C03E-14-EBEN due 2020).

During the 2014 cycle, the entire mainstem Piankatank River/Dragon Swamp was impaired of the Aquatic Life Use based on the Chesapeake Bay Benthic Index of Biological Integrity. The impairment was expanded. The TMDL due date is 2018 to reflect the earliest benthic impairment within the segment.

In addition, 2011 monitoring at Coastal 2000 station 7BPNK003.14 indicated benthic impairment. There is a high potential of chronic effects due to sediment PAHs.

During the 2016 cycle, benthic impairment was noted at Coastal 2000 estuarine probabilistic monitoring station 7BPNK016.89 (Category 5A, scenario 8 ("cause = water quality").)

The mainstem continued to fail the Chesapeake Bay B-IBI in the 2020 cycle. In addition, 2017 Coastal 2000 station 7BMLF004.09 was also impaired in the 2020 cycle.

In the 2022 cycle, weight-of-evidence analysis at the following estuarine probabilistic monitoring stations also indicated impairment. 7-PNK003.72 (2019 - Cat 5A scenario 8) 7-XFH000.08 (2020 - Cat 5A scenario 8)

In addition, during the 2018 cycle, lower Edwards Creek was impaired of the Aquatic Life Use due to a slightly altered benthic community during a one-time sampling event at Coastal 2000 probabilistic monitoring station 7BEDW000.25 (C04E-06-EBEN). However, in the 2022 cycle, the impairment was moved under C03E-10-EBEN. In the 2022 cycle it was determined that the B-IBI segment should include the tributaries. As the Edwards Creek sample was used in the segment-wide determination and the impairment is due to scenario 8 (water quality), versus a local sediment contamination issue, these impairments were combined.

There is insufficient information to assess the B-IBI in the 2022 cycle; therefore, the impairment will be carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	5A	Estuarine Bioassessments	2014	L	0.823
VAP-C03E_COB02B20 / Cobbs Creek / Described in VDH-DSS condemnation 034-126S70, 12/15/2020. Expanded slightly in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.043
VAP-C03E_COB02C10 / Cobbs Creek / Described in VDH-DSS condemnation 034-126B, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.049

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_COR01A08 / Cores Creek / Described in VDH-DSS condemnation 034-208D, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.018
VAP-C03E_DAN01A08 / Dancing Creek / Described in VDH condemnation 025-076C, 2/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.034
VAP-C03E_FER01A98 / Ferry Creek / Described in VDH-DSS condemnation notice 035-076B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.010
VAP-C03E_FER01B20 / Ferry Creek / Portion of Ferry Creek that is not closed for oyster harvest. Expanded in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.115
VAP-C03E_FRE01A02 / Frenchs Creek / As described in the condemnation notice 035-076D, 2/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.010
VAP-C03E_HEA01A02 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208A, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.047
VAP-C03E_HEA01B20 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208S67, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.024
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	5A	Estuarine Bioassessments	2022	L	0.062
VAP-C03E_JCK01A98 / Jackson Creek / Described in VDH-DSS condemnation notice 84A, 11/1/1996. PIAMH	5A	Estuarine Bioassessments	2022	L	0.019
VAP-C03E_JCK01B08 / Jackson Creek / Described in VDH-DSS condemnation notice 084B, 11/1/1996. PIAMH	5A	Estuarine Bioassessments	2022	L	0.015
VAP-C03E_JCK01C08 / Jackson Creek / Mainstem portion of condemnation notice 033-084A, 12/11/2018 not included in 84A, 11/1/1996. PIAMH	5A	Estuarine Bioassessments	2022	L	0.030
VAP-C03E_JCK01C14 / Jackson Creek, UT / Described in VDH-DSS condemnation notice 033-084B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.014
VAP-C03E_JCK02A20 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084D, 12/11/2018 not included in 084B, 11/1/1996. PIAMH	5A	Estuarine Bioassessments	2022	L	0.032

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_JCK02B16 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084E, 11/12/2014. PIAMH	5A	Estuarine Bioassessments	2022	L	0.011
VAP-C03E_JCK02C10 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084M1, 2/15/2020 not included in 033-084A, -B, or -D, 12/11/2018. Segment expanded in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.171
VAP-C03E_JCK03C10 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084B, 12/11/2018. PIAMH	5A	Estuarine Bioassessments	2022	L	0.013
VAP-C03E_MRE01A02 / Moore Creek / As described in the condemnation notice 034-208C, 12/15/2020. Split in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.034
VAP-C03E_MRE01B22 / Moore Creek / As described in the condemnation notice 034-208S69, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.035
VAP-C03E_PNK01A02 / Piankatank River / Downstream limit of VDH-DSS condemnation SFC 035-076A, 6/10/1997 to Deep Point Boat Landing. PIAMH	5A	Estuarine Bioassessments	2014	L	0.558
VAP-C03E_PNK01A98 / Piankatank River / Watershed limit (start of Piankatank River) downstream to limit of SFC 035-076A, 6/10/1997. PIAMH	5A	Estuarine Bioassessments	2014	L	1.280
VAP-C03E_PNK02A00 / Piankatank River / Mainstem Piankatank from end of 035-076S65, 2/15/2020 downstream to PNK03A00, excluding the Berkley Island area. Size reduced in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2014	L	3.355
VAP-C03E_PNK02B08 / Piankatank River / Bend around Berkley Island PIAMH	5A	Estuarine Bioassessments	2008	L	0.785
VAP-C03E_PNK02C20 / Piankatank River / Mainstem Piankatank from Deep Point Landing downstream to the boundary of 035-076S65, 2/15/2020. PIAMH	5A	Estuarine Bioassessments	2014	L	1.210
VAP-C03E_PNK03A00 / Piankatank River / One-half mile radius around monitoring station 7-PNK005.36 on the Piankatank River between Pond Point and Iron Point. PIAMH	5A	Estuarine Bioassessments	2006	L	1.167

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK04A00 / Piankatank River / Mainstem Piankatank River from PNK03A00 downstream to the point at Fishing Bay. PIAMH	5A	Estuarine Bioassessments	2014	L	3.528
VAP-C03E_PNK04B06 / Piankatank River / As described in VDH-DSS SFC 034-208M1, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2014	L	0.040
VAP-C03E_PNK04C06 / Piankatank River - Fishing Bay / As described in VDH-DSS SFC 034-208 M2, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2014	L	0.085
VAP-C03E_PNK04D08 / Porpoise Cove / As described in VDH-DSS SFC 034-208B, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.011
VAP-C03E_PNK05A02 / Piankatank River / Piankatank River downstream of Fishing Bay at Stove Point to mouth at Chesapeake Bay PIAMH	5A	Estuarine Bioassessments	2014	L	4.949
VAP-C03E_PNK07B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S71, 12/28/2018. PIAMH	5A	Estuarine Bioassessments	2022	L	0.007
VAP-C03E_PNK08B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S72, 12/28/2018 PIAMH	5A	Estuarine Bioassessments	2022	L	0.003
VAP-C03E_WLT01A98 / Wilton Creek / Described in the condemnation notice 034-126A, 12/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.111
VAP-C03E_WLT01B20 / Wilton Creek / Portion of VDH-DSS condemnation 126, 3/2/1993 that is not condemned. PIAMH	5A	Estuarine Bioassessments	2022	L	0.023
VAP-C03E_ZZZ01B14 / Unsegmented estuaries in C03 / Unsegmented portion of watershed CB11. PIAMH	5A	Estuarine Bioassessments	2022	L	0.146
VAP-C04E_BLL01A16 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.002
VAP-C04E_BLL01A98 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 closed on 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.044
VAP-C04E_BLL02A16 / Billups Creek / Billups Creek not otherwise segmented. Size reduced in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.185

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BLL02B20 / Billups Creek / Portion of VDH-DSS condemnation 037-061B, 4/15/2020 open on 4/4/1997. PIAMH	5A	Estuarine Bioassessments	2022	L	0.006
VAP-C04E_BLL02C12 / Billups Creek / Portion of VDH-DSS condemnation 037-061S129, 4/15/2020 open in 204, 4/4/1997. Size increased in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.137
VAP-C04E_BRN01A04 / Barn Creek / Described in VDH-DSS condemnation notice 036-197C, 3/15/2019. Split in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.021
VAP-C04E_BRN02A22 / Barn Creek / Described in VDH-DSS condemnation notice 036-197S126, 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2022	L	0.026
VAP-C04E_EDW01B18 / Edwards Creek / Described in VDH condemnation notice 197A, 1/21/1997. PIAMH	5A	Estuarine Bioassessments	2022	L	0.027
VAP-C04E_EDW02A98 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197B, 1/21/1997 open 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2018	L	0.041
VAP-C04E_EDW02B20 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197D, 3/15/2019 not included in 197B, 1/21/1997. PIAMH	5A	Estuarine Bioassessments	2018	L	0.006
VAP-C04E_HKC01A08 / Hickorynut Cove / Tidal limit to mouth at Milford Haven PIAMH	5A	Estuarine Bioassessments	2022	L	0.023
VAP-C04E_HUD01A08 / Hudgins Creek / Described in VDH-DSS Condemnation 037-061D, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.016
VAP-C04E_LAN01A02 / Lanes Creek / As described in VDH-DSS condemnation notice 037-099C, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.020
VAP-C04E_LAN01B08 / Lanes Creek, UT / Described in VDH Shellfish Condemnation 037-099E, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.002
VAP-C04E_LAN02A22 / Lanes Creek / Described in VDH-DSS Condemnation 037-099S127, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.054

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_MID01A02 / Winder Creek / As described in the condemnation notice 037-099B, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.025
VAP-C04E_MLF01A98 / Milford Haven / Described in the condemnation notice 036-197A, 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2022	L	0.029
VAP-C04E_MLF02A98 / Milford Haven / Described in the condemnation notice 036-197E, 3/15/2019 PIAMH	5A	Estuarine Bioassessments	2022	L	0.030
VAP-C04E_MLF03A00 / Milford Haven / Downstream of SFC 036-197, 3/15/2019 except as otherwise segmented. PIAMH	5A	Estuarine Bioassessments	2022	L	1.411
VAP-C04E_MLF04A06 / Milford Haven / Hills Bay PIAMH	5A	Estuarine Bioassessments	2014	L	2.283
VAP-C04E_MLF05A06 / Milford Haven / Described in VDH-DSS condemnation 036-197M1, 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2022	L	0.041
VAP-C04E_MRC01A98 / Morris Creek / Described in VDH-DSS condemnation notice 61B, 4/4/1997. PIAMH	5A	Estuarine Bioassessments	2022	L	0.034
VAP-C04E_QUE01A98 / Queens Creek / Portion of VDH-DSS condemnation 99A, 4/9/1977 within 037-099A and -D, 4/15/2020. Split in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.094
VAP-C04E_QUE01B10 / Queens Creek / Described in VDH-DSS condemnation notice 037-099M1, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.031
VAP-C04E_QUE01C10 / Queens Creek / Below condemnation notice 99A, 4/7/1997, unless otherwise segmented. PIAMH	5A	Estuarine Bioassessments	2022	L	0.068
VAP-C04E_QUE01D22 / Queens Creek / Portion of VDH-DSS condemnation notice 99A, 4/9/1997 within 037-099S132, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.068
VAP-C04E_QUE02A12 / Queens Creek, UT / Described in VDH-DSS condemnation 037-099S169, 4/15/2020. Size reduced in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.011
VAP-C04E_STO01A08 / Stoakes Creek / Described in VDH Shellfish Condemnation 037-061M1, 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.006

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Appendix 4 - Fact Sheets for
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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_STO01B14 / Stoakes Creek / Tidal limit to mouth unless otherwise segmented. PIAMH	5A	Estuarine Bioassessments	2022	L	0.292
VAP-C04E_STT01A98 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061A, 4/15/2020. Split in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.074
VAP-C04E_STT01B06 / Stutts Creek, UT (Hole in the Wall) / Described in VDH-DSS condemnation 037-061S130, 4/15/2020. Expanded in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.038
VAP-C04E_STT01B10 / Stutts Creek/Morris Creek / Portion of VDH condemnation notice 037-061C, 4/15/2020 not condemned on 4/4/1997. PIAMH	5A	Estuarine Bioassessments	2022	L	0.045
VAP-C04E_STT01C14 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061S128, 4/15/2020 excluding areas in 037-061D, 2/21/2017 and 61A, 4/4/1997. Merged and expanded in the 2022 cycle. PIAMH	5A	Estuarine Bioassessments	2022	L	0.109
VAP-C04E_STT01D22 / Stutts Creek / Portion of VDH-DSS condemnation 061A, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	5A	Estuarine Bioassessments	2022	L	0.016
VAP-C04E_STT02A00 / Stutts Creek / Downstream limit of condemnation to Fanneys Point, except as otherwise segmented. PIAMH	5A	Estuarine Bioassessments	2022	L	0.229
VAP-C04E_STT02B20 / Stutts Creek, UT / Described in VDH-DSS condemnation 037-061D, 2/21/2017. PIAMH	5A	Estuarine Bioassessments	2022	L	0.009
VAP-C04E_STT05A10 / Stutts Creek (Hole in the Wall) / From Point Breeze downstream to its mouth at the Chesapeake Bay. PIAMH	5A	Estuarine Bioassessments	2022	L	1.037
VAP-C04E_WHA01A06 / Wharf Creek / Described in VDH-DSS SFC 036-197M2, 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2022	L	0.018
VAP-C04E_WHI01A08 / Whites Creek / Whites Creek around Festival Beach PIAMH	5A	Estuarine Bioassessments	2022	L	0.074
VAP-C04E_WHI01B12 / Whites Creek / Stutts Creek to Festival Beach PIAMH	5A	Estuarine Bioassessments	2022	L	0.243

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_XFE01A16 / XFE - Piankatank River, UT (aka Kibble Pond) / Described in VDH-DSS condemnation 036-197B, 3/15/2019. PIAMH	5A	Estuarine Bioassessments	2022	L	0.016
VAP-C04E_ZZZ01A00 / Unsegmented estuaries in C04 / Unsegmented portion of the watershed within PIAMH	5A	Estuarine Bioassessments	2022	L	0.664

Piankatank River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	26.467		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-12-SF Cobbs Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-126B, 12/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 034-126B, 12/15/2020

The Piankatank River Lower Watershed TMDL Report for Shellfish Condemnation Areas Listed due to Bacteria Contamination was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006. The TMDL addressed all of Cobbs Creek.

The condemnation expanded in the 2016 cycle.

It shrank in the 2020 cycle and a portion is now seasonally condemned (034-126S70, 12/28/2018). It was partially delisted (Category 2C/2B.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_COB02C10 / Cobbs Creek / Described in VDH-DSS condemnation 034-126B, 12/15/2020. PIAMH	4A	Fecal Coliform	2014	L	0.049

Cobbs Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.049		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C03E-13-SF** Jackson Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 033-084B, 2/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation Notice 033-084B, 2/15/2020

The impairment is nested within the neighboring Jackson Creek Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007. It is considered Category 4A.

It has varied in size.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_JCK01C14 / Jackson Creek, UT / Described in VDH-DSS condemnation notice 033-084B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	4A	Fecal Coliform	2014	L	0.014

Jackson Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.014		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C03E-15-SF** Dancing Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 035-076C, 2/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 035-076C, 2/15/2020

It is nested in the upstream Piankatank River and Harper Creek Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_DAN01A08 / Dancing Creek / Described in VDH condemnation 025-076C, 2/15/2020 PIAMH	4A	Fecal Coliform	2008	L	0.034

Dancing Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary	Reservoir	River
		(Sq. Miles)	(Acres)	(Miles)
		0.034		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-16-BAC Piankatank River

Cause Location: Piankatank River's bend around Berkley Island

Cause City/County: Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2014 cycle, the Piankatank River around Berkley Island was impaired of the Recreation Use due to an enterococci exceedance rate of 4/12 at 7-PNK010.39, which is located at the end of Route 630.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The impairment is proposed for nesting in the upstream Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK02B08 / Piankatank River / Bend around Berkley Island PIAMH	4A	Enterococcus	2014	L	0.785

Piankatank River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.785		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-17-BAC **Piankatank River**

Cause Location: One-half mile radius around monitoring station 7-PNK005.36 on the Piankatank River between Pond Point and Iron Point.

Cause City/County: Mathews County; Middlesex County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2016 cycle, the segment was impaired of the Recreation Use due to an enterococci exceedance rate of 2/11 at 7-PNK05.78, which is located at the Route 630 boat ramp.

There is insufficient information to assess the B-IBI in the 2022 cycle; therefore, the impairment will be carried over.

The impairment is proposed for nesting in the upstream Piankatank River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK03A00 / Piankatank River / One-half mile radius around monitoring station 7-PNK005.36 on the Piankatank River between Pond Point and Iron Point. PIAMH	4A	Enterococcus	2016	L	1.167

Piankatank River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	1.167		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-18-SF Cores Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-208D, 12/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 035-208D, 12/15/2020

It is nested within the neighboring Healy Creek TMDL, which was addressed in the report “Piankatank River, Lower Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination.” The TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/7/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_COR01A08 / Cores Creek / Described in VDH-DSS condemnation 034-208D, 12/15/2020. PIAMH	4A	Fecal Coliform	2014	L	0.018

Cores Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.018		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-19-SF Porpoise Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-208B, 12/15/2020

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation Notice 034-208B, 12/15/2020

The Porpoise Cove shellfish use impairment is nested within the nearby Healy Creek TMDL, which was addressed in the report “Piankatank River, Lower Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination”. The TMDL was approved by the EPA on 11/15/2005 and by the SWCB on 9/27/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK04D08 / Porpoise Cove / As described in VDH-DSS SFC 034-208B, 12/15/2020. PIAMH	4A	Fecal Coliform	2008	L	0.011

Porpoise Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.011		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C03E-22-SF Jackson Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 034-126A, 2/15/2020.

Cause City/County: Middlesex County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 034-126A, 2/15/2020

The UT is closed due for shellfish harvesting. The impairment is nested in the Jackson Creek Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007.

In the 2020 cycle, the condemnation merged with the Jackson Creek condemnation (033-084E, 11/12/2014).

It split again in the 2022 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_JCK02B16 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084E, 11/12/2014. PIAMH	4A	Fecal Coliform	2016	L	0.011

Jackson Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.011		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C03E-24-PH** **Dragon Swamp**

Cause Location: The tidal portion of Dragon Swamp.

Cause City/County: Gloucester County; Middlesex County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2022 cycle, tidal Dragon Swamp was impaired of the Aquatic Life Use due to a pH exceedance rate of 2/12 at Chesapeake Bay Governor's School station 7-DRN-DR9-CBGS. Natural conditions are suspected as the area feeding the watershed is largely Class VII swampwaters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	5C	pH	2022	L	0.823

Dragon Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	0.823		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-01-SF **Queens Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 99A, 4/9/1997.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnations 037-099A and -D, 4/15/2020 VDH-DSS condemnation 037-099S132C, 4/15/2020

A portion of Queens Creek was assessed as impaired of the Shellfish Use during the 1998 cycle due to condemnation 99A, 4/9/1997. The Shellfish TMDL for Queens Creek was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

During several assessment cycles the condemned area has expanded and contracted. In the 2020 cycle, it matched the 1997 condemnation. In the 2022 cycle, it shrank and split. The condemned areas are considered Category 4A; the seasonal area will be partially delisted (Category 2C).

Note: During the 2012 cycle, it was determined that the TMDL addressed a smaller segment than previously believed. The Queens Creek mainstem impairment 037-099A, 131/2014 is now smaller than the 1998 impairment and is considered Category 4A/2C. 0.0838 mi2 was partially delisted.

The expansion on Queens Creek was corrected to remove the TMDL. Condemnation 037-099C, 1/28/2010 on Queens Creek, UT is located outside of the TMDL study area. The was due in 2014 since the condemnation first expanded in the 2002 cycle (see C04E-01-SF2)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_QUE01A98 / Queens Creek / Portion of VDH-DSS condemnation 99A, 4/9/1977 within 037-099A and -D, 4/15/2020. Split in the 2022 cycle. PIAMH	4A	Fecal Coliform	1998	L	0.094

Queens Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.094		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-03-SF Edwards Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 197A, 1/21/1997

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 036-197D, 3/15/2019

A portion of Edwards Creek was included on the 1998 303(d) list due to VDH condemnation 197A, 1/21/1997. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

During the 2016 cycle, Edwards Creek was open or seasonally condemned (036-197, 1/31/2014); therefore, the impairment was delisted.

The upper portion was relisted in 2018 (Category 4A).

The condemnation expanded in the 2020 cycle and now extends past the TMDL extent. The expansion is addressed in fact sheet C04E-34-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EDW01B18 / Edwards Creek / Described in VDH condemnation notice 197A, 1/21/1997. PIAMH	4A	Fecal Coliform	2018	L	0.027

Edwards Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.027		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-04-SF Put In Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 5B, 6/5/1996

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS SFC Number 041-005A, 10/15/2019

Due to the presence of the HRSD Mathews Courthouse WWTP, the upper portion of Put In Creek was previously listed as prohibited and then switched to administratively condemned in 2014 cycle. The Shellfish Use was considered removed.

A shellfish TMDL has been completed for the downstream condemnation on Put In Creek (C04E-14-SF); the TMDL was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009. The WWTP has since been terminated and the area was condemned in the 2016 cycle. The impairment is considered nested in the downstream TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_PUT02A98 / Put In Creek / Described in the condemnation notice 5B, 6/5/1996. MOBPH	4A	Fecal Coliform	2016	L	0.021

Put In Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.021		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-05-SF **Stutts Creek and Morris Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Numbers 061A & 61B, 4/4/1997

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 037-061A, 4/15/2020 Portion of VDH Shellfish Condemnations 037-061C, 4/15/2020

Portions of Stutts Creek and Morris Creek were included on the 1998 303(d) list due to VDH Shellfish Condemnations 61A & 61B, 4/4/1997. The condemnations have since merged and separated several times. However, the TMDL, which was developed by the DEQ and was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008, only addressed the portions which were impaired during the 1998 cycle. The 1998 portions are considered Category 4A. The expanded areas are addressed in fact sheet C04E-05-SF2.

In the 2022 cycle, condemnation A shrunk and is now smaller than the 1998 impairment. The seasonally condemned area will be partially delisted (Category 2C/2B).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_MRC01A98 / Morris Creek / Described in VDH-DSS condemnation notice 61B, 4/4/1997. PIAMH	4A	Fecal Coliform	1998	L	0.034
VAP-C04E_STT01A98 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061A, 4/15/2020. Split in the 2022 cycle. PIAMH	4A	Fecal Coliform	1998	L	0.074

Stutts Creek and Morris Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.107		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-05-SF2 Morris Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Numbers 036-061C, 4/15/2020 not included in 061A & 061B, 4/4/1997

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 037-061C, 4/15/2020

Portions of Stutts Creek and Morris Creek were included on the 1998 303(d) list due to VDH Shellfish Condemnations 061A & 061B, 4/4/1997. The condemnations have since merged and separated several times. However, the TMDL only addressed the portions which were impaired during the 1998 cycle. The 1998 portions are considered Category 4A (C04E-05-SF). As the segment first expanded on the 2002 303(d) list, the TMDL for the expansion was due in 2014.

It is considered nested in the Stutts Creek Shellfish TMDL. The TMDL was addressed in the Gwynns Island and Milford Haven Watersheds report, which was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_STT01B10 / Stutts Creek/Morris Creek / Portion of VDH condemnation notice 037-061C, 4/15/2020 not condemned on 4/4/1997. PIAMH	4A	Fecal Coliform	2002	L	0.045

Morris Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.045		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-08-SF North River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 157A, 6/3/1997

Cause City/County: Gloucester County; Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 042-157A, 7/15/2020 Portion of VDH-DSS SFC Number 042-157S24, 7/15/2020

The upstream portion of the North River was included on the 1998 303(d) list due to VDH Shellfish Condemnation 157A, 6/3/1997. The condemnation subsequently expanded, however the DEQ only addressed the original impaired segment during the bacteria TMDL. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. The original portion is considered Category 4A.

The condemnation has expanded and contracted multiple times. Closed areas are Category 4A, while open areas are Category 2C or 2C/2B as appropriate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BUR01A00 / Burke Mill Stream / From extent of tide to North River MOBPH	4A	Fecal Coliform	2010	L	0.025
VAP-C04E_NOR01A02 / North River / Described in VDH-DSS condemnation notice 042-157A, 7/15/2020, excluding tidal Burke Mill Stream. Split in the 2022 cycle. MOBPH	4A	Fecal Coliform	1998	L	0.250

North River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.275		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-09-SF **Elmington Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 157B, 6/3/1997

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS condemnation 042-157D, 7/15/2020

The upstream portion of Elmington Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 157B, 6/3/1997. The condemnation subsequently expanded; however, the DEQ only addressed the original impaired segment in the North River Bacteria TMDL which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

During the 2012 cycle, condemnation 042-157B, 6/15/2007 was rescinded and Elmington Creek was reopened for harvest; the entire stream was delisted.

The creek was relisted in the 2014 cycle. The upstream portion is considered Category 4A; the expanded area is addressed in fact sheet C04E-09-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_ELM01A98 / Elmington Creek / Described in the condemnation notice 157B, 6/3/1997. MOBPH	4A	Fecal Coliform	2014	L	0.023

Elmington Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.022		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-09-SF2 **Elmington Creek**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 042-157D, 7/15/2020 not included in 157B, 6/3/1997

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS condemnation 042-157D, 7/15/2020

The upstream portion of Elmington Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 157B, 6/3/1997. The condemnation subsequently expanded, however the DEQ only addressed the original impaired segment in the North River Bacteria TMDL report.

During the 2012 cycle, condemnation 042-157B, 6/15/2007 was rescinded and Elmington Creek was reopened for harvest; the entire stream was delisted.

The creek was relisted in the 2014 cycle. The upstream portion is considered Category 4A. The expanded area is considered nested in the Elmington Creek TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_ELM01B08 / Elmington Creek / Portion of VDH condemnation notice 042-157D, 7/15/2020 not included in 157B, 6/3/1997. MOBPH	4A	Fecal Coliform	2014	L	0.009

Elmington Creek

Shellfishing		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.009		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-10-SF Back Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 042-157C, 7/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 042-157C, 7/15/2020

Back Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 157C, 6/3/1997. The entire creek was addressed in the North River Bacteria TMDL which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

It has varied in size. It shrank in the 2020 cycle and a portion converted to seasonally condemned (2C/2B).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BKA01A98 / Back Creek / Described in VDH condemnation notice 042-157C, 7/15/2020. MOBPH	4A	Fecal Coliform	1998	L	0.056

Back Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.056		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-13-SF East River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 92, 1/3/1995

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 041-092A, 10/15/2020

A portion of the East River was included on the 1998 303(d) list due to VDH-DSS condemnation 92, 1/3/1995. The condemnation expanded in the 2008 cycle and incorporated several tributaries and coves (10/25/2005). The Shellfish TMDL was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009. However, only the original impairment was addressed.

The condemnations have expanded and contracted in various cycles. The 1998 portion is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST01A98 / East River / Described in the condemnation notice 92, 1/3/1995. MOBPH	4A	Fecal Coliform	1998	L	0.198

East River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.198		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C04E-14-SF** **Put In Creek**

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation Number 041-005A, 9/24/2018 included in 5A, 6/5/1996.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 041-005A, 10/15/2019

Put In Creek was included on the 1998 303(d) list due to VDH-DSS condemnation 5A, 6/5/1996. The Shellfish TMDL was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

However, the condemned area has been reduced and the lowermost portion of the 1998 segment is now open for harvest.

The condemnation has expanded and contracted slightly through various cycles.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_PUT01A98 / Put In Creek / Portion of VDH-DSS condemnation notice 041-005A, 10/15/2019 included in 5A, 6/5/1996. MOBPH	4A	Fecal Coliform	1998	L	0.077

Put In Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.077		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-18-SF **Horn Harbor and Horn Harbor, UT**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnations 039-026A and 039-026E, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH condemnation notices 039-026A and -026E, 4/15/2020

Horn Harbor was included on the 1998 303(d) list due to VDH condemnation 26A, 2/25/1997. The TMDL was completed for Horn Harbor was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008. The condemned area has retracted and portions of the study area are open for harvest or seasonally condemned.

Horn Harbor is considered Category 4A, 2C, or 2C/2B as appropriate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HAH01A98 / Horn Harbor / Described in VDH condemnation notices 039-026A and -026E, 4/15/2020. Shrank slightly in the 2022 cycle. CB6PH	4A	Fecal Coliform	1998	L	0.181

Horn Harbor and Horn Harbor, UT

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	0.181		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-23-SF Put In Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 041-005B, 10/15/2019.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 041-005B, 10/15/2019

Put In Creek was included on the 1998 303(d) list due to VDH-DSS condemnation 5A, 6/5/1996 (C04E-14-SF). The Shellfish TMDL was developed was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009. However, the condemned area has been reduced and the lowermost portion of the 1998 segment was delisted (Category 2C).

This cove was relisted in the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_PUT01D16 / Put In Creek / Described in condemnation notice 041-005B, 10/15/2019. MOBPH	4A	Fecal Coliform	2016	L	0.005

Put In Creek, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.005		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-25-SF Winder Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 037-099B, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 037-099B, 4/15/2020

Winder Creek is nested within the Queens Creek Shellfish TMDL, which was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_MID01A02 / Winder Creek / As described in the condemnation notice 037-099B, 4/15/2020. PIAMH	4A	Fecal Coliform	2002	L	0.025

Winder Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.025		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-27-SF Winter Harbor, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 038-178B, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 038-178B, 4/15/2020

The condemnation is nested in the nearby Horn Harbor Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WIN01A06 / Winter Harbor, UT / Described in the condemnation notice 038-178B, 4/15/2020. CB6PH	4A	Fecal Coliform	2018	L	0.108

Winter Harbor, UT

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.108		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-28-SF Barn Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 036-197C, 3/15/2019

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 036-197C, 3/15/2019

Barn Creek is nested within the nearby Edwards Creek Shellfish TMDL, which was addressed in the Gwynn's Island and Milford Haven Watersheds report. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

In the 2022 cycle, the condemnation shrank and the downstream portion is now seasonally condemned and will be partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BRN01A04 / Barn Creek / Described in VDH-DSS condemnation notice 036-197C, 3/15/2019. Split in the 2022 cycle. PIAMH	4A	Fecal Coliform	2008	L	0.021

Barn Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-30-SF Lanes Creek, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 037-099E, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 037-099E, 4/15/2020

The impairment is nested within the nearby Edwards Creek Shellfish TMDL, which was addressed in the Gwynn's Island and Milford Haven Watersheds report. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_LAN01B08 / Lanes Creek, UT / Described in VDH Shellfish Condemnation 037-099E, 4/15/2020. PIAMH	4A	Fecal Coliform	2008	L	0.002

Lanes Creek, UT

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.002		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-31-SF Winter Harbor

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 038-178A and -C, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 038-178A and 038-178C, 4/15/2020

Upstream Winter Harbor was impaired of the Shellfish Use. The impairment is nested in the nearby Horn Harbor Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

The condemnation expanded in the 2020 cycle (038-178A, 2/28/2018).

In the 2022 cycle, the condemnation shrank and split. The downstream seasonally condemned portion will be partially delisted. The remaining condemnations are Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WIN03B18 / Winter Harbor / Described in VDH-DSS condemnation 038-176A and 038-178C, 4/15/2020. Split in the 2022 cycle. CB6PH	4A	Fecal Coliform	2018	L	0.123

Winter Harbor

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.123		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-32-SF **Horn Harbor, UT**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 039-026B, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 039-026B, 4/15/2020

The impairment is nested in the upstream Horn Harbor Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HAH02D18 / Horn Harbor, UT / Described in VDH-DSS condemnation 039-026B, 4/15/2020. CB6PH	4A	Fecal Coliform	2018	L	0.005

Horn Harbor, UT

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.005		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-33-SF **Borum Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 039-026C, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 039-026C, 4/15/2020

The impairment is nested in the upstream Horn Harbor Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BOR01A18 / Borum Creek / Described in VDH-DSS condemnation 039-026C, 4/15/2020. CB6PH	4A	Fecal Coliform	2018	L	0.028

Borum Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.028		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-34-SF Edwards Creek

Cause Location: Portion of VDH-DSS condemnation notice 036-197D, 3/15/2019 included in 197B, 1/21/1997.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 036-197D, 3/15/2019

A portion of Edwards Creek was included on the 1998 303(d) list due to VDH condemnation 197A, 1/21/1997. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

During the 2016 cycle, Edwards Creek was open or seasonally condemned (036-197, 1/31/2014); therefore, the impairment was delisted.

The upper portion was relisted in 2018 (Category 4A).

The condemnation expanded in the 2020 cycle and now extends past the TMDL extent. This expanded portion is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EDW02B20 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197D, 3/15/2019 not included in 197B, 1/21/1997. PIAMH	4A	Fecal Coliform	2020	L	0.006

Edwards Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.006		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-36-SF Lanes Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 039-099C, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 037-099C, 4/15/2020

Lanes Creek is nested within the nearby Edwards Creek Shellfish TMDL, which was addressed in the Gwynn's Island and Milford Haven Watersheds report. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_LAN01A02 / Lanes Creek / As described in VDH-DSS condemnation notice 037-099C, 4/15/2020. PIAMH	4A	Fecal Coliform	2020	L	0.02

Lanes Creek

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-37-SF Hudgins Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 037-061D, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 037-061D, 4/15/2020

Hudgins Creek is nested within the upstream Stutts Creek Shellfish TMDL, which was addressed in the Gwynn's Island and Milford Haven Watersheds report. The TMDL was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HUD01A08 / Hudgins Creek / Described in VDH-DSS Condemnation 037-061D, 4/15/2020. PIAMH	4A	Fecal Coliform	2020	L	0.016

Hudgins Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.016		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-39-SF **Billups Creek**

Cause Location: Portion of VDH-DSS condemnation notice 204, 4/4/1997 closed on 4/15/2020.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 037-061B, 4/15/2020

A portion of Billups Creek was included on the 1998 303(d) list for the Shellfish Consumption Use due to VDH-DSS condemnation 204, 4/4/1997. The Shellfish TMDL, which was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008 addresses the 1998 portion.

In the 2018 cycle, the condemnation was rescinded and the impairment was delisted.

A portion of Billups Creek was relisted in the 2020 cycle. The condemnation extent differs from the TMDL extent; a portion of the TMDL remains open for harvest (Category 2C) while the condemnation also extends past the TMDL. The expansion will be addressed in C04E-40-SF.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BLL01A98 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 closed on 4/15/2020. PIAMH	4A	Fecal Coliform	2020	L	0.044

Billups Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.044		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-40-SF Billups Creek

Cause Location: Portion of VDH-DSS condemnation notice 037-061B, 4/15/2020 open on 204, 4/4/1997.

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 037-061B, 4/15/2020

An upstream portion of Billups Creek was included on the 1998 303(d) list for the Shellfish Consumption Use due to VDH-DSS condemnation 204, 4/4/1997. The Shellfish TMDL, which was approved by the EPA on 1/15/2008 and by the SWCB on 7/31/2008 addresses the 1998 portion.

In the 2018 cycle, the condemnation was rescinded and the impairment was delisted.

A portion of Billups Creek was relisted in the 2020 cycle. The condemnation extent differs from the TMDL extent; a portion of the TMDL remains open for harvest (Category 2C) while the condemnation also extends past the TMDL. The closed TMDL extent is addressed in C04E-39-SF.

The expansion is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BLL02B20 / Billups Creek / Portion of VDH-DSS condemnation 037-061B, 4/15/2020 open on 4/4/1997. PIAMH	4A	Fecal Coliform	2020	L	0.006

Billups Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.006		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-42-SF **Weston Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 041-212A, 10/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 041-212A, 10/15/2020

The Weston Creek shellfish impairment is nested in the upstream East River Shellfish TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WON01A08 / Weston Creek / Described in VDH Shellfish Condemnation 041-212A, 10/15/2020. MOBPH	4A	Fecal Coliform	2008	L	0.025

Weston Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.025		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-43-SF Horn Harbor, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 039-026D, 4/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 039-026D, 4/15/2020

The impairment is nested in the upstream Horn Harbor Shellfish TMDL, which was approved by the EPA on 1/23/2008 and by the SWCB on 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HAH02C20 / Horn Harbor / Described in VDH-DSS condemnation 039-026D, 4/15/2020. CB6PH	4A	Fecal Coliform	2020	L	0.037

Horn Harbor, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.037		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-48-SF **Woodas Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 041-092B, 1/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Shellfish Condemnation 041-092B, 10/15/2020

A portion of the East River was included on the 1998 303(d) list due to VDH-DSS condemnation 92, 1/3/1995. The condemnation expanded in the 2008 cycle and incorporated several tributaries and coves (10/25/2005). During the 2010 cycle, the DEQ developed the Shellfish TMDL; however, only the original impairment was addressed.

In the 2010 cycle, the condemned area included the original 1998 impairment plus an expanded mainstem area, Woodas Creek, and two (later delisted) tributaries. The 1998 portion is considered Category 4A. The TMDL due date for the expansions is 2020.

Woodas Creek is nested in the upstream East River Shellfish TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WOO01A10 / Woodas Creek / Described in VDH-DSS condemnation notice 041-092B, 10/15/2020. MOBPH	4A	Fecal Coliform	2008	L	0.029

Woodas Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.029		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-49-SF East River

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 041-092A, 10/15/2020 not included in 92, 1/3/1995

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH-DSS Shellfish Condemnation 041-092A, 10/15/2020

A portion of the East River was included on the 1998 303(d) list due to VDH-DSS condemnation 92, 1/3/1995. The condemnation subsequently expanded; however, only the original impairment was addressed. The 1998 portion is considered Category 4A. The TMDL due date for the expansion is 2020.

This expansion is nested in the upstream East River Shellfish TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

The condemnation has expanded and contracted multiple times.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST01B10 / East River / Portion of condemnation notice 041-092A, 10/15/2020 open in 92, 1/3/1995. Size increased in the 2022 cycle. MOBPH	4A	Fecal Coliform	2008	L	0.072

East River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.072		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C04E-50-SF** **Toddsbury Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 042-157E, 7/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 042-157E, 7/15/2020

Toddsbury Creek is nested within the upstream North River Shellfish TMDL. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_TOD01A20 / Toddsbury Creek / Described in VDH-DSS condemnation 042-157E, 7/15/2020. MOBPH	4A	Fecal Coliform	2020	L	0.02

Toddsbury Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-52-SF North River, UT

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 042-157B, 7/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 042-157B, 7/15/2020

The impairment is nested within the upstream North River Shellfish TMDL. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_NOR03A20 / North River, UT / Described in VDH-DSS condemnation 042-157B, 7/15/2020. MOBPH	4A	Fecal Coliform	2020	L	0.021

North River, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.021		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C04E-53-BAC** Whites Creek - Festival Beach

Cause Location: Whites Creek at Festival Beach

Cause City/County: Mathews County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: During the 2012 cycle, Whites Creek at Festival Beach was mistakenly impaired of the Recreation Use due to seven short-term swimming advisories during the 2010 swim season. The advisories were limited to 1-3 days in length and therefore were not appropriate for listing.

During the 2016 and 2018 cycles, there were no beach closures of a week or more duration. However, there were two exceedances of the bacteria geometric mean during the 2016 cycle therefore the beach remained listed.

In the 2020 cycle, there were two geomean exceedances and five swimming advisories of short duration.

In the 2022 cycle, the four swimming advisories were all «1 week in duration and there were no geometric mean exceedances. However, the segment remains impaired because there were two or more STV exceedances in the same 90-day period represented by 10+ samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WHI01A08 / Whites Creek / Whites Creek around Festival Beach PIAMH	5A	Enterococcus	2012	L	0.074

Whites Creek - Festival Beach

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.074		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-56-SF East River, UT

Cause Location: Described in VDH-DSS Condemnation 041-092C, 10/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: C04E-55-SF

VDH-DSS Condemnation 041-092C, 10/15/2020

The UT was closed for harvest in the 2022 cycle. The impairment will be considered nested in the upstream East River Shellfish TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST02B20 / East River, UT / Described in VDH-DSS condemnation 041-092C, 10/15/2020. Size reduced in the 2022 cycle. MOBPH	4A	Fecal Coliform	2022	L	0.013

East River, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.013		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-57-SF Miles Creek

Cause Location: Described in VDH-DSS Condemnation 041-212B, 10/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 041-212B, 10/15/2020

Miles Creek is nested in the upstream East River Shellfish TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_MIS01A04 / Miles Creek / Described in VDH Condemnation Notice 041-212B, 10/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Fecal Coliform	2022	L	0.039

Miles Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.039		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-58-SF XFA - North River, UT

Cause Location: Described in VDH-DSS condemnation 042-131A, 7/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 042-131A, 7/15/2020

It is proposed for nesting within the upstream Blackwater Creek Shellfish TMDL, which was addressed in the North River TMDL report and approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_XFA03A14 / XFA - North River, UT / Described in VDH-DSS condemnation 042-131A, 7/15/2020. MOBPH	4A	Fecal Coliform	2022	L	0.02

XFA - North River, UT

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.02		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04E-59-SF **Raymond Creek**

Cause Location: Described in VDH-DSS condemnation 042-131B, 7/15/2020

Cause City/County: Mathews County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 042-131B, 7/15/2020

It is proposed for nesting within the upstream Blackwater Creek Shellfish TMDL, which was addressed in the North River TMDL report and approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_RAY01A12 / Raymond Creek / Described in VDH-DSS condemnation 042-131B, 7/15/2020. MOBPH	4A	Fecal Coliform	2022	L	0.026

Raymond Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.025		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04R-01-BAC East River

Cause Location: Nontidal mainstem of the East River.

Cause City/County: Mathews County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the nontidal East River was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at 7-EST008.71, which is located at Rt. 14.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

A shellfish bacterial impairment on tidal East River was addressed in the East River TMDL, which was approved by the EPA on 2/27/2008 and by the SWCB on 4/28/2009. Implementation of the TMDL is expected to bring the nontidal Recreation Use impairment into compliance; therefore, the segment is considered nested (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04R_EST01A12 / East River / Headwaters to tidal limit	4A	Escherichia coli (E. coli)	2012	L	0.59

East River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.59

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04R-01-DO East River

Cause Location: Nontidal mainstem of the East River.

Cause City/County: Mathews County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2012 cycle, the nontidal East River was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/12 at 7-EST008.71, which is located at Rt. 14.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04R_EST01A12 / East River / Headwaters to tidal limit	5C	Dissolved Oxygen	2012	L	0.59

East River

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.59

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04R-01-PH East River

Cause Location: Nontidal mainstem of the East River.

Cause City/County: Mathews County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, the nontidal East River was impaired of the Aquatic Life Use due to a pH exceedance rate of 8/12 at 7-EST008.71, which is located at Rt. 14.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04R_EST01A12 / East River / Headwaters to tidal limit	5C	pH	2012	L	0.59

East River

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.59

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C04R-02-BAC **Burke Mill Stream**

Cause Location: Burke Mill Stream from extent of tide to mouth at the North River.

Cause City/County: Gloucester County; Mathews County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Burke Mill Stream from Burke Pond to the tidal limit was assessed as impaired of the Recreation Use in 2004 based on fecal coliform exceedances at the Route 3/Route 14 bridge (7-BUR001.19).

During the 2008 cycle, the E. coli exceedance rate was 2/10; therefore, the impairment converted to E. coli. The original TMDL due date of 2016 was maintained.

However, during the 2010 cycle, it was determined that station 7-BUR001.19 is tidally influenced. Since no enterococci data had been collected at the site, the bacterial impairment was carried over. The extent of the impairment was changed from the tidal limit to the mouth.

Enterococci monitoring during the 2012 cycle confirmed the Recreation Use impairment. The exceedance rate was 7/12 at 7-BUR001.19.

As the impairment is within the area addressed in the Shellfish TMDL for the North River, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007, the Recreation Use impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_BUR01A00 / Burke Mill Stream / From extent of tide to North River MOBPH	4A	Enterococcus	2012	L	0.025

Burke Mill Stream

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.025		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05E-01-SF Ware River / Fox Mill Run

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 096A and 096B, 8/12/1996

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portions of VDH Shellfish Condemnation 043-096A, 7/15/2020

Fox Mill Run and a portion of the Ware River were included on the 1998 303(d) list due to VDH Shellfish Condemnation 96B and 96A, 8/12/1996. The Ware River condemnation has since expanded to incorporate the Fox Mill Run impairment. However, the DEQ developed the Bacteria TMDL for only the original 1998 portions; the TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. The 1998 portions are considered Category 4A waters.

The expanded area of the Ware River is addressed in fact sheet C05E-01-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_FOX01A08 / Fox Mill Run / Described in VDH condemnation notice 96B, 8/12/1996. MOBPH	4A	Fecal Coliform	1998	L	0.085
VAP-C05E_WAR01A02 / Ware River / Described in the condemnation notice 096A, 8/12/1996. Tidal extent adjusted in the 2022 cycle. MOBPH	4A	Fecal Coliform	1998	L	0.270

Ware River / Fox Mill Run

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.356		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05E-01-SF2 Ware River

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 043-096A, 7/15/2020 not included in 096A and 096B, 8/12/1996

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 043-096A, 7/15/2020

Fox Mill Run and a portion of the Ware River were included on the 1998 303(d) list due to VDH Shellfish Condemnation 96B and 96A, 8/12/1996. The Ware River condemnation has since expanded to incorporate the Fox Mill Run impairment. However, the DEQ developed the Bacteria TMDL for only the original 1998 portions. The TMDL for the expanded portion of the Ware River was due in 2014 since it first expanded in the 2002 list.

The expansion is nested within the upstream Ware River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

The condemnation has expanded and contracted multiple times.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WAR01B08 / Ware River / Portion of VDH condemnation notice 043-096A, 7/15/2020 not included in condemnation 96A and 96B, 8/12/1996. Expanded in the 2022 cycle. MOBPH	4A	Fecal Coliform	2002	L	0.224

Ware River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.224		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05E-02-SF Wilson Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 106, 8/12/1996

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 043-096B, 7/15/2020

A portion of Wilson Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 106, 8/12/1996. The condemnation has since expanded and contracted. However, the bacteria TMDL was only developed for the original 1998 portion; the TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

In the 2014 cycle, the condemnations expanded and merged again. The expansion is addressed in fact sheet C05E-02-SF2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WIL01A98 / Wilson Creek / Described in the condemnation notice 106, 8/12/1996. MOBPH	4A	Fecal Coliform	1998	L	0.033

Wilson Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.033		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05E-02-SF2 Wilson Creek

Cause Location: Portion of VDH Notice and Description of Shellfish Condemnation 043-096B, 7/15/2020 not included in 106, 8/12/1996

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion of VDH Shellfish Condemnation 043-096B, 7/15/2020

A portion of Wilson Creek was included on the 1998 303(d) list due to VDH Shellfish Condemnation 106, 8/12/1996. The condemnation has since expanded and contracted.

The impairment is nested in the upstream Wilson Creek TMDL, which was developed in the Ware River report. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WIL01B08 / Wilson Creek / Portion of VDH condemnation notice 043-096B, 7/15/2020 not included in condemnation notice 106, 8/12/1996. MOBPH	4A	Fecal Coliform	2002	L	0.142

Wilson Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.142		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05E-03-BAC Ware River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 096A, 8/12/1996

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2018 cycle, the upper tidal Ware River was impaired of the Recreation Use due to an enterococci exceedance rate of 5/8 at 7-BEA000.40. The station is located near the tidal limit on Beaverdam Swamp at Rt. 14.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the previous data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The impairment is nested in the Ware River Watershed Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. It is considered a Category 4A water.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WAR01A02 / Ware River / Described in the condemnation notice 096A, 8/12/1996. Tidal extent adjusted in the 2022 cycle. MOBPH	4A	Enterococcus	2018	L	0.27

Ware River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.27		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05R-01-BAC Fox Mill Run

Cause Location: From its headwaters to the limit of tide.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 2002, the segment was assessed not supporting of the Recreation Use because of a fecal coliform exceedance rate of 5/18 at the Route 17 bridge (7-FOX002.49).

Additional monitoring has been conducted. The bacterial impairment converted to E. coli in the 2010 cycle; however, the original TMDL due date was maintained. During the 2012 cycle, the segment remained impaired: 2/23 (FS) at 7-FOX002.49 3/12 at 7-FOX003.22 2/12 at 7-FOX004.68 3/12 at 7-FOX006.56

The impairment is considered nested (Category 4A) because it is located within the watershed study area for the Ware River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05R_FOX01A00 / Fox Mill Run / From its headwaters to the extent of tide.	4A	Escherichia coli (E. coli)	2010	L	6.97

Fox Mill Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.97

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C05R-04-BAC XEG - Fox Mill Run, UT

Cause Location: Unnamed tributary to Fox Mill Run, in its entirety.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the tributary was assessed as not supporting of the Recreation Use due to an E. coli exceedance rate of 2/12 at 7-XEG000.27, which is located at a private drive off of Route 615.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The impairment is considered nested (Category 4A) because it is located within the watershed study area for the Ware River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05R_XEG01A10 / XEG - Fox Mill Run, UT / Headwaters to mouth at Fox Mill Run	4A	Escherichia coli (E. coli)	2012	L	1.71

XEG - Fox Mill Run, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.71

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-01-BAC Northwest Branch Severn River

Cause Location: From the limit of tide to the mouth at the Severn River.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: The nontidal portion of the Northwest Branch of the Severn River was initially assessed as not supporting of the Recreation Use goal because of fecal coliform exceedances at 7-SEN004.04 (fact sheet C06R-01-BAC). The TMDL was due in 2014.

During the 2008 cycle, the E. coli violation rate was 7/11; therefore, the impairment was converted. The original TMDL due date was maintained.

During the 2010 cycle, it was determined that the station is tidally influenced during most circumstances. The impairment was adjusted to extend from the tidal limit to the downstream extent of the shellfish condemnation.

The impairment was extended to the mouth during the 2016 cycle due to additional monitoring at 7-SEN001.35, which is located at Brays Point. The exceedance rate was 3/12.

The impairment was previously nested within the study area for the Severn River Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. In the 2020 cycle, a general permit was issued for a new domestic wastewater discharge. Since the shellfish TMDL did not address permitted point sources and did not include a WLA, the bacteria impairment can no longer be considered nested.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_SEN01A02 / Northwest Branch Severn River / Described in condemnation notice 044-093B, 6/15/2020, excluding tributary XEE. MOBPH	5A	Enterococcus	2010	L	0.127
VAP-C06E_SEN01C10 / Northwest Branch Severn River / Portion of condemnation notice 93A, 4/1/1997 open on 044-093, 6/15/2020. MOBPH	5A	Enterococcus	2016	L	0.167
VAP-C06E_SEN02A06 / Northwest Branch Severn River / Northwest Branch Severn Creek not otherwise segmented Segment adjusted in the 2022 cycle. MOBPH	5A	Enterococcus	2016	L	0.427

Northwest Branch Severn River

Recreation

Enterococcus - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.721		

Sources: Non-Point Source; Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-01-SF Northwest Branch Severn River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 044-093B, 6/15/2020.

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 044-093B, 6/15/2020

The upper portion of the Northwest Branch Severn River and a portion of Vaughans Creek were included on the 1998 303(d) list due to VDH Shellfish Condemnations 93A and 93B, 4/1/1997, respectively.

The Bacteria TMDL for the Shellfish Impairments in the Severn River Watershed was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007).

During the 2014 cycle, both creeks were completely reopened for harvest (044-093, 2/22/2012); therefore, the streams were delisted (Category 2C).

The segment was relisted in the 2016 cycle (Category 4A). The condemnation grew slightly in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_SEN01A02 / Northwest Branch Severn River / Described in condemnation notice 044-093B, 6/15/2020, excluding tributary XEE. MOBPH	4A	Fecal Coliform	2016	L	0.127
VAP-C06E_XEE01A10 / XEE - Northwest Branch Severn River, UT / Tidal limit to mouth at NW Branch Severn River MOBPH	4A	Fecal Coliform	2016	L	0.003

Northwest Branch Severn River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.13		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-03-SF Vaughans Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 044-093C, 6/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 044-093C, 6/15/2020

The upper portion of the Northwest Branch Severn River and a portion of Vaughans Creek were included on the 1998 303(d) list due to VDH Shellfish Condemnations 93A and 93B, 4/1/1997, respectively.

The Bacteria TMDL for the Shellfish Impairments in the Severn River Watershed was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

During the 2014 cycle, both creeks were completely reopened for harvest (044-093, 2/22/2012); therefore, the streams were delisted (Category 2C).

The portion of Vaughans Creek was relisted in the 2016 cycle (Category 4A). It has varied in size but was previously smaller than the TMDL extent.

In the 2022 cycle, the condemnation expanded past the TMDL. The expansion will be considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_VGH01A98 / Vaughans Creek / Described in the condemnation notice 93B, 4/1/1997. Merged in the 2022 cycle. MOBPH	4A	Fecal Coliform	2016	L	0.121
VAP-C06E_VGH02A22 / Vaughans Creek / Portion of VDH-DSS Condemnation 044-093C, 6/15/2020 not included in 93B, 4/4/1997 MOBPH	4A	Fecal Coliform	2022	L	0.015

Vaughans Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.135		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-04-SF Heywood Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 044-054B, 6/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH DSS Shellfish Condemnation 044-054B, 6/15/2020

Heywood Creek was listed on the 1998 303(d) list due to VDH Shellfish Condemnation 101, 4/1/1997. The TMDL for this area was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

The condemned area is currently smaller than the 1998 impairment; the open area within the completed TMDL is Category 2C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_HEY01A98 / Heywood Creek / Described in the condemnation notice 044-054B, 6/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Fecal Coliform	1998	L	0.106

Heywood Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.106		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-05-SF **Thorntons Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 044-054A, 6/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH DSS Shellfish Condemnation 044-054A, 6/15/2020

Thorntons Creek was listed on the 1998 303(d) list due to VDH Shellfish Condemnation 54, 4/1/1997. The TMDL for this area was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. The 1998 portion of Thorntons Creek was considered a Category 4A water. The condemned area is now smaller than the 1998 impairment. The open area within the completed TMDL was partially delisted (Category 2C).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_THC01A98 / Thorntons Creek / Described in the condemnation notice 044-054A, 6/15/2020. MOBPH	4A	Fecal Coliform	1998	L	0.063

Thorntons Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.063		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-08-SF Free School Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 044-093A, 6/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH Shellfish Condemnation 044-093A, 6/15/2020

Free School Creek was addressed in the Severn River Watershed Bacteria TMDL for Shellfish Impairments. The TMDL was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

The condemnation is currently smaller than the TMDL extent. The closed portion is considered a Category 4A water. The open portion is Category 2C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_FSC01A98 / Free School Creek / Described in VDH Shellfish Condemnation 044-093A, 6/15/2020. MOBPH	4A	Fecal Coliform	2008	L	0.039

Free School Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.039		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06E-09-SF Blevins Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation 045-125A, 12/15/2020

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS condemnation 045-125A, 12/15/2020

Blevins Creek is nested in the Browns Bay and Monday Creek Shellfish TMDL Report, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_BLV01A20 / Blevins Creek / Described in VDH-DSS condemnation 045-125A, 12/15/2020. Size reduced slightly in the 2022 cycle. MOBPH	4A	Fecal Coliform	2020	L	0.049

Blevins Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.049		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C06E-12-SF** **Whitaker Creek**

Cause Location: Described in VDH-DSS Condemnation 044-093D, 6/15/2020.

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: VDH-DSS Condemnation 044-093D, 6/15/2020

The impairment is proposed for nesting in the neighboring Free School Creek TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_WTT01A08 / Whitaker Creek / Described in VDH-DSS Condemnation 044-093D, 6/15/2020 Size reduced in the 2022 cycle. MOBPH	4A	Fecal Coliform	2022	L	0.037

Whitaker Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.037		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06R-01-BAC Northwest Branch of Severn River

Cause Location: From its headwaters to the limit of tide.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The nontidal portion of the Northwest Branch of the Severn River was initially assessed as not supporting of the Recreation Use goal because of fecal coliform exceedances at 7-SEN004.04, located near a private road off of Rt. 614. The TMDL was due in 2014.

During the 2008 cycle, the E. coli exceedance rate was 7/11; therefore, the impairment was converted. The original TMDL due date was maintained.

During the 2010 cycle, it was determined that station 7-SEN004.04 is actually tidally influenced during most circumstances. The segment was shortened to correct the tidal limit and additional data was collected at station 7-SEN004.78. The exceedance rate was 3/10 during the 2012 cycle.

The impairment is nested within the study area for the Severn River Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination, which was approved by the EPA on 6/7/2006 and by the SWCB on 3/23/2007. The watershed requires a 98% reduction in bacterial loadings in order to meet the downstream TMDL.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06R_SEN01A00 / Northwest Branch Severn River / From its headwaters to the extent of tide.	4A	Escherichia coli (E. coli)	2008	L	2.16

Northwest Branch of Severn River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.16

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C06R-02-BAC XEE - Northwest Branch Severn River, UT

Cause Location: The tidal portion of the tributary.

Cause City/County: Gloucester County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: During the 2010 cycle, the tributary was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 2/6 at 7-XEE000.58, which is located at the Route 614 bridge.

During the 2012 cycle, it was determined that the station is tidally influenced. The station failed the Recreation Use due to an enterococci exceedance rate of 5/11. The impairment was converted to enterococci and the segment extent was corrected.

The impairment is nested within the study area for the Severn River Watershed TMDL Report for Shellfish Condemnation Areas Listed Due to Bacteria Contamination, which was approved by the EPA on 6/7/2006 and the SWCB on 3/23/2007.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_XEE01A10 / XEE - Northwest Branch Severn River, UT / Tidal limit to mouth at NW Branch Severn River MOBPH	4A	Enterococcus	2012	L	0.003

XEE - Northwest Branch Severn River, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.003		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C07E-01-BAC Brick Kiln Creek

Cause Location: This cause encompasses from 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Branch Back River. CBP Segment MOBPH.

Cause City/County: Hampton; York County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use impairment is retained due to Enterococcus concentrations exceeding the swimming indicator criteria. There was no new data in the current cycle. Recreation impairments included in TMDL (31233) EPA approved 4/24/2014 under TMDL ID = VAT-C07E-01 modified 2/9/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BRK01A06 / Brick Kiln Creek / From 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 A (effective 20201115).	4A	Enterococcus	2004	L	0.086

Brick Kiln Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.086		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C07E-01-PCB** Chesapeake Bay and Tidal Tributaries VDH Fish Consumption Advisory for PCBs

Cause Location: This cause encompasses the Chesapeake Bay & Tidal Tributaries within the lower bay.

Cause City/County: Hampton; Poquoson City; York County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The Fish Consumption Use is impaired based on the VDH fish consumption advisory for PCBs fish tissue contamination within the Chesapeake Bay issued 12/13/04. Previous Use ID (2006 IR) as TMDL ID: VDH-Bay PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BAK01A00 / Mainstem Back River / From junction of Northwest and Southwest Branches downstream to mouth of Back River. Portion of CBP Segment MOBPH. DSS Condemnation 054-215 OPEN (20181018) and 054-021 (20151102) shellfish condemnations.	5A	PCBs in Fish Tissue	2006	L	3.340
VAT-C07E_BAK01B08 / Mainstem Back River-South Shore at Mouth Wallace Cr. / Portion of mainstem along south shore between Windmill Pt. and Grunland Pt. CBP Segment MOBPH. DSS shellfish condemnation # 054-215 M1 (Seasonal)(effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.091
VAT-C07E_BAK02A14 / Back Creek - Inlet near Dandy Point [TMDL] / Tributary to south shore Back River (incl area in Back R), east of Harris R & adjacent to Inlet #2. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-215 B, 20181018.	5A	PCBs in Fish Tissue	2006	L	0.034
VAT-C07E_BCB01A06 / Buckroe Beaches / From northeast of Buckroe Beach southwest to parallel with start of Mill Cr. Portion of CBP Segment CB8PH. No DSS shellfish condemnations.	5A	PCBs in Fish Tissue	2006	L	0.224
VAT-C07E_BCK01A00 / Back Creek - Upper / Back Creek (S of York R mouth) tributary to the Thorofare and Chesapeake Bay. From end of tidal waters downstream to point upstream of Dandy (RM 1.6). CBP Segment MOBPH. DSS shellfish condemnation # 053-151 A &M1 (effective 20190515).	5A	PCBs in Fish Tissue	2006	L	0.281
VAT-C07E_BCK02A06 / Back Creek - Middle (DSS-marina area) / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. Area within DSS shellfish condemnation # 053-151 M1, around marina area (effective 20180425).	5A	PCBs in Fish Tissue	2006	L	0.078

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BCK03A06 / Back Creek - Lower / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. From upstream of Dandy (RM 1.6) downstream to mouth (RM 0.0). DSS (OPEN) shellfish condemnation # 053-151 (effective 20190515).	5A	PCBs in Fish Tissue	2006	L	0.405
VAT-C07E_BEN01A06 / Bennett Creek - Upper (DSS_06-IR) / Bennett Creek upstream portion (S of Poquoson R mouth) tributary to Poquoson River. From end of tidal waters downstream 0.1 mi. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 053-222 E (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.039
VAT-C07E_BEN02A08 / Bennet Creek - Lower Middle / South shore tributary to Poquoson R, in area of Griffins Beach. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. DSS (OPEN, Seasonal, and Conditionally Approved) Shellfish condemnation # 053-222 M1 and S147 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.209
VAT-C07E_BEN03A16 / Bennett Creek-Mouth / Mouth of Bennett Creek. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	0.366
VAT-C07E_BRK01A06 / Brick Kiln Creek / From 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 A (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.086
VAT-C07E_BTC01A08 / Bay Tree Creek / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS Shellfish condemnation # 053-221 B (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.076
VAT-C07E_BTC02A18 / Bay Tree Creek- Mouth / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS (OPEN) Shellfish condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.050
VAT-C07E_BTH01A08 / Boathouse Creek / Boathouse Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.042
VAT-C07E_BTH01B22 / Chisman Creek-Lower North Shore (Marina) / Downstream section of Boathouse Creek, from Anchor Drive to mouth. CBP Segment MOBPH. DSS Conditionally Approved S141 condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.030

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_CAB01A08 / Cabin Creek / Cabin Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS shellfish condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.082
VAT-C07E_CCR01A06 / Cedar & Topping Creeks / Located near City of Poquoson. Cedar & Topping Creeks are tribs to the north shore of the Northwest Branch of Back River. Portion of DSS condemnation # 054-021 A (less NW Br Back R./Brick Kiln Cr. portion) effective 20201115. CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.109
VAT-C07E_CHS01A06 / Chisman Creek-Upper / From end of tidal waters (upper 1/3 of creek), downstream to area of Evergreen Shores (approx. RM 0.9). CBP Segment MOBPH. DSS condemnation # 053-221A & seasonal M2 (effective 20180425).	5A	PCBs in Fish Tissue	2006	L	0.408
VAT-C07E_CHS02A06 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Spivey Road to mouth. CBP Segment MOBPH. DSS (OPEN) condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.520
VAT-C07E_CHS02B22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Seaford Shores to north side of water near Spivey Rd. CBP Segment MOBPH. DSS Seasonally Restricted and Conditionally Approved condemnation # 053-221 M1 & S140 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.005
VAT-C07E_CHS02C22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Goose Creek to Seaford Shores area. CBP Segment MOBPH. DSS Conditionally Approved condemnation # 053-221 S140 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.005
VAT-C07E_CHS03A20 / Chisman Creek - Lower / First inlet on the right coming into the mouth of the Chisman. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 & M1(effective 20180425).	5A	PCBs in Fish Tissue	2006	L	0.006
VAT-C07E_EAS01A06 / Easton Cove / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. DSS Conditionally approved shellfish condemnation # 053-222 S147 (effective 20200615). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.057
VAT-C07E_FLY01A06 / Floyds Bay- Upper / Upper Portion of Floyds Bay. Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20200615). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.042

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_FLY02A16 / Floyds Bay- mouth / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20180425). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.010
VAT-C07E_FRT01A06 / Front Cove - Upper / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish condemnation # 054-021 C (effective 20201115). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.042
VAT-C07E_FRT02A08 / Front Cove - Lower / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish Seasonal condemnation # 054-021 M1 (effective 20181018). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.036
VAT-C07E_GLD01A10 / Grunland Creek - Mouth / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.053
VAT-C07E_GLD02A18 / Grunland Creek - Back River / South shore trib. to mainstem Back R. Adjacent to Grunland Point. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.049
VAT-C07E_GOO01A14 / Goose Creek- Upper / From end of tidal waters to approx. River mile 0.27. DSS Shellfish condemnation # 053-221 C (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.065
VAT-C07E_GOO02A14 / Goose Creek- Lower / From Rivermile 0.27 to mouth. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.036
VAT-C07E_GRV01A06 / Grandview Pier & Saltponds Beaches / From Grandview beach southwest to northeast of Buckroe Beach. Offshore of Buckroe Beach VDH monitoring. area Portion of CBP Segment CB8PH. No DSS shellfish condemnation present.	5A	PCBs in Fish Tissue	2006	L	0.241
VAT-C07E_GRV02A10 / Grandview Pier & Saltponds Beaches [No TMDL] / From southernmost point of Grandview Beach southwest to northeast of Buckroe Beach. Shoreward of GRV01A06. Portion of CBP Segment CB8PH. DSS ADMIN shellfish condemnation # 055-216 A (effective 20080530).	5A	PCBs in Fish Tissue	2006	L	0.119
VAT-C07E_HAR01A06 / Harris River - Upper / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. DSS shellfish condemnation # 054-215 A (effective 20201115). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.198

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_HAR02A10 / Harris River - Mouth / South shore trib. to mainstem Back R. East shore area at mouth. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (OPEN) shellfish area # 054-215 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.160
VAT-C07E_HAR02B10 / Harris River - Lower Marina Area / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (Seasonal) shellfish condemnation # 054-215 M2 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.053
VAT-C07E_HOD01A08 / Hodges Creek - Upper / North shore trib to Poquoson R. @ Fish Neck. CBP Segment MOBPH. Portion of DSS shellfish Conditionally Approved -condemnation # 053-137 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.047
VAT-C07E_IN101A08 / DSS Inlet #1 - Unnamed Inlet at Mouth of SW Branch / South shore trib. to mainstem Back R. Located east of mouth of SW Branch. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-021 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.025
VAT-C07E_INB01A04 / DSS Inlet #2 - Unnamed Inlet S. Shore of SW Br. Back River / South shore trib. to Southwest Branch Back R. Located near mouth of SW Branch, west of unnamed DSS Inlet #1. DSS Restricted condemnation # 054-021 B (effective 20201115). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.008
VAT-C07E_LMC01A04 / Lambs Creek - Poquoson River / South shore tributary to Poquoson R, west of Poquoson Shores. On border of Poquoson/York boundary. Between Moores Cr. and Roberts Cr to east. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.135
VAT-C07E_LMC02A16 / Lambs Creek - Mouth / Mouth of Lambs Creek located on South shore tributary to Poquoson R, west of Poquoson Shores. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.028
VAT-C07E_LON01A06 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview natural Preserve area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.043
VAT-C07E_LON01B12 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish ADMIN harvesting condemnation # 054-215 C (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.055

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_LON02A10 / Long & Grunland Creeks - DSS Admin Area / South shore trib. to mainstem Back R. Portion adjacent to Grandview area. CBP Segment CB8PH. DSS shellfish harvesting condemnation # 055-216 A ADMIN. Cond. (effective 20080530).	5A	PCBs in Fish Tissue	2006	L	0.085
VAT-C07E_LYO01A06 / Lyons Creek - Upper / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 B (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.070
VAT-C07E_LYO02A06 / Lyons Creek - Middle and Lower / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. Lower portion of Lyons Cr. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.050
VAT-C07E_NEW01A02 / Newmarket Creek - Upper / South of Blue Bird Gap Farm area. From end of tidal waters at Terrant ES (approx. RM 5.1) downstream to I-64 crossing (RM 3.68). CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.073
VAT-C07E_NEW02A02 / Newmarket Creek - Lower / South of Blue Bird Gap Farm area. From the I-64 crossing (RM 3.68) downstream to confluence with SW Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.079
VAT-C07E_NWB01A06 / Northwest Br. Back River - Upper [TMDL-CD] / CBP Segment MOBPH. Headwaters to confluence of Cedar Creek between Cedar Point and Marsh Point. Portion of DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.220
VAT-C07E_NWB01B08 / Northwest Br. Back River - Upper [TMDL not CD] / Northwest Br. Back River upper portion from confluence of Cedar Creek downstream to confluence Tabbs Cr. Portion DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115). CBP Segment MOBPH.	5A	PCBs in Fish Tissue	2006	L	0.248
VAT-C07E_NWB02A06 / Northwest Br. Back River - Lower [DSS OPEN] / From area of confluence of Topping Creek (approx. RM 1.5) downstream to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS (OPEN) shellfish condemnation # 054-021 (effective 20181018).	5A	PCBs in Fish Tissue	2006	L	0.961

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_POQ01A06 / Poquoson River - Upper [TMDL-CD] / From Rt 17 crossing @ reservoir dam (RM 5.7) downstream to past confluence of Quarter March Cr (RM 2.7) @ Calthrop Neck. Including Moores & Quarter March Creeks. CBP Segment MOBPH. DSS shellfish condemn # 053-137 A (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.518
VAT-C07E_POQ02A06 / Poquoson River - Lower [DSS-OPEN] / From Calthrop Neck downstream to mouth of Hodges Cove. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-137 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.834
VAT-C07E_POQ03A08 / Poquoson River - Mouth / From Hunts Point a wedge NW across Poquoson River mouth to northern shore. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-999 (effective 20201002).	5A	PCBs in Fish Tissue	2006	L	1.492
VAT-C07E_PTC01A04 / Patricks Creek - Poquoson River / North shore trib to Poquoson River south of Dare area. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 B (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.119
VAT-C07E_ROB01A04 / Roberts Creek - Upper / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS ADMIN Shellfish condemnation # 053-222 A (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.104
VAT-C07E_ROB02A08 / Roberts Creek - Lower [DSS-OPEN] / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS OPEN Shellfish condemnation # 053-222 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.009
VAT-C07E_SWB01A08 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.706
VAT-C07E_SWB02A08 / Southwest Br. Back River - Mouth [DSS OPEN -No TMDL] / Lower portion to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS shellfish (OPEN) condemnation # 054-021 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.568
VAT-C07E_SWB03A20 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation seasonally restricted and conditionally condemned areas # 054-021 B (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.413

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_TBC01A04 / Tabbs Creek - NW Br Back River / Tributary to Northwest Branch Back River, entirety of creek. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 E (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.073
VAT-C07E_TBC02A10 / Tabbs Creek Mouth - NW Br Back River / Tributary to Northwest Branch Back River, mouth of creek. CBP segment MOBPH. Portion of DSS Conditionally Approved shellfish condemnation # 054-021 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.034
VAT-C07E_THR01A10 / Sandbox Area NW Thorofare / Sandbox Area NW Thorofare Inlet near Goodwin Neck. CBP Segment MOBPH. DSS OPEN condemnation 053-051 (effective 20190515).	5A	PCBs in Fish Tissue	2006	L	0.012
VAT-C07E_WAL01A06 / Wallace Creek - Upper (Back River) / Tributary to south shore Back River, east of Harris R & adjacent to Inlet #2. Most upstream tip of creek. CBP segment MOBPH. DSS (PROHIBITED - ADMIN COND) shellfish condemnation # 054-215 B& D (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.036
VAT-C07E_WAT01A06 / Watts Creek - (NW Br. Back River) / Located southwest of Poquoson. Watts Cr. trib to Northwest Br. of Back R. CBP segment MOBPH. Portion of DSS condemnation # 054-021 (effective 20201115).	5A	PCBs in Fish Tissue	2006	L	0.058
VAT-C07E_WHH01A06 / White House Cove - Bennet Cr. Area / Located in York Haven Anchorage area, south of mouth of Poquoson R, CBP segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 C and seasonal M1 (effective 20200615).	5A	PCBs in Fish Tissue	2006	L	0.145
VAT-C07E_ZZZ01A00 / Unsegmented estuaries in Back River / Non segmented areas of C07E. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	5A	PCBs in Fish Tissue	2006	L	1.040
VAT-C07E_ZZZ01B12 / Unsegmented estuaries in Back River - DSS / Non segmented areas of C07E. CBP Segment MOBPH. DSS Condemnation # 054-021 B (effective date 20201115).	5A	PCBs in Fish Tissue	2006	L	0.097

Chesapeake Bay and Tidal Tributaries VDH Fish Consumption Advisory for PCBs

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	16.028		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C07E-01-SF Brick Kiln Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number #054-021A (effective 20181028).

Cause City/County: Hampton; York County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation. Covered under TMDL ID 31233, Back River Northwest Branch (2/9/2018).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BRK01A06 / Brick Kiln Creek / From 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 A (effective 20201115).	4A	Fecal Coliform	1998	L	0.086

Brick Kiln Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.086		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C07E-02-BAC** **Newmarket Creek - Upper and Lower**

Cause Location: This cause encompasses from the end of tidal waters at Terrant ES (approx. RM 5.1) downstream to confluence with SW Branch Back River. South of Blue Bird Gap Farm area. CBP Segment MOBPH.

Cause City/County: Hampton

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use was impaired in the 2018 IR cycle due to exceedances of the criteria for Enterococcus bacteria, from data collected at the DEQ station @ 7-NEW001.92 (1 viol. / 5 obs.); the impairment was retained in the 2020 IR cycle due to the lack of new data. Data was collected at station 7-NEW000.95 in the 2022 IR cycle, but there was insufficient data to analyze the geometric mean. The impairment will be retained again in the current cycle.

Recreation and Shellfish bacteria impairments covered under TMDL for Back River (EPA approved 8/2/2006 modified 4/24/2014, 2/9/2018). (VAT-C07E-02)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_NEW01A02 / Newmarket Creek - Upper / South of Blue Bird Gap Farm area. From end of tidal waters at Terrant ES (approx. RM 5.1) downstream to I-64 crossing (RM 3.68). CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Enterococcus	2006	L	0.073
VAT-C07E_NEW02A02 / Newmarket Creek - Lower / South of Blue Bird Gap Farm area. From the I-64 crossing (RM 3.68) downstream to confluence with SW Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Enterococcus	2006	L	0.079

Newmarket Creek - Upper and Lower

Recreation

Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	0.152		

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C07E-04-BAC Poquoson River - Upper

Cause Location: This cause encompasses the area from Rt 17 crossing @ reservoir dam (RM 5.7) downstream to past confluence of Quarter March Cr (RM 2.7) @ Calthrop Neck. Including Moores & Quarter March Creeks. CBP Segment MOBPH.

Cause City/County: York County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting due to Enterococcus concentrations at station 7-POQ004.1 (21 exceedances / 31 observations) exceeding the swimming indicator criteria. 1998 CD segment for FC (Attachment A, Category 1, Part 1) VAT-C07E-04. Covered under TMDL for Poquoson River (EPA approved 8/2/2006), TMDL EPA approved (VAT-C07E-11-SF) for Fecal Coliform [25403] 8/2/2006, modified 3/19/2014, 2/1/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_POQ01A06 / Poquoson River - Upper [TMDL-CD] / From Rt 17 crossing @ reservoir dam (RM 5.7) downstream to past confluence of Quarter March Cr (RM 2.7) @ Calthrop Neck. Including Moores & Quarter March Creeks. CBP Segment MOBPH. DSS shellfish condemn # 053-137 A (effective 20200615).	4A	Enterococcus	1998	L	0.518

Poquoson River - Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.517		

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C07E-05-BAC** SW Br Back R - DSS OPEN [TMDL]

Cause Location: This cause encompasses the headwaters of Southwest Branch downstream to Langley View. CBP segment MOBPH.

Cause City/County: Hampton

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Recreation Use is not supporting due to previous Fecal Coliform data recorded @7-SWB000.00 during the 2002 IR which indicated exceedance of the bacteria criteria. There are no current data for Enterococcus bacteria data to assess the Recreation Use. Covered under TMDL for Back River - Southwest Branch was EPA approved [33839] for Fecal Coliform (VAT-C07E-22-SF) 2/1/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_SWB01A08 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Fecal Coliform	1998	L	0.706
VAT-C07E_SWB03A20 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation seasonally restricted and conditionally condemned areas # 054-021 B (effective 20201115).	4A	Fecal Coliform	1998	L	0.413

SW Br Back R - DSS OPEN [TMDL]

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
1.119		

SW Br Back R - DSS OPEN [TMDL]

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
1.119		

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C07E-05-BAC2 Southwest Br. Back River - Mouth

Cause Location: This cause encompasses the lower portion of the SW Branch Back River to the confluence with mainstem Back River.

Cause City/County: Hampton; Poquoson City

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Previous DEQ station showed impairment @7-SWB000.00 for Fecal Coliform bacteria (2002 IR). The Recreation Use impairment is retained due to previous Fecal Coliform data recorded during the 2002 IR which indicated exceedance of the bacteria criteria.

There is currently insufficient data to override the current recreation impairment. Station 7-SWB000.00 and 7-SWB000.34 each have only one sample within the assessment window.

Area included in the modified Back River TMDL 4/24/14, 2/9/2018.

Segment was nested in the 2014 IR however now based on the modified TMDL for Back River EPA approved 4/14/2014 this segment is included and no longer needs to be nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_SWB02A08 / Southwest Br. Back River - Mouth [DSS OPEN -No TMDL] / Lower portion to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS shellfish (OPEN) condemnation # 054-021 (effective 20201115).	4A	Fecal Coliform	2002	L	0.568

Southwest Br. Back River - Mouth

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.568		

Southwest Br. Back River - Mouth

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.568		

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C07E-06-SF Lambs Creek - Poquoson River

Cause Location: This cause encompasses this south shore tributary to Poquoson R, west of Poquoson Shores. On border of Poquoson/York boundary. Between Moores Creek and Roberts Cr to east. CBP Segment MOBPH.

Cause City/County: Poquoson City

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on DSS Condemnation # 053-137 C (effective 20180425). This AU (part of Lambs Cr) was delisted in 2016 for Fecal Coliform - C07E-06-SF (1998).

Lambs Creek is covered under TMDL for Poquoson River - Lambs Creek [EPA approved 8/2/2006, VAT-C07E-06-SF for Fecal Coliform [31190] 8/2/2006, modified 3/19/2014.].

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_PUN01A06 / Pungoteague Creek - Upper / W of Melfa. Upper portion of Pungoteague Cr. from the end of tidal waters downstream to Boggs Wharf and Route 634. CBP segment CB7PH. DSS condemnation # 081-119 B (effective 20200518).	4A	Fecal Coliform	1998	L	0.232
VAT-C12E_WRP02A06 / Warehouse Prong - Lower / Located north of Bobtown and east of Boggs Wharf. Lower portion, from confluence with UT downstream to confluence with Pungoteague Cr. Portion of CBP segment CB7PH. DSS (Admin Cond) condemnation # 081-119 B (effective 20200518).	4A	Fecal Coliform	2022	L	0.054

Pungoteague Creek - Upper, Warehouse Prong- Lower

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.286		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C12E-11-SF Taylor Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 081-119 C 20200518.

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS shellfish condemnation # 081-119 C effective date 20200518. The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation which is present. Covered under TMDL (25416) "Taylor Creek" for VAT-C12E-03-SF (EPA approved 6/7/06).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_TAY01A06 / Taylor Creek / Located southwest of Harborton. From the end of tidal waters downstream Route 628 and Eastern Shore Yacht Club. Portion of CBP segment CB7PH. Portion of DSS condemnation # 081-119 C (effective 20200518).	4A	Fecal Coliform	1998	L	0.13

Taylor Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.13		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C12E-12-SF** Underhill Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 081-119 A (effective 20200518).

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS condemnation # 081-119 A (effective 20200518). Covered under TMDL (25416) "Taylor Creek" for VAT-C12E-03-SF (EPA approved 6/7/06).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_UNR01A06 / Underhill Creek / In area of Mount Nebo. North shore tributary to Pungoteague Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 081-119 A (effective 20200518).	4A	Fecal Coliform	2006	L	0.07

Underhill Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.07		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C12E-13-SF** Taylor Creek- Mouth

Cause Location: Located southwest of Harborton. From Route 628 and Eastern Shore Yacht Club to Puncoteague confluence. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 &M1 (effective 20180321).

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on Restricted-condemnation # 081-119 M1 (effective 20180321).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_TAY02A14 / Taylor Creek- Mouth / Located southwest of Harborton. From Route 628 and Eastern Shore Yacht Club to Puncoteague confluence. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 C (effective 20200518).	4A	Fecal Coliform	2020	L	0.033

Taylor Creek- Mouth

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.032		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C12E-14-SF** **Upper Warehouse Prong**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 081-119 B (effective 20200518).

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS condemnation# 081-119 B (effective 20200518).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_WRP01A06 / Warehouse Prong - Upper / Located north of Bobtown and east of Boggs Wharf. Upper portion, from headwaters to confluence with UT. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 B (effective 20200518).	4A	Fecal Coliform	2022	L	0.042

Upper Warehouse Prong

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.042		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C12R-01-BEN** Taylor Creek

Cause Location: This cause encompasses the riverine portion of Taylor Creek, from the point where stream forks north of Rt 180 downstream to the confluence of UT below Rt 178.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is due to monitored impacts to the stream's benthic population. Assessment is based on biological benthic monitoring with VCPMI [2020: S=18 F= 25 2013: S=17.3 & 2010: S=11.9, F=9.7] at Station 7-TAY003.11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12R_TAY01A04 / Taylor Creek / Located east of Town of Pungoteague. From point where stream forks north of Rt 180 downstream to confluence of UT below Rt 178.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	0.91

Taylor Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.91

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C12R-02-BEN Bull Branch

Cause Location: This cause encompasses the riverine portion of Bull Branch, from headwaters near Rt 609 (Accomack Co. Airport) downstream to confluence with eastern prong of upper Pungoteague Creek.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained for the 2014 IR due to impacts to the stream's benthic population. Benthic impairment assessment is based on biological benthic monitoring noting MI [MI: S&F-03, S-04; SI: F-04] at DEQ (BIO) station @ 7-BBR001.31.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12R_BBR01A08 / Bull Branch / Located east of Town of Pungoteague. Eastern tributary to upper eastern prong of Pungoteague Cr. From headwaters near Rt 609 (Accomack Co. Airport) downstream to confluence with eastern prong of upper Pungoteague Cr.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.25

Bull Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.25

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C12R-03-BAC Taylor Creek

Cause Location: Located east of Town of Pungoteague. From point where stream forks north of Rt 180 downstream to confluence of UT below Rt 178.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use impairment is retained current data is insufficient to assess with one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Impairment listing based on E. coli data (4 exc / 12 obs) collected @ Station 7-TAY003.11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12R_TAY01A04 / Taylor Creek / Located east of Town of Pungoteague. From point where stream forks north of Rt 180 downstream to confluence of UT below Rt 178.	5A	Escherichia coli (E. coli)	2020	L	0.91

Taylor Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.91

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13E-02-BAC** Nassawadox Creek - Lower

Cause Location: This cause encompasses the lower mainstem of Nassawadox Creek. Portion of CBP segment CB7PH.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus bacteria data which has 2 or more STV hits in the same 90-day period with <10 samples at DEQ (AQM) station @ 7-NSS001.62. This segment is covered under revised TMDL for “Nassawadox Creek Watershed” (33777) EPA approved 8/15/2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS02A06 / Nassawadox Creek - Lower / Mainstem of lower portion of creek to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 & 085-185 (effective 20191115).	4A	Enterococcus	2008	L	2.121

Nassawadox Creek - Lower

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	2.121		

Sources: Agriculture; Animal Feeding Operations (NPS); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-11-SF Church Creek -Upper

Cause Location: This cause encompasses the area of Elliotts Neck. Tributary to Nassawadox Creek, upstream portion of Church Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115). Previous Use ID (2006 IR) as TMDL ID: VAT-C13E-11. TMDL for “Nassawadox Creek Watershed” (33777) EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CHC01B16 / Church Creek -Upper / In area of Elliotts Neck. Tributary to Nassawadox Creek, upstream portion of Church Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115).	4A	Fecal Coliform	2016	L	0.165

Church Creek -Upper

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	0.165		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-11-SF2 Church Creek - Middle, UT North and South Cove

Cause Location: This cause encompasses the area of Elliotts Neck. Tributary to Church Creek - Middle, UT North & South Coves. Portion of CBP segment.

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 085-185 A & D (effective 20191115). Impairment included in revised TMDL for "Nassawadox Creek Watershed" (33777) EPA approved 9/20/2007, 2/1/2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CHC01C10 / Church Creek - Middle-UT North Cove / In area of Elliotts Neck. Tributary to Church Creek - Middle, UT North Cove. Portion of CBP segment CB7PH. DSS shellfish harvesting condemnation # 085-185 A (effective 20191115).	4A	Fecal Coliform	2004	L	0.059
VAT-C13E_CHC01D22 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted # 085-185 D (effective 20191115).	4A	Fecal Coliform	2022	L	0.050

Church Creek - Middle, UT North and South Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.109		

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13E-12-SF** Craddock Creek - Upper [TMDL-bact.]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 085-110 A (effective 20121210).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS shellfish direct harvesting condemnation # 083-195 A (effective 20121210). Previous Use ID (2006 IR) as TMDL ID: VAT-C13E-12.

Covered under TMDL for "Craddock Creek" (25417) EPA approved 6/7/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CRA01A06 / Craddock Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to end of shellfish condemnation (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 083-195 A (effective 20121210).	4A	Fecal Coliform	1998	L	0.082

Craddock Creek - Upper [TMDL-bact.]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.082		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-13-SF Holly Grove Cove- Upper and Kelley Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 085-110 B &E (effective 20201115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS shellfish direct harvesting condemnation # 085-110 B&E (effective 20201115). Previous Use ID (2006 IR) as TMDL ID: VAT-C13E-13. Covered under TMDL for "Nassawadox Creek Watershed" (33777) EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_HGC01A06 / Holly Grove Cove- Upper / Located near Wellington Neck. From end of tidal waters downstream to mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-110 E (effective 20201115).	4A	Fecal Coliform	1998	L	0.143
VAT-C13E_KLL01A06 / Kelley Cove / From end of tidal waters downstream to confluence with Nassawadox Cr. (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Fecal Coliform	1998	L	0.026

Holly Grove Cove- Upper and Kelley Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.168		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13E-14-SF** Nassawadox Creek - Upper [TMDL-bact.]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 085-110 B(effective 20201115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS shellfish direct harvesting condemnation # 085-110 B(effective 20201115). Covered under TMDL for "Nassawadox Creek Watershed" (33777) EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS01A06 / Nassawadox Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to confluence with Kelly Cove (RM 5.2) area of TMDL-bact 6/07. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Fecal Coliform	1998	L	0.205

Nassawadox Creek - Upper [TMDL-bact.]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.205		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-15-SF Occohannock Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation# 084-043 A (effective 20190107).

Cause City/County: Accomack County; Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS condemnation# 084-043 A (effective 20190107). Covered under TMDL for “Occohannock Creek” (38189) EPA approved 6/7/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_OCH01A06 / Occohannock Creek - Upper / Upper portion of Occohannock Creek and tidal tribs., from end of tidal waters downstream to Creekside Dr at end of SF restricted area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 A (effective 20201215).	4A	Fecal Coliform	1998	L	0.538

Occohannock Creek - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.538		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-18-SF McLean Gut

Cause Location: This cause encompasses the middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 082-160 B (effective 20200515).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting based on the DSS shellfish direct harvesting condemnation # 082-160 (effective 20200515). The EPA approved TMDL (6/7/2006) for Nandua & Currituck Cr includes most of the impaired area excluding the mouth. The mouth of McLean will be nested in 2022 based on similar land use and reductions proposed in the TMDL. No additional point sources.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_MAG01A08 / McLean Gut - Upper / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Fecal Coliform	1998	L	0.038
VAT-C13E_MAG02A08 / McLean Gut - Lower / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Fecal Coliform	2022	L	0.032

McLean Gut

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.069		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13E-19-SF** Nandua Creek - Upper [TMDL-bact.]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 082-160 A & C (effective 20200515).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation # 082-160 A & C (effective 20200515). Previous Use ID (2006 IR) as TMDL ID: VAT-C13E-19

Covered under TMDL for “Nandua and Currituck Creeks” (25419) EPA approved 6/7/2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NAN01A00 / Nandua Creek - Upper [TMDL-bact.] / Southeast of Hacks Neck area. The two most upstream branches of Nandua Creek, incl. Kusian Cove. Portion of CBP segment CB7PH. DSS condemnation # 082-160 A&C (effective 20200515).	4A	Fecal Coliform	1998	L	0.144

Nandua Creek - Upper [TMDL-bact.]

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.144		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-20-SF Nassawadox Creek - Middle, N. Shore Tribs

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 085-110 A & C (effective 20201115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation # 085-110 A & C (effective 20201115). Covered under revised TMDL for “Nassawadox Creek Watershed” (68338) EPA approved 8/5/2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS03A08 / Nassawadox Creek - Middle, N. Shore Tribs / Occohannock Neck Area. North Shore UTs to lower-middle mainstem Nassawadox. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 A & C(effective 20201115).	4A	Fecal Coliform	2008	L	0.126

Nassawadox Creek - Middle, N. Shore Tribs

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.126		

Sources: Agriculture; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-22-SF Shields Cove and Fisher Cove

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 084-043 B & C (effective 20190107).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation # 084-043 B & C (effective 20190107).

Not covered under TMDL for "Occohannock" (38189) EPA approved 6/7/2006). However will nest since SF impairment is within tidal range of Occohannock Creek TMDL, newly impaired segments are comparable and all existing sources are accounted for in the TMDL. (NESTED 2014: 38189, 6/7/2006.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_OCH03A08 / Shields Cove & Fisher Cove / West of Belle Haven area. North and South shore tributaries of Occohannock Cr., NW of Youngs Pt. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 B & C (effective 20201215).	4A	Fecal Coliform	2008	L	0.087

Shields Cove and Fisher Cove

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.087		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C13E-23-SF Boggs Gut

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 082-160 D (effective 20200515)

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/5B

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation # 082-160 D (effective 20200515). No TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_BOS01A08 / Boggs Gut / Southwest of Fairview Neck area. South shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 D (effective 20200515)	5B	Fecal Coliform	2022	L	0.034

Boggs Gut

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.034		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13E-24-EBEN** Church Creek

Cause Location: This cause encompasses the lower mainstem area of Church Creek, a tributary to Nassawadox Creek.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Aquatic Life Use is not supporting based on station 7BCCR000.74 2020 benthic WoE data. WoE analysis listed as impaired with a category 5A. Station data suggests strong evidence for pollution induced degradation.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CHC01A00 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting OPEN # 085-185 (effective 20191115).	5A	Estuarine Bioassessments	2022	L	0.323

Church Creek

Aquatic Life	<table> <tr> <td style="text-align: center;">Estuarine Bioassessments - Total Impaired Size by Water Type:</td> <td style="text-align: center;">0.323</td> </tr> </table>	Estuarine Bioassessments - Total Impaired Size by Water Type:	0.323
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.323		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C13R-01-BEN** Taylor Branch - Occohannock Creek

Cause Location: This cause encompasses Taylor Branch, from the confluence of two branches upstream of station downstream to the confluence with Occohannock Creek.

Cause City/County: Accomack County; Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired due to impacts to the stream's benthic population. Assessment is based on biological benthic monitoring in 2010 using VCPMI scoring [2010_IM: S=11.9, F=9.7] at DEQ (BIO) station @ 7-TLR000.75.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13R_TLR01A08 / Taylor Branch - Occohannock Cr. / West of Painter. Tributary to most upstream portion of Occohannock Creek, west of Town of Painter. From confluence of two branches upstream of station downstream to the confluence with Occohannock Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.32

Taylor Branch - Occohannock Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.32

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C14E-01-BAC Hungars Creek - Upper

Cause Location: This cause encompasses the upper portion of Hungars Creek from end tidal waters downstream to Waterford Point (RM 1.8) @ confluence with Jacobus Creek.

Cause City/County: Northampton County

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Fecal Coliform impairment is retained from the 2006 IR as there is insufficient Enterococci bacteria data to verify the assessment status. No STV exceedances but insufficient data to analyze geomean data from station 7-HUG004.40.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_HUG01A00 / Hungars Creek - Upper / Upper portion of Hungars Creek from end tidal waters downstream to end of TMDL boundary near Holloway Dr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A (effective 20200915).	4A	Fecal Coliform	1998	L	0.058
VAT-C14E_HUG01B22 / Hungars Creek - Upper / Upper portion of Hungars Creek from end of TMDL boundary near Holloway Dr to start of open shellfish area near Park Ln. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A & S195 (effective 20200915).	4A	Fecal Coliform	1998	L	0.080

Hungars Creek - Upper

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.138		

Hungars Creek - Upper

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.138		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C14E-11-SF Hungars Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 086-136 A, 20200915.

Cause City/County: Northampton County

Use(s): Recreation; Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish Restricted direct harvesting condemnation # 086-136 A effective 20200915.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_HUG01A00 / Hungars Creek - Upper / Upper portion of Hungars Creek from end tidal waters downstream to end of TMDL boundary near Holloway Dr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A (effective 20200915).	4A	Fecal Coliform	1998	L	0.058
VAT-C14E_HUG01B22 / Hungars Creek - Upper / Upper portion of Hungars Creek from end of TMDL boundary near Holloway Dr to start of open shellfish area near Park Ln. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A & S195 (effective 20200915).	4A	Fecal Coliform	1998	L	0.080

Hungars Creek - Upper

Recreation

	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.138	Reservoir (Acres)	River (Miles)
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Hungars Creek - Upper

Shellfishing

	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.138	Reservoir (Acres)	River (Miles)
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Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C14E-13-SF Mattawoman Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation# 086-136 S48 & D (effective 20200915).

Cause City/County: Accomack County; Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to DSS shellfish direct harvesting condemnation. The Shellfishing Use is impaired based on the DSS restricted and seasonal shellfish harvesting condemnation which is present. TMDL 38541 EPA Approved 5/6/2010; SWCB Approved 9/30/2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_MAT01A06 / Mattawoman Creek - Upper / South of Wilsonia Neck. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 D & S48 (effective 20200915).	4A	Fecal Coliform	2006	L	0.155

Mattawoman Creek - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.155		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C14E-14-SF** **The Gulf - Upper**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 087-174 A (effective 20150827).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: DSS shellfish direct harvesting condemnation # 087-174 A (effective 20150827). The Shellfishing Use is impaired due to the DSS shellfish harvesting condemnation which is present. Previous Use ID (2006 IR) as TMDL ID: VAT-C14E-14. This impairment is covered under TMDL for “The Gulf” (33770) VAT-C14E-14-SF, EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_THG01A06 / The Gulf - Upper / From end of tidal waters downstream to narrowing 0.45 mi. from mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 087-174 A (effective 20150827).	4A	Fecal Coliform	1998	L	0.09

The Gulf - Upper

Shellfishing		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.09		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C14E-16-SF Westerhouse Creek - Upper and Middle South Branch [TMDL]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 085-199 A (effective 20181115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Portion DSS shellfish direct harvesting condemnation # 085-199 A (effective 20181115). Previous Use ID (2006 IR) as TMDL ID: VAT-C14E-16.

Covered under TMDL for "Nassawadox Creek Watershed" (33777) EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_WHS02A06 / Westerhouse Creek - Upper South Branch [TMDL] / In Church Neck area, west of Bridgetown. Upper portion of Westerhouse Creek South Branch. Portion of CBP segment CB7PH. Portion DSS shellfish direct harvesting condemnation # 085-199 A (effective 20181115).	4A	Fecal Coliform	1998	L	0.019

Westerhouse Creek - Upper and Middle South Branch [TMDL]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.019		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C14E-18-SF UT to Hungars Creek

Cause Location: This cause encompasses the Northern trib between Great Neck and Sparrow Point. Restricted portion of SF. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).

Cause City/County: Accomack County; Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Shellfish Use is impaired based on DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).

2016 nested under TMDL for “Hungars Creek Watershed” (34370) EPA approved 4/30/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_HUG02B12 / UT to Hungars Creek / Northern trib between Great Neck and Sparrow Point. Restricted portion of SF. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).	4A	Fecal Coliform	2012	L	0.039

UT to Hungars Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.038		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C14E-20-SF** Upper Westerhouse Creek - North Branch and Upper Middle [TMDL]

Cause Location: In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted-condemnation # 085-199 (20181115).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is now impaired based on the DSS shellfish direct harvesting Restricted-condemnation # 085-199 (effective 20181115).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_WHS03A20 / Upper Westerhouse Creek - North Branch& Upper Middle [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted-condemnation # 085-199 (20181115).	4A	Fecal Coliform	2020	L	0.03

Upper Westerhouse Creek - North Branch and Upper Middle [TMDL]

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.03		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C15E-10-SF Kings Creek - Upper Forks and Middle

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation# 088-139 A (effective 20180821).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation # 088-139 A (effective 20180821). Previous Use ID (2006 IR) as TMDL ID: VAT-C15E-10. This impairment is covered under TMDL for “Cherrystone Inlet” which includes Kings Creek (33772) VAT-C15E-10-SF, EPA approved 9/20/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C15E_KNS01A00 / Kings Creek - Upper Forks and Middle / From end of tidal waters downstream 0.16 mi. past confluence of the two most upstream forks. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 088-139 A (20180821).	4A	Fecal Coliform	1998	L	0.093

Kings Creek - Upper Forks and Middle

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.092		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **C16E-10-SF** Old Plantation Creek - Upper [TMDL]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 090-152 A (effective 20190815).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to the DSS shellfish harvesting condemnation # 090-152 A (effective 20190815). This impairment is covered under TMDL for “Old Plantation and Elliot Creeks” (33772) VAT-C16E-10-SF, EPA approved 8/30/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C16E_OPC01A06 / Old Plantation Creek - Upper [TMDL-bact] / Upper portion of Old Plantation Creek within TMDL-Bact (33771). CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Fecal Coliform	1998	L	0.044

Old Plantation Creek - Upper [TMDL]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.044		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: C16E-10-SF2 Old Plantation Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 090-152 A,B,C 12/22/2015.

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting due to the DSS shellfish harvesting condemnation # 090-152 A,B,C (effective 20151222). This impairment is NOT covered under TMDL for “Old Plantation and Elliot Creeks” (33771) VAT-C16E-10-SF, EPA approved 8/30/2007. However the impairment was nested in 2014 IR since SF impairment is within tidal range of Old Plantation and Elliot Creeks TMDL, newly impaired segments are comparable and all existing sources are accounted for in the TMDL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C16E_OPC01B08 / Old Plantation Creek - Upper [No TMDL-bact] / Upper portion of Old Plantation Creek and one southeast embayment not within TMDL-Bact (33771). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Fecal Coliform	2008	L	0.152

Old Plantation Creek - Upper

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary	Reservoir	River
		(Sq. Miles)	(Acres)	(Miles)
		0.152		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB5MH-DO-BAY** Chesapeake Bay segment **CB5MH-VA**

Cause Location: This area encompasses the complete CBP segment CB5MH_VA.

Cause City/County: Chesapeake Bay - County Not Applicable; Lancaster County; Northumberland County

Use(s): Aquatic Life; Deep-Channel Seasonal Refuge; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. These criteria are based on segment-wide dissolved oxygen and submerged aquatic vegetation criteria.

In the 2020 cycle, CB5MH failed the 30-day summer Open Water dissolved oxygen criteria. The rest-of-year 30-day mean criteria was met and there is insufficient information to assess other frequencies.

The estuary passes both the summer and rest-of-year criteria in the 2022 cycle and the subuse will be partially delisted.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, CB5MH is considered Category 2C.

Applicable portions of the mesohaline Chesapeake Bay estuary and applicable small tributaries fail the Deep Water- and Deep Channel dissolved oxygen criteria (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-CB5 / Chesapeake Bay - VA portion of CBP Segment CB5MH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment CB5MH, located in the northern part of the Virginia mainstem Bay from the mouth of the Rappahannock River and northward. HUC: 02080101.	4A	Dissolved Oxygen	2004	L	185.846
VAP-C01E_ANT01C08 / Antipoison Creek, UT / Described in VDH-DSS condemnation notice 017-188B, 11/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.013
VAP-C01E_ANT02A08 / Antipoison Creek / Downstream of condemnation notice 017-188, 11/15/2020 not otherwise segmented. Merged in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.325
VAP-C01E_ASH01A10 / Ashleys Cove / Described in VDH-DSS condemnation 016-024D, 1/28/2005 CB5MH	4A	Dissolved Oxygen	2016	L	0.056
VAP-C01E_BAL01A02 / Ball Creek / Portion of VDH condemnation notice 014-124B, 6/2/1997 open in 014-124, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.010
VAP-C01E_BAL02A02 / Ball Creek / From VDH-DSS Condemnation 124B, 6/2/1997, downstream to its mouth. CB5MH	4A	Dissolved Oxygen	2020	L	0.128

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BEL01A08 / Bells Creek / Described in VDH condemnation 016-057B, 12/13/2006. CB5MH	4A	Dissolved Oxygen	2002	L	0.042
VAP-C01E_BLA01B22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-089S181, 6/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.016
VAP-C01E_BLS01A02 / Balls Creek / Described in VDH-DSS condemnation notice 89B, 5/28/1997. CB5MH	4A	Dissolved Oxygen	2006	L	0.064
VAP-C01E_BLS02A08 / Balls Creek / Portion of condemnation notice 013-089F, 6/15/2020 not included in 89B, 5/28/1997. Size reduced in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2006	L	0.042
VAP-C01E_BLS03A22 / Balls Creek / Described in VDH-DSS Condemnation 013-089S179, 6/15/2020 CB5MH	4A	Dissolved Oxygen	2006	L	0.022
VAP-C01E_BMS01A12 / Bush Mill Stream / Tidal limit to mouth at Great Wicomico River CB5MH	4A	Dissolved Oxygen	2020	L	0.095
VAP-C01E_BRS01A08 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. Split in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2008	L	0.194
VAP-C01E_BRS01B20 / Barnes Creek / Portion of VDH-DSS condemnation 12/13/2006 open on 016-057, 11/15/2020. CB5MH	4A	Dissolved Oxygen	2008	L	0.023
VAP-C01E_BRS01C20 / Barnes Creek / Described in VDH-DSS condemnation 016-057B, 11/15/2020. Shrank in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2008	L	0.062
VAP-C01E_BRS01D22 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. CB5MH	4A	Dissolved Oxygen	2008	L	0.031
VAP-C01E_CLE02A06 / Cloverdale Creek / Downstream of condemnation notice 014-124A, 6/2/1997. CB5MH	4A	Dissolved Oxygen	2020	L	0.056
VAP-C01E_COC01A98 / Cockrell Creek / As described in VDH-DSS Shellfish Condemnation 012-002B, 8/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.612

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COC03A98 / Cockrell Creek / Described in the condemnation notice. VDH-DSS SFC 012-002C, 8/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.035
VAP-C01E_COC04A20 / Cockrell Creek / Portion of VDH-DSS Condemnation Notice 012-002A, 9/22/2005 open 8/15/2020 CB5MH	4A	Dissolved Oxygen	2020	L	0.202
VAP-C01E_COC04B10 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002A, 8/15/2020 CB5MH	4A	Dissolved Oxygen	2020	L	0.198
VAP-C01E_COC04C22 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002S194, 8/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.070
VAP-C01E_COC05A06 / Cockrell Creek / From VDH-DSS SFC 012-002A, 9/22/2005 downstream to mouth at Fleet Point. CB5MH	4A	Dissolved Oxygen	2020	L	0.152
VAP-C01E_DIV01A98 / Dividing Creek / Described in VDH-DSS condemnation 015-022A, 6/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.091
VAP-C01E_DIV01B12 / Dividing Creek / Portion of VDH-DSS condemnation 022, 2/27/1997 open on 015-022, 6/15/2020. Size reduced in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2016	L	0.138
VAP-C01E_DIV03A00 / Dividing Creek / From the downstream limit of VDH-DSS SFC 022, 2/27/1997, to the mouth at Chesapeake Bay. CB5MH	4A	Dissolved Oxygen	2006	L	0.816
VAP-C01E_DYM01A98 / Dymer Creek / Described in VDH-DSS condemnation notice 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek. CB5MH	4A	Dissolved Oxygen	2020	L	0.190
VAP-C01E_DYM01B14 / Dymer Creek / Portion of VDH-DSS SFC 016-024A 1/28/2005 not condemned on 11/15/2020. Expanded in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.110
VAP-C01E_DYM02A00 / Dymer Creek / Dymer Creek downstream of VDH-DSS SFC 016-024A 1/28/2005 unless otherwise segmented. Size increased in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2016	L	0.665

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DYM02B20 / Georges Cove / Portion of 016-024S114, 11/15/2020 not located within VDH-DSS SFC 016-024A or -E, 1/28/2005. Size reduced in the 2022 cycle and is now limited to Georges Cove. CB5MH	4A	Dissolved Oxygen	2016	L	0.020
VAP-C01E_FLB01A00 / Fleets Bay / Fleets Bay north of Bluff Point at Barnes Creek south to Fleets Island. CB5MH Size adjusted in 2006 cycle.	4A	Dissolved Oxygen	2002	L	5.177
VAP-C01E_GEO01A98 / Georges Cove / Portion of condemnation notice 016-024E, 1/28/2005 not closed 11/15/2020. CB5MH	4A	Dissolved Oxygen	2016	L	0.016
VAP-C01E_GEO01B20 / Georges Cove / Described in condemnation notice 016-024B, 1/15/2020. CB5MH	4A	Dissolved Oxygen	2016	L	0.018
VAP-C01E_GOU01A06 / Gougher Creek / Described in VDH-DSS Shellfish Condemnation 013-220S84, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2006	L	0.036
VAP-C01E_GWR01A98 / Great Wicomico River / Portion of condemnation notice 013-089A, 6/15/2020 which is not administratively closed, excluding Head River Branch and Bush Mill Stream CB5MH	4A	Dissolved Oxygen	2020	L	0.232
VAP-C01E_GWR01B08 / Great Wicomico River / Portion of VDH-DSS condemnation 013-089S182, 6/15/2020 not included in 089A, 5/28/1997. Split in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2020	L	0.070
VAP-C01E_GWR01C10 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is administratively closed CB5MH	4A	Dissolved Oxygen	2020	L	0.058
VAP-C01E_GWR01D22 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is within 013-089S182, 6/15/2020 CB5MH	4A	Dissolved Oxygen	2020	L	0.036
VAP-C01E_GWR02A00 / Great Wicomico River / From VDH-DSS SFC 013-089S182, 6/15/2020 downstream to Rogue Point unless otherwise segmented. Size reduced in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2006	L	1.883

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GWR02B06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M2, 6/15/2020 CB5MH	4A	Dissolved Oxygen	2016	L	0.017
VAP-C01E_GWR02C06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M1, 6/15/2020 CB5MH	4A	Dissolved Oxygen	2006	L	0.008
VAP-C01E_GWR02D12 / Great Wicomico River / VDH-DSS Condemnation 013-089M3, 6/15/2020 CB5MH	4A	Dissolved Oxygen	2006	L	0.008
VAP-C01E_GWR02E16 / Great Wicomico River, UT / Described in VDH-DSS condemnation 013-089S82, 5/1/2018 CB5MH	4A	Dissolved Oxygen	2006	L	0.033
VAP-C01E_GWR03A06 / Great Wicomico River / From Rogue Point (GWR02A00) downstream to Ingram Bay at Dameron Marsh. CB5MH	4A	Dissolved Oxygen	2006	L	5.651
VAP-C01E_HEN02A14 / Henrys Creek / Downstream of 016-057C, 1/28/2005 CB5MH	4A	Dissolved Oxygen	2006	L	0.103
VAP-C01E_HNT01A98 / Hunts Cove / Described in the condemnation notice 016-024B, 1/28/2005. CB5MH	4A	Dissolved Oxygen	2016	L	0.040
VAP-C01E_IND01A98 / Indian Creek / Portion of VDH-DSS condemnation notice 016-057A, 11/15/2020 that is not administratively condemned. CB5MH	4A	Dissolved Oxygen	2016	L	0.331
VAP-C01E_IND01B10 / Indian Creek / Administratively condemned portion of VDH-DSS condemnation notice 016-057A, 11/15/2020. CB5MH	4A	Dissolved Oxygen	2016	L	0.037
VAP-C01E_IND01C10 / Indian Creek / Portion of condemnation notice 016-057A, 12/13/2006 seasonally condemned on 11/15/2020. CB5MH	4A	Dissolved Oxygen	2016	L	0.042
VAP-C01E_IND03A00 / Indian Creek / Indian Creek from end of condemnation 016-057A, 12/13/2006, downstream to mouth unless otherwise segmented. Expanded in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2002	L	0.595
VAP-C01E_IND03B06 / Indian Creek / Portion of VDH-DSS Seasonal Shellfish Condemnation 016-057S110, 11/15/2020 not addressed in the TMDL. Shortened and split in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2002	L	0.005

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_IND03C22 / Indian Creek / Described in VDH-DSS Condemnation 016-057M1, 11/15/2020. CB5MH	4A	Dissolved Oxygen	2002	L	0.017
VAP-C01E_JAR02A10 / Jarvis Creek / Downstream of VDH condemnations CB5MH	4A	Dissolved Oxygen	2020	L	0.200
VAP-C01E_JOH01A06 / Johnson Creek / As described in VDH-DSS SFC 016-024S112, 11/15/2020 CB5MH	4A	Dissolved Oxygen	2016	L	0.029
VAP-C01E_LTB01A02 / Little Bay / Little Bay CB5MH	4A	Dissolved Oxygen	2020	L	1.147
VAP-C01E_MIL01A98 / Mill Creek / Described in the condemnation notice 123, 6/2/1997. CB5MH	4A	Dissolved Oxygen	2020	L	0.241
VAP-C01E_MIL01B06 / Mill Creek / Mouth of Mill Creek at Ingram Bay CB5MH	4A	Dissolved Oxygen	2006	L	1.173
VAP-C01E_MIL02A08 / Mill Creek / Portion of VDH Condemnation 014-123A, 6/15/2020 not included in the notice 123, 6/2/1997. CB5MH	4A	Dissolved Oxygen	2020	L	0.027
VAP-C01E_MIL03A08 / Mill Creek / Middle Mill Creek downstream of condemnations to Ingrams Bay. CB5MH	4A	Dissolved Oxygen	2020	L	0.146
VAP-C01E_MIL03B22 / Mill Creek / Described in VDH-DSS Condemnation 014-123S150, 6/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.318
VAP-C01E_OHC01A08 / Old House Cove / Described in VDH-DSS SFC 015-022F, 5/9/2016. CB5MH	4A	Dissolved Oxygen	2020	L	0.024
VAP-C01E_PNT02A02 / Prentice Creek / Downstream of VDH-DSS condemnation 015-022, 6/15/2020 to its mouth. CB5MH	4A	Dissolved Oxygen	2016	L	0.156
VAP-C01E_PNT02B10 / Prentice Creek / Portion of VDH-DSS condemnation 015-022E, 6/15/2020 that was open on 022, 2/27/1997. CB5MH	4A	Dissolved Oxygen	2016	L	0.014
VAP-C01E_REA01A10 / Reason Creek / Described in VDH-DSS condemnation 013-220C, 8/23/2010 CB5MH	4A	Dissolved Oxygen	2020	L	0.025
VAP-C01E_TBS02A00 / Tabbs Creek / Tabbs Creek downstream of VDH-DSS Condemnation 016-133, 12/13/2006. Merged in the 2022 cycle. CB5MH	4A	Dissolved Oxygen	2006	L	0.175

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_WCO02A08 / Warehouse Creek / Portion of VDH condemnation notice 013-220A, 6/15/2020 not included in 89E, 5/28/1997 CB5MH	4A	Dissolved Oxygen	2006	L	0.008
VAP-C01E_XES01A12 / XES - Dividing Creek, UT / Described in the VDH-DSS condemnation 015-022D, 6/15/2020. CB5MH	4A	Dissolved Oxygen	2018	L	0.029
VAP-C01E_XFJ01A22 / XFJ - Mill Creek, UT (Guarding Cove) / Described in VDH-DSS Condemnation 014-123S174, 6/15/2020. CB5MH	4A	Dissolved Oxygen	2020	L	0.059
VAP-C01E_ZZZ01A22 / Unsegmented estuaries in C01 / Unsegmented estuaries in CB02 CB5MH	4A	Dissolved Oxygen	2006	L	0.371
VAP-C01E_ZZZ01B14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB03. CB5MH	4A	Dissolved Oxygen	2020	L	0.058
VAP-C01E_ZZZ01C14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB04. CB5MH	4A	Dissolved Oxygen	2020	L	0.764

Chesapeake Bay segment CB5MH-VA

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
209.696		

Chesapeake Bay segment CB5MH-VA

Deep-Channel Seasonal Refuge

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
197.89		

Chesapeake Bay segment CB5MH-VA

Deep-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
209.696		

Chesapeake Bay segment CB5MH-VA

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
209.696		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB5MH-SAV-BAY** Chesapeake Bay segment CB5MH

Cause Location: This cause encompasses the complete CBP segment CB5MH.

Cause City/County: Chesapeake Bay - County Not Applicable; Lancaster County; Northumberland County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. These criteria are based on segment-wide dissolved oxygen and submerged aquatic vegetation criteria.

Chesapeake Bay segment CB5MH is impaired of the Aquatic Life due to inadequate submerged aquatic vegetation acreage. The Submerged Aquatic Vegetation goal is 7,633 acres but only 36% was attained found in the most recent 3 years according to aerial analysis of SAV. Only 69% of the water clarity goal was met according to 2013 and 2014 Dataflow surveys.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-CB5 / Chesapeake Bay - VA portion of CBP Segment CB5MH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment CB5MH, located in the northern part of the Virginia mainstem Bay from the mouth of the Rappahannock River and northward. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	185.846
VAP-C01E_ANT01A98 / Antipoison Creek / Described in the condemnation notice 017-188A, 11/15/2020. Expanded in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.083
VAP-C01E_ANT01B08 / Antipoison Creek, UT / Described in the condemnation notice 017-188C, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAP-C01E_ANT01C08 / Antipoison Creek, UT / Described in VDH-DSS condemnation notice 017-188B, 11/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C01E_ANT02A08 / Antipoison Creek / Downstream of condemnation notice 017-188, 11/15/2020 not otherwise segmented. Merged in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.325
VAP-C01E_ASH01A10 / Ashleys Cove / Described in VDH-DSS condemnation 016-024D, 1/28/2005 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.056
VAP-C01E_BAI01A16 / Bailey Prong / Described in VDH-DSS condemnation 013-220H, 4/1/2014. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.052

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BAL01A02 / Ball Creek / Portion of VDH condemnation notice 014-124B, 6/2/1997 open in 014-124, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-C01E_BAL01B20 / Ball Creek / Described in VDH condemnation notice 014-124S152, 6/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-C01E_BAL02A02 / Ball Creek / From VDH-DSS Condemnation 124B, 6/2/1997, downstream to its mouth. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.128
VAP-C01E_BAR01A98 / Barrett Creek / Described in the condemnation notice, 013-08S80, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.066
VAP-C01E_BAR02A08 / Barrett Creek, UT / Described in VDH-DSS SFC 013-089S81, 6/15/2020 Size decreased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAP-C01E_BEL01A08 / Bells Creek / Described in VDH condemnation 016-057B, 12/13/2006. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAP-C01E_BLA01A22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-08D, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045
VAP-C01E_BLA01B22 / Blackwells Creek / Described in VDH-DSS Condemnation 013-089S181, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C01E_BLS01A02 / Balls Creek / Described in VDH-DSS condemnation notice 89B, 5/28/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.064
VAP-C01E_BLS02A08 / Balls Creek / Portion of condemnation notice 013-089F, 6/15/2020 not included in 89B, 5/28/1997. Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAP-C01E_BLS03A22 / Balls Creek / Described in VDH-DSS Condemnation 013-089S179, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-C01E_BMC01A04 / Betts Mill Creek / Described in the VDH Shellfish Condemnation 013-089B, 6/15/2020. Split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.048

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_BMC01B22 / Betts Mill Creek / Described in VDH Shellfish Condemnation 013-089S181, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-C01E_BMS01A12 / Bush Mill Stream / Tidal limit to mouth at Great Wicomico River CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.095
VAP-C01E_BRS01A08 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. Split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.194
VAP-C01E_BRS01B20 / Barnes Creek / Portion of VDH-DSS condemnation 12/13/2006 open on 016-057, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C01E_BRS01C20 / Barnes Creek / Described in VDH-DSS condemnation 016-057B, 11/15/2020. Shrank in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.062
VAP-C01E_BRS01D22 / Barnes Creek / Portion of VDH-DSS condemnation 016-057C, 12/13/2006 open in 016-057, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAP-C01E_CHA01A08 / Dymmer Creek, UT / Described in condemnation notice 016-024B, 12/30/2015. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C01E_CHA01B12 / Chases Cove / Described in VDH-DSS condemnation notice 016-024D, 12/30/2015 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C01E_CLE01A98 / Cloverdale Creek / Described in the condemnation notice 014-124A, 6/2/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C01E_CLE02A06 / Cloverdale Creek / Downstream of condemnation notice 014-124A, 6/2/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.056
VAP-C01E_COC01A98 / Cockrell Creek / As described in VDH-DSS Shellfish Condemnation 012-002B, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.612
VAP-C01E_COC03A98 / Cockrell Creek / Described in the condemnation notice. VDH-DSS SFC 012-002C, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_COC04A20 / Cockrell Creek / Portion of VDH-DSS Condemnation Notice 012-002A, 9/22/2005 open 8/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.202
VAP-C01E_COC04B10 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002A, 8/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.198
VAP-C01E_COC04C22 / Cockrell Creek / Described in VDH-DSS Condemnation Notice 012-002S194, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.070
VAP-C01E_COC05A06 / Cockrell Creek / From VDH-DSS SFC 012-002A, 9/22/2005 downstream to mouth at Fleet Point. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.152
VAP-C01E_COL01A08 / Coles Creek / Described in VDH-DSS SFC 013-089C, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAP-C01E_CRN01A06 / Cranes Creek / Described in VDH-DSS Shellfish Condemnation 013-220C, 5/1/2018 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAP-C01E_CRN01B06 / Cranes Creek / Described in VDH-DSS Shellfish Condemnation 013-220M1, 8/9/2011 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C01E_DIV01A98 / Dividing Creek / Described in VDH-DSS condemnation 015-022A, 6/15/2020. Size increased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.091
VAP-C01E_DIV01B12 / Dividing Creek / Portion of VDH-DSS condemnation 022, 2/27/1997 open on 015-022, 6/15/2020. Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.138
VAP-C01E_DIV01C14 / Dividing Creek, UT / VDH-DSS condemnation 015-022G, 5/3/2018 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-C01E_DIV03A00 / Dividing Creek / From the downstream limit of VDH-DSS SFC 022, 2/27/1997, to the mouth at Chesapeake Bay. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.816
VAP-C01E_DVN01A04 / Davenport Creek / Described in VDH Shellfish Condemnation 017-188A, 5/12/2012. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_DYM01A98 / Dymer Creek / Described in VDH-DSS condemnation notice 016-024A, 11/15/2020 and portion of 016-024D, 11/15/2020 within mainstem Dymer Creek. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.190
VAP-C01E_DYM01B14 / Dymer Creek / Portion of VDH-DSS SFC 016-024A 1/28/2005 not condemned on 11/15/2020. Expanded in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.110
VAP-C01E_DYM02A00 / Dymer Creek / Dymer Creek downstream of VDH-DSS SFC 016-024A 1/28/2005 unless otherwise segmented. Size increased in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.665
VAP-C01E_DYM02B20 / Georges Cove / Portion of 016-024S114, 11/15/2020 not located within VDH-DSS SFC 016-024A or -E, 1/28/2005. Size reduced in the 2022 cycle and is now limited to Georges Cove. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C01E_FLB01A00 / Fleets Bay / Fleets Bay north of Bluff Point at Barnes Creek south to Fleets Island. CB5MH Size adjusted in 2006 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	5.177
VAP-C01E_GEO01A98 / Georges Cove / Portion of condemnation notice 016-024E, 1/28/2005 not closed 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C01E_GEO01B20 / Georges Cove / Described in condemnation notice 016-024B, 1/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C01E_GOU01A06 / Gougher Creek / Described in VDH-DSS Shellfish Condemnation 013-220S84, 6/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.036
VAP-C01E_GSK01A10 / Gaskin Pond / As described in VDH-DSS condemnation 011-122A, 8/15/2020. Segment split in the 2022 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	0.076
VAP-C01E_GSK01B22 / Gaskin Pond / As described in VDH-DSS condemnation 011-122S189, 8/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_GWR01A98 / Great Wicomico River / Portion of condemnation notice 013-089A, 6/15/2020 which is not administratively closed, excluding Head River Branch and Bush Mill Stream CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.232
VAP-C01E_GWR01B08 / Great Wicomico River / Portion of VDH-DSS condemnation 013-089S182, 6/15/2020 not included in 089A, 5/28/1997. Split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.070
VAP-C01E_GWR01C10 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is administratively closed CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAP-C01E_GWR01D22 / Great Wicomico River / Portion of condemnation notice 089A, 5/28/1997 which is within 013-089S182, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.036
VAP-C01E_GWR02A00 / Great Wicomico River / From VDH-DSS SFC 013-089S182, 6/15/2020 downstream to Rogue Point unless otherwise segmented. Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	1.883
VAP-C01E_GWR02B06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M2, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAP-C01E_GWR02C06 / Great Wicomico River / As described in VDH-DSS Shellfish Condemnation 013-089M1, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAP-C01E_GWR02D12 / Great Wicomico River / VDH-DSS Condemnation 013-089M3, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAP-C01E_GWR02E16 / Great Wicomico River, UT / Described in VDH-DSS condemnation 013-089S82, 5/1/2018 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAP-C01E_GWR03A06 / Great Wicomico River / From Rogue Point (GWR02A00) downstream to Ingram Bay at Dameron Marsh. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	5.651
VAP-C01E_GWR03B16 / Great Wicomico River / Described in VDH-DSS condemnation 013-220D, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.004
VAP-C01E_HAP01B10 / Harpers Creek / Described in VDH-DSS Condemnation 017-188E, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.022

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_HAV01A08 / Harveys Creek / Described in VDH Shellfish Condemnation 014-123C, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045
VAP-C01E_HEN01A00 / Henrys Creek / Described in VDH condemnation 016-057C, 11/15/2020. Expanded in the 2020 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAP-C01E_HEN01B14 / Henrys Creek / Portion of VDH condemnation 016-057C, 1/28/2005 open on 11/15/2020. Merged in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-C01E_HEN02A14 / Henrys Creek / Downstream of 016-057C, 1/28/2005 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.103
VAP-C01E_HHB01A98 / Horn Harbor / Described in the condemnation notice 013-089S183, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.071
VAP-C01E_HNT01A98 / Hunts Cove / Described in the condemnation notice 016-024B, 1/28/2005. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.040
VAP-C01E_HRB01A12 / Head River Branch / Tidal limit to mouth at Bush Mill Stream. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C01E_IND01A98 / Indian Creek / Portion of VDH-DSS condemnation notice 016-057A, 11/15/2020 that is not administratively condemned. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.331
VAP-C01E_IND01B10 / Indian Creek / Administratively condemned portion of VDH-DSS condemnation notice 016-057A, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.037
VAP-C01E_IND01C10 / Indian Creek / Portion of condemnation notice 016-057A, 12/13/2006 seasonally condemned on 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAP-C01E_IND02A98 / Indian Creek / Described in the condemnation notice 016-057E, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C01E_IND03A00 / Indian Creek / Indian Creek from end of condemnation 016-057A, 12/13/2006, downstream to mouth unless otherwise segmented. Expanded in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.595

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_IND03B06 / Indian Creek / Portion of VDH-DSS Seasonal Shellfish Condemnation 016-057S110, 11/15/2020 not addressed in the TMDL. Shortened and split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAP-C01E_IND03C22 / Indian Creek / Described in VDH-DSS Condemnation 016-057M1, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAP-C01E_JAR01A02 / Jarvis Creek, UT / Described in VDH-DSS condemnation notice 015-022H, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAP-C01E_JAR01B08 / Jarvis Creek / As described in VDH-DSS condemnation 015-022C, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C01E_JAR02A10 / Jarvis Creek / Downstream of VDH condemnations CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.200
VAP-C01E_JOH01A06 / Johnson Creek / As described in VDH-DSS SFC 016-024S112, 11/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C01E_LEE01A02 / Lees Cove / As described in the condemnation notice 016-024C, 1/28/2005 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C01E_LEE02A12 / Lees Cove / Portion of VDH-DSS SFC 016-024C, 11/15/2020 not impaired in 016-024C, 1/28/2005. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-C01E_LOC01A08 / Long Creek / Described in VDH condemnation 016-057D, 12/13/2006. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAP-C01E_LRC01A12 / Lawrence Cove / Described in the VDH-DSS condemnation 015-022B, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.087
VAP-C01E_LTB01A02 / Little Bay / Little Bay CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	1.147
VAP-C01E_LTM01A98 / Little Taskmakers Creek / Described in the condemnation notice 011-190S192, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAP-C01E_LTM01B22 / Little Taskmakers Creek / Portion of VDH condemnation notice 190, 4/13/1993 that is not included in 011-190, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C01E_MIL01A98 / Mill Creek / Described in the condemnation notice 123, 6/2/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.241

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_MIL01B06 / Mill Creek / Mouth of Mill Creek at Ingram Bay CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	1.173
VAP-C01E_MIL02A08 / Mill Creek / Portion of VDH Condemnation 014-123A, 6/15/2020 not included in the notice 123, 6/2/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-C01E_MIL03A08 / Mill Creek / Middle Mill Creek downstream of condemnations to Ingrams Bay. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.146
VAP-C01E_MIL03B22 / Mill Creek / Described in VDH-DSS Condemnation 014-123S150, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.318
VAP-C01E_NPC01A16 / Natty Point Cove / Described in VDH-DSS condemnation 015-022C, 5/3/2018. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C01E_OHC01A08 / Old House Cove / Described in VDH-DSS SFC 015-022F, 5/9/2016. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAP-C01E_OWP01A98 / Owens Pond / Downstream of VDH-DSS condemnation 011-122, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.076
VAP-C01E_OWP02B12 / Owens Pond / Described in VDH-DSS condemnation 011-122S191, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.037
VAP-C01E_OWP02C12 / Owens Pond / VDH-DSS condemnation 011-122S190, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.073
VAP-C01E_OYS01A08 / Oyster Creek / Described in VDH condemnation 018-053A, 1/4/2005 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.103
VAP-C01E_PEN01A12 / Penny Creek / Described in VDH-DSS Condemnation 013-220S85, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-C01E_PNT02A02 / Prentice Creek / Downstream of VDH-DSS condemnation 015-022, 6/15/2020 to its mouth. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.156
VAP-C01E_PNT02B10 / Prentice Creek / Portion of VDH-DSS condemnation 015-022E, 6/15/2020 that was open on 022, 2/27/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-C01E_PNT02C22 / Prentice Creek, UT / Described in VDH-DSS condemnation 015-022F, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.004

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_PNT03A02 / Prentice Creek / Described in VDH-DSS condemnation notice 022D, 2/27/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C01E_REA01A10 / Reason Creek / Described in VDH-DSS condemnation 013-220C, 8/23/2010 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-C01E_TBS01A98 / Tabbs Creek / Described in VDH-DSS condemnation notice 016-133A, 11/15/2020 Size reduced in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.180
VAP-C01E_TBS01B10 / Tabbs Creek / Portion of VDH-DSS condemnation notice 016-133A, 12/13/2006 seasonally condemned in 016-133, 11/15/2020. Split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-C01E_TBS01C22 / Tabbs Creek / Portion of the condemnation notice 016-133A, 12/13/2006 open on 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C01E_TBS02A00 / Tabbs Creek / Tabbs Creek downstream of VDH-DSS Condemnation 016-133, 12/13/2006. Merged in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.175
VAP-C01E_TIP01A98 / Tipers Creek / Described in VDH-DSS condemnation notice 013-089E, 6/15/2020 Split in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.052
VAP-C01E_TIP01B22 / Tipers Creek / Portion of VDH-DSS condemnation notice 89C, 5/28/1997 included in 013-089S178, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAP-C01E_TIP02A08 / Tipers Creek / Portion of condemnation notice 013-089S178, 6/15/2020 not included in 89C, 5/28/1997 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C01E_TOW01A06 / Towles Creek / Described in VDH-DSS Shellfish Condemnation 014-123B, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-C01E_TSK01A14 / Taskmakers Creek / As described in VDH-DSS condemnation 011-190S193, 8/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C01E_WCO01A98 / Warehouse Creek / Described in the condemnation notice 89E, 5/28/1997 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.069

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C01E_WCO02A08 / Warehouse Creek / Portion of VDH condemnation notice 013-220A, 6/15/2020 not included in 89E, 5/28/1997 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAP-C01E_WHY01A98 / Whays Creek / Described in VDH-DSS condemnation notice 013-220B, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAP-C01E_WHY01B22 / Whays Creek / Portion of VDH-DSS condemnation notice 089D, 4/3/2002 open in 013-220, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C01E_WHY03A10 / Whays Creek / Downstream of condemnation notice 013-089D, 4/3/2002. Merged in the 2022 cycle. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.099
VAP-C01E_XDL01A02 / XDL - Chesapeake Bay, UT (aka Big Fleets Pond) / As described in condemnation notice 011-190A, 8/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C01E_XDZ01A10 / XDZ - Mill Creek, UT (Gascony Cove) / Tidal limit to mouth at Mill Creek	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAP-C01E_XEO01A10 / XEO - Reason Creek, UT / Described in VDH-DSS Condemnation 013-220C, 6/15/2020 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.001
VAP-C01E_XES01A12 / XES - Dividing Creek, UT / Described in the VDH-DSS condemnation 015-022D, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C01E_XEU01A02 / XEU - Prentice Creek, UT / Described in VDH-DSS condemnation notice 022C, 2/27/1997. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C01E_XEV01A12 / XEV - Mill Creek, UT / Described in VDH-DSS condemnation 014-123C, 5/9/2016. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAP-C01E_XEW01A14 / XEW - Chesapeake Bay, UT / Tidal limit to mouth	4A	Aquatic Plants (Macrophytes)	2006	L	0.022
VAP-C01E_XFC02C12 / XFC - Antipoison Creek, UT / Described in VDH-DSS condemnation 017-188D, 11/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-C01E_XFJ01A22 / XFJ - Mill Creek, UT (Guarding Cove) / Described in VDH-DSS Condemnation 014-123S174, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.059

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VAP-C01E_XUC01A98 / XUC - Dividing Creek, UT / Described in the condemnation notice 015-022G, 6/15/2020. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C01E_ZZZ01A22 / Unsegmented estuaries in C01 / Unsegmented estuaries in CB02 CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.371
VAP-C01E_ZZZ01B14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB03. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAP-C01E_ZZZ01C14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB04. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.764
VAP-C01E_ZZZ01D14 / Unsegmented estuaries in C01 / Unsegmented portion of watershed CB05. CB5MH	4A	Aquatic Plants (Macrophytes)	2006	L	0.065

Chesapeake Bay segment CB5MH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
211.89		

Chesapeake Bay segment CB5MH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
211.89		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB6PH-DO-BAY** Chesapeake Bay segment **CB6PH**

Cause Location: This cause encompasses the complete CBP segment CB6PH.

Cause City/County: Chesapeake Bay - County Not Applicable

Use(s): Aquatic Life; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Chesapeake Bay Water Quality Standards were implemented during the 2006 cycle. The polyhaline Chesapeake Bay (CB6PH) segment meets the 30-day mean Open Water summer and Deep Water dissolved oxygen criteria. Because this segment fails as part of the Bay criteria, the TMDL was due in 2010. There is insufficient data to assess the other dissolved oxygen criteria.

During the 2014 cycle, applicable areas also failed the Deep Water summer 30-day mean dissolved oxygen criteria. The segment met in the 2016 cycle.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010.

Both the Open Water Subuse and Deep Water Subuse 30-day mean criteria were met in the 2018 cycle. The mainstem Bay must remain listed due to EPA's overlisting (Category 4A). However, the shallow tributaries were not overlisted and were partially delisted (Category 2C.)

The assessment remained the same in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-CB6N / Chesapeake Bay - Northern portion of CBP Segment CB6PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Dissolved Oxygen	2006	L	127.195
VACB-R01E-CB6S / Chesapeake Bay - Southern portion of CBP Segment CB6PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Dissolved Oxygen	2006	L	160.307

Chesapeake Bay segment CB6PH

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
287.502		

Chesapeake Bay segment CB6PH

Deep-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
127.195		

Chesapeake Bay segment CB6PH

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
287.502		

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Appendix 4 - Fact Sheets for
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Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB6PH-SAV-BAY** Chesapeake Bay segment **CB6PH**

Cause Location: This cause encompasses the complete CBP segment CB6PH.

Cause City/County: Chesapeake Bay - County Not Applicable; Mathews County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: Submerged Aquatic Vegetation acres goal is 1,268 acres but only 47% was attained found in the most recent 3 years according to aerial analysis of SAV. Only 88% of water clarity goal met according to 2012 Dataflow survey (the other surveys out are outside of the assessment period).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-CB6N / Chesapeake Bay - Northern portion of CBP Segment CB6PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	127.195
VACB-R01E-CB6S / Chesapeake Bay - Southern portion of CBP Segment CB6PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB6PH, located in the northeastern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	160.307
VAP-C04E_BOR01A18 / Borum Creek / Described in VDH-DSS condemnation 039-026C, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.028
VAP-C04E_DOC01A98 / Doctors Creek / Described in VDH condemnation notice 26B, 2/25/1997. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.015
VAP-C04E_DYE01A08 / Dyer Creek / Described in VDH-DSS Condemnation 039-100S76, 4/15/2020. Expanded in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.052
VAP-C04E_DYE01B22 / Dyer Creek, UT / Described in VDH-DSS Condemnation 039-100S123, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.014
VAP-C04E_DYE02A04 / Dyer Creek / Downstream limit of condemnation to mouth. Shrank and split in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.220
VAP-C04E_GDN01A06 / Garden Creek / Tidal limit to mouth. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.373

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_HAH01A98 / Horn Harbor / Described in VDH condemnation notices 039-026A and -026E, 4/15/2020. Shrank slightly in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.181
VAP-C04E_HAH01C12 / Horn Harbor / Portion of VDH-DSS condemnation 26A, 2/25/1997 not closed in the 039-026, 4/15/2020 condemnation. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.054
VAP-C04E_HAH02A02 / Horn Harbor / From VDH-DSS condemnation 26A, 2/25/1997 downstream to the mouth, unless otherwise segmented. Merged in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	1.367
VAP-C04E_HAH02B12 / Horn Harbor / Portion of VDH-DSS condemnation 039-026S73, 4/15/2020 downstream of 26A, 2/25/1997. Shortened and split in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.180
VAP-C04E_HAH02C20 / Horn Harbor / Described in VDH-DSS condemnation 039-026D, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.037
VAP-C04E_HAH02D18 / Horn Harbor, UT / Described in VDH-DSS condemnation 039-026B, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.005
VAP-C04E_HAH02F22 / Horn Harbor / Described in VDH-DSS condemnation 039-026M1, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.005
VAP-C04E_HAH04A06 / Horn Harbor, UT (Jacks Creek) / Described in VDH Shellfish Condemnation 039-100S170, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.016
VAP-C04E_WIN01A06 / Winter Harbor, UT / Described in the condemnation notice 038-178B, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.108
VAP-C04E_WIN01B00 / Winter Harbor / Lower Winter Harbor, not otherwise segmented. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.348
VAP-C04E_WIN01C20 / Winter Harbor / Described in VDH-DSS Condemnation 038-178S171, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.030
VAP-C04E_WIN02B06 / Winter Harbor / Described in VDH-DSS SFC 038-178M1, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.037
VAP-C04E_WIN03A06 / Winter Harbor / Northern portion of Winter Harbor. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.715

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_WIN03B18 / Winter Harbor / Described in VDH-DSS condemnation 038-176A and 038-178C, 4/15/2020. Split in the 2022 cycle. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.123
VAP-C04E_WIN03C22 / Winter Harbor / Described in VDH-DSS condemnation 038-176S122, 4/15/2020. CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.124
VAP-C04E_ZZZ02A06 / Unsegmented estuaries in C04 / Unsegmented portion within CB6PH	4A	Aquatic Plants (Macrophytes)	2016	L	0.010

Chesapeake Bay segment CB6PH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
291.543		

Chesapeake Bay segment CB6PH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
291.543		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB7PH-DO-BAY** Chesapeake Bay segment **CB7PH**

Cause Location: This cause encompasses the complete CBP segment CB7PH.

Cause City/County: Accomack County; Chesapeake Bay - County Not Applicable; Northampton County

Use(s): Aquatic Life; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The 30-day dissolved oxygen criteria for the open water and deep water uses failed for the 2022 assessment. There are insufficient data to assess remaining shorter-term dissolved oxygen criteria for this use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-04CE / Chesapeake Bay - Cape Charles BSS #089-011, Section A. / Va Dept of Health Shellfish (administrative) condemnation #089-011, Opposite Cape Charles City, Section A. HUC: 02080101.[effective 2005-3-08]	4A	Dissolved Oxygen	2006	L	0.312
VACB-R01E-CB7N / Chesapeake Bay - Northern portion of CBP Segment CB7PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB7PH, located in the northwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Dissolved Oxygen	1998	L	168.603
VACB-R01E-CB7S / Chesapeake Bay - Southern portion of CBP Segment CB7PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB7PH, located in the southwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Dissolved Oxygen	1998	L	372.814
VACB-R01E_CB7N01A20 / Chesapeake Bay - Northern portion of CBP Segment CB7PH / Chesapeake Bay - VDH DSS condemnation #079-112 (Open)	4A	Dissolved Oxygen	1998	L	0.023
VAT-C10E_DEP01A06 / Deep Creek - Middle / East of town of Bayside. Middle portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20170620).	4A	Dissolved Oxygen	2006	L	0.160
VAT-C10E_DEP01B10 / Deep Creek - Upper [DSS ADMIN] / East of town of Bayside. Upper portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.114
VAT-C10E_DEP02A06 / Deep Creek - Lower / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.420

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_DEP03A08 / Deep Creek - Lower [No DSS] / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	0.220
VAT-C10E_ISB01A06 / Island Bay - [No DSS] / Between Russell Island & Long Ridge area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	4A	Dissolved Oxygen	2006	L	0.953
VAT-C10E_PMC01A20 / Pompcro Creek / Inlets of unnamed island on the eastern portion of Pompcro Creek. Portion of CBP segment CB7PH. Shellfishing OPEN Condemnation (20180614).	4A	Dissolved Oxygen	2006	L	0.011
VAT-C10E_ZZZ01A06 / Unsegmented Bay Waters in C10E-CB7PH. / Evaluated non-segmented Bay Waters in C10E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	4A	Dissolved Oxygen	2006	L	1.405
VAT-C11E_CED01A00 / Cedar Creek / Entire estuarine portion of creek. North shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.063
VAT-C11E_CSX01A00 / Chesconessex Creek - South Br. - Upper / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 A (effective 20180620).	4A	Dissolved Oxygen	2006	L	0.109
VAT-C11E_CSX01B10 / Chesconessex Creek - South Br. - Middle / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 Restricted(effective 20180614).	4A	Dissolved Oxygen	2006	L	0.100
VAT-C11E_CSX02A06 / Chesconessex Creek - N. Branch / Lower portion of Creek, including tidal tribs., from the end DSS condemnation # 079-112 downstream to mouth. Portion of CBP segment CB7PH. Part of area contains no DSS Condemnation remainder is OPEN 079-112 (20180614).	4A	Dissolved Oxygen	2006	L	1.832
VAT-C11E_CSX02B10 / Chesconessex Creek - N. Branch / North Branch portion of creek at marina area. DSS Admin condemnation # 079-112 B (effective 20180614). Portion of CBP segment CB7PH.	4A	Dissolved Oxygen	2006	L	0.030
VAT-C11E_FNN01A00 / Finneys Creek - Upper / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.069

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_FNN02A00 / Finneys Creek - Lower / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	4A	Dissolved Oxygen	2006	L	0.119
VAT-C11E_LTH01A00 / Leatherberry Creek / Entire estuarine portion of creek. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.070
VAT-C11E_MTC01A06 / Matchotank Creek - Upper / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-169 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.069
VAT-C11E_MTC02A06 / Matchotank Creek - Lower / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-169 A (effective 20200515)	4A	Dissolved Oxygen	2006	L	0.116
VAT-C11E_OCB01A00 / Central Branch, Onancock Creek / CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.018
VAT-C11E_OCN01A04 / Onancock Creek Mainstem - Upper [Admin Cond] / Near Town of Onancock. From junction of N, Central & S Brs downstream to end of Admin DSS condemnation. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.129
VAT-C11E_OCN01C10 / Onancock Creek Mainstem - Upper / Near Town of Onancock. From junction of N, Central & S Brs downstream to north of Cedar Cr. CBP segment CB7PH. Portion of DSS shellfish condemnation # 081-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.097
VAT-C11E_OCN02A04 / Onancock Creek Mainstem - Lower / East of Bailey Neck area. Mainstem of Onancock Creek- lower. From Parker Cr downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (effective 20200515).	4A	Dissolved Oxygen	2006	L	1.163
VAT-C11E_OCN02B08 / Onancock Creek Mainstem - Poplar Cove / East of Bailey Neck area. Mainstem of Onancock Creek. Marina in area of Poplar Cove. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_OCN02C22 / Onancock Creek Mainstem - Lower / Mainstem of Onancock Creek- Upper. From area near Cedar Creek downstream to Parker Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	4A	Dissolved Oxygen	2006	L	0.790
VAT-C11E_ONB01A02 / North Branch, Onancock Creek / Located near Town of Onancock. Entire North Branch, Onancock Creek. CBP segment CB7PH. DSS shellfish condemnation (Admin Cond-PROHIBITION) # 081-013 D (effective 20180327).	4A	Dissolved Oxygen	2006	L	0.021
VAT-C11E_OSB01A02 / Southern Branch, Onancock Creek / Near Town of Onancock. Entire Southern Branch Onancock Creek. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20180327).	4A	Dissolved Oxygen	2006	L	0.058
VAT-C11E_PMC01B20 / Lower Pompcro Creek / Portions of Pompcro Creek encompassing Tobacco Island and Rogue Island.	4A	Dissolved Oxygen	2006	L	0.934
VAT-C11E_PMC02B20 / Pompcro Cr- SW Inlet of UT off of Rogue Island / Southwest Inlet of Pompcro Creek trib at Tobacco Island. VDH DSS Restricted-Condemnation #079-112 (20180614).	4A	Dissolved Oxygen	2006	L	0.010
VAT-C11E_PRK01A08 / Parkers Creek - Upper / South shore tributary of Onancock Creek at Finneys Neck. Upstream portion of creek. Portion of CBP segment CB7PH. DSS shellfish Restricted-condemnation direct harvesting condemnation # 080-013 (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.035
VAT-C11E_PRK02A08 / Parkers Creek - Middle / South shore tributary of Onancock Creek at Finneys Neck. Middle portion of creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-013 (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.041
VAT-C11E_PRK03A08 / Parkers Creek - Lower / South shore tributary of Onancock Creek at Finneys Neck. Area around marina at mouth of Parkers Creek. Portion of CBP segment CB7PH. DSS shellfish seasonal condemnation # 080-013 A (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.086
VAT-C11E_TAR01A06 / Tarkill Creek / Located in Sluitkill Neck area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	0.190
VAT-C11E_ZZZ01A00 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (20200515).	4A	Dissolved Oxygen	2006	L	0.550

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_ZZZ01B22 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 (20200515).	4A	Dissolved Oxygen	2006	L	0.050
VAT-C12E_PUN01A06 / Pungoteague Creek - Upper / W of Melfa. Upper portion of Pungoteague Cr. from the end of tidal waters downstream to Boggs Wharf and Route 634. CBP segment CB7PH. DSS condemnation # 081-119 B (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.232
VAT-C12E_PUN01B16 / Pungoteague Creek - Middle-Upper / W of Melfa. Upper portion of Pungoteague Cr. from the Boggs Warf to Horse Hole Creek. CBP segment CB7PH. DSS condemnation Conditionally Approved # 081-119 C4 (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.265
VAT-C12E_PUN02A06 / Pungoteague Creek - Lower / Located west of Town of Melfa. Lower portion of Pungoteague Cr. from Horse Hole Creek downstream to mouth. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 081-119 (effective 20200518).	4A	Dissolved Oxygen	2006	L	1.186
VAT-C12E_TAY01A06 / Taylor Creek / Located southwest of Harborton. From the end of tidal waters downstream Route 628 and Eastern Shore Yacht Club. Portion of CBP segment CB7PH. Portion of DSS condemnation # 081-119 C (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.130
VAT-C12E_TAY02A14 / Taylor Creek- Mouth / Located southwest of Harborton. From Route 628 and Eastern Shore Yacht Club to Puncoteague confluence. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 C (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.033
VAT-C12E_UNR01A06 / Underhill Creek / In area of Mount Nebo. North shore tributary to Pungoteague Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 081-119 A (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.070
VAT-C12E_WRP01A06 / Warehouse Prong - Upper / Located north of Bobtown and east of Boggs Wharf. Upper portion, from headwaters to confluence with UT. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 B (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.042
VAT-C12E_WRP02A06 / Warehouse Prong - Lower / Located north of Bobtown and east of Boggs Wharf. Lower portion, from confluence with UT downstream to confluence with Pungoteague Cr. Portion of CBP segment CB7PH. DSS (Admin Cond) condemnation # 081-119 B (effective 20200518).	4A	Dissolved Oxygen	2006	L	0.054

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_ZZZ01A00 / Unsegmented Bay Waters in C12E. / Evaluated non segmented portions of C12E, UT south of Pungoteague Cr. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	0.002
VAT-C13E_BCE01A08 / Back Creek / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. Portion of CBP segment CB7PH. DSS Open and Conditionally Approved shellfish direct harvesting condemnation # 082-160 C7 (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.141
VAT-C13E_BOS01A08 / Boggs Gut / Southwest of Fairview Neck area. South shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 D (effective 20200515)	4A	Dissolved Oxygen	2006	L	0.034
VAT-C13E_CHC01A00 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting OPEN # 085-185 (effective 20191115).	4A	Dissolved Oxygen	2006	L	0.323
VAT-C13E_CHC01B16 / Church Creek -Upper / In area of Elliotts Neck. Tributary to Nassawadox Creek, upstream portion of Church Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115).	4A	Dissolved Oxygen	2006	L	0.165
VAT-C13E_CHC01C10 / Church Creek - Middle-UT North Cove / In area of Elliotts Neck. Tributary to Church Creek - Middle, UT North Cove. Portion of CBP segment CB7PH. DSS shellfish harvesting condemnation # 085-185 A (effective 20191115).	4A	Dissolved Oxygen	2006	L	0.059
VAT-C13E_CHC01D22 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted # 085-185 D (effective 20191115).	4A	Dissolved Oxygen	2006	L	0.050
VAT-C13E_CRA01A06 / Craddock Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to end of shellfish condemnation (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 083-195 A (effective 20121210).	4A	Dissolved Oxygen	2006	L	0.082
VAT-C13E_CRA02A08 / Craddock Creek - Lower and UT / Most of Craddock Cr. excluding SF condemnation in upper creek. Including all tribs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 083-195 (effective 20121210).	4A	Dissolved Oxygen	2006	L	0.911

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CRR01A08 / Curratuck Creek / Southwest of Fairview Neck area. Lower south shore tributary of middle Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN & Conditionally Approved) shellfish direct harvesting condemnation # 082-160 C6(effective 20200515).	4A	Dissolved Oxygen	2006	L	0.277
VAT-C13E_HGC01A06 / Holly Grove Cove- Upper / Located near Wellington Neck. From end of tidal waters downstream to mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-110 E (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.143
VAT-C13E_KLL01A06 / Kelley Cove / From end of tidal waters downstream to confluence with Nassawadox Cr. (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.026
VAT-C13E_MAG01A08 / McLean Gut - Upper / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.038
VAT-C13E_MAG02A08 / McLean Gut - Lower / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.032
VAT-C13E_NAN01A00 / Nandua Creek - Upper [TMDL-bact.] / Southeast of Hacks Neck area. The two most upstream branches of Nandua Creek, incl. Kusian Cove. Portion of CBP segment CB7PH. DSS condemnation # 082-160 A&C (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.144
VAT-C13E_NAN01B08 / Nandua Creek - Lower Upper / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 082-160 (effective 20200515).	4A	Dissolved Oxygen	2006	L	0.223
VAT-C13E_NAN02A06 / Nandua Creek - Lower / Lower portion of Nandua Creek including unsegmented tidal tribs., from the confluence of Boggs Gut downstream to mouth (RM 0.0). Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	3.150
VAT-C13E_NSS01A06 / Nassawadox Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to confluence with Kelly Cove (RM 5.2) area of TMDL-bact 6/07. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.205

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS01B08 / Nassawadox Creek - Upper [No TMDL-bact] / From confluence with Kelly Cove (RM 5.2) downstream to mainstem (outside of area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.169
VAT-C13E_NSS02A06 / Nassawadox Creek - Lower / Mainstem of lower portion of creek to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 & 085-185 (effective 20191115).	4A	Dissolved Oxygen	2006	L	2.121
VAT-C13E_NSS03A08 / Nassawadox Creek - Middle, N. Shore Tribs / Occohannock Neck Area. North Shore UTs to lower-middle mainstem Nassawadox. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 A & C (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.126
VAT-C13E_OCH01A06 / Occohannock Creek - Upper / Upper portion of Occohannock Creek and tidal tribs., from end of tidal waters downstream to Creekside Dr at end of SF restricted area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 A (effective 20201215).	4A	Dissolved Oxygen	2006	L	0.538
VAT-C13E_OCH02A06 / Occohannock Creek - Lower / Lower portion of Occohannock Creek and tidal tribs., from downstream of Youngs Pt. to mouth (RM 0.0). Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 084-043 (effective 20201215).	4A	Dissolved Oxygen	2006	L	2.469
VAT-C13E_OCH02B08 / Occohannock Creek - Middle Marina Area / In middle portion of Occohannock Creek, marina area of Davis Wharf. Portion of CBP segment CB7PH. DSS SEASONAL shellfish direct harvesting condemnation # 084-043 M1 (effective 20201215).	4A	Dissolved Oxygen	2006	L	0.034
VAT-C13E_OCH03A08 / Shields Cove & Fisher Cove / West of Belle Haven area. North and South shore tributaries of Occohannock Cr., NW of Youngs Pt. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 B & C (effective 20201215).	4A	Dissolved Oxygen	2006	L	0.087
VAT-C13E_WHC01A06 / Warehouse Creek - Upper / Southeast fork of upper portion of creek. Portion of CBP segment CB7PH. DSS ADMIN-PROHIB shellfish direct harvesting condemnation # 085-110 F (effective 20201115) (VPDES outfall condemnation for Shore Memorial Hospital STP VA0027537).	4A	Dissolved Oxygen	2006	L	0.032

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_WHC01B10 / Warehouse Creek - Upper Middle (Admin Cond) / Including northern fork and continuing downstream to bend near Wellington Neck. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 085-110C (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.166
VAT-C13E_WHC02A06 / Warehouse Creek - Lower / Including bend near Wellington Neck to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	4A	Dissolved Oxygen	2006	L	0.246
VAT-C13E_ZZZ01A00 / Unsegmented estuaries in C13E. / Evaluated non segmented portions of C13E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	0.752
VAT-C14E_BRL01A06 / Barlow Creek / In area of Old Town Neck. South shore tributary to lower Mattawoman Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.049
VAT-C14E_HUG01A00 / Hungars Creek - Upper / Upper portion of Hungars Creek from end tidal waters downstream to end of TMDL boundary near Holloway Dr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.058
VAT-C14E_HUG01B22 / Hungars Creek - Upper / Upper portion of Hungars Creek from end of TMDL boundary near Holloway Dr to start of open shellfish area near Park Ln. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A & S195 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.080
VAT-C14E_HUG02A00 / Hungars Creek - Lower / Lower portion of Hungars Creek near Park Ln upstream of confluence with Jacobus Cr. downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Dissolved Oxygen	2006	L	1.187
VAT-C14E_HUG02B12 / UT to Hungars Creek / Northern trib between Great Neck and Sparrow Point. Restricted portion of SF. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.039
VAT-C14E_HUG02C14 / Hungars Creek - Northern Trib / Lower portion of Hungars Creek, Trib north of the mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 S196 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.073

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_JAC01A06 / Jacobus Creek - Upper South Fork / West of Johnstown. Trib to Hungars Cr. Uppermost portion of south branch. Portion of CBP segment CB7PH. DSS (Admin - Prohibition) due to STP VA0023817 Outfall) shellfish direct harvesting condemnation # 086-136F (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.028
VAT-C14E_JAC02A06 / Jacobus Creek - Upper Forks / West of Johnstown. Trib to Hungars Cr. Middle mainstem, north fork and lower portion of south fork. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 086-136 B (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.152
VAT-C14E_JAC03A06 / Jacobus Creek - Lower / West of Johnstown. South shore trib. to Hungars Cr. Lower mainstem portion. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.187
VAT-C14E_MAT01A06 / Mattawoman Creek - Upper / South of Wilsonia Neck. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 D & S48 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.155
VAT-C14E_MAT02A10 / Mattawoman Creek - Lower / South of Wilsonia Neck - mouth of Mattawoman Cr. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.357
VAT-C14E_THG01A06 / The Gulf - Upper / From end of tidal waters downstream to narrowing 0.45 mi. from mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 087-174 A (effective 20150827).	4A	Dissolved Oxygen	2006	L	0.090
VAT-C14E_THG02A06 / The Gulf - Lower / From narrowing 0.45 mi. from mouth downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish condemnation # 087-174 (20150827) & no DSS.	4A	Dissolved Oxygen	2006	L	0.204
VAT-C14E_WHS01A06 / Westerhouse Creek - North Branch [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-199 (20181115).	4A	Dissolved Oxygen	2006	L	0.214
VAT-C14E_WHS02A06 / Westerhouse Creek - Upper South Branch [TMDL] / In Church Neck area, west of Bridgetown. Upper portion of Westerhouse Creek South Branch. Portion of CBP segment CB7PH. Portion DSS shellfish direct harvesting condemnation # 085-199 A (effective 20181115).	4A	Dissolved Oxygen	2006	L	0.019

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_WHS03A20 / Upper Westerhouse Creek - North Branch& Upper Middle [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted-condemnation # 085-199 (20181115).	4A	Dissolved Oxygen	2006	L	0.030
VAT-C14E_ZZZ01A00 / Unsegmented estuaries in C14E. / Evaluated non segmented portions of C14E - mouth of Matchotank & Hungars Crs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 20200915.	4A	Dissolved Oxygen	2006	L	0.838
VAT-C15E_CCB01A06 / Cape Charles Beach / Located west of Town of Cape Charles, along Chesapeake Bay. Portion of CBP segment CB7PH. DSS (Administrative) shellfish harvesting condemnation 089-011 A (effective 20051202) which is present.	4A	Dissolved Oxygen	2006	L	0.079
VAT-C15E_CRS01A06 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to confluence with Chesapeake Bay. Including Old Castle Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815)	4A	Dissolved Oxygen	2006	L	2.138
VAT-C15E_CRS01B18 / Cherrystone Inlet - Eyrehall Cr / SE trib to Cherrystone Inlet. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815).	4A	Dissolved Oxygen	2006	L	0.103
VAT-C15E_CRS02A20 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to the mouth of the inlet. Portion of CBP segment CB7PH. DSS shellfish OPEN # 088-139 (20200815).	4A	Dissolved Oxygen	2006	L	0.243
VAT-C15E_KNS01A00 / Kings Creek - Upper Forks and Middle / From end of tidal waters downstream 0.16 mi. past confluence of the two most upstream forks. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 088-139 A (20180821).	4A	Dissolved Oxygen	2006	L	0.093
VAT-C15E_KNS03A08 / Kings Creek - Lower Middle / From start of DSS marina area downstream to Cherrystone. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 088-139 (20200815) &Seasonal Condemnation M1.	4A	Dissolved Oxygen	2006	L	0.167
VAT-C15E_KNS03B22 / Kings Creek - Lower Middle / DSS marina area DSS (Admin) shellfish direct harvesting condemnation # 088-139 (20200815) Section B. Portion of CBP segment CB7PH	4A	Dissolved Oxygen	2006	L	0.040
VAT-C15E_KNS04A22 / Kings Creek - Lower Middle / From Townfield Dr to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation OPEN # 088-139 (20200815).	4A	Dissolved Oxygen	2006	L	0.040

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C15E_ZZZ01A08 / Unsegmented estuaries in C15E. / Evaluated non segmented portions of C15E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Dissolved Oxygen	2006	L	0.587
VAT-C16E_CCH01A04 / Cape Charles Harbor - Upper / From most upstream end of harbor downstream to 1/2 distance to mouth (RM 0.23). Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 B (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	4A	Dissolved Oxygen	2006	L	0.056
VAT-C16E_CCH02A00 / Cape Charles Harbor - Lower / From 1/2 distance to mouth (RM 0.23) downstream to mouth. Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 A (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	4A	Dissolved Oxygen	2006	L	0.060
VAT-C16E_KPT01A06 / Kiptopeke Beach / Located west of Cedar Grove, along Chesapeake Bay, near southern tip of Eastern Shore. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation present.	4A	Dissolved Oxygen	2006	L	0.044
VAT-C16E_OPC01A06 / Old Plantation Creek - Upper [TMDL-bact] / Upper portion of Old Plantation Creek within TMDL-Bact (33771). CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Dissolved Oxygen	2006	L	0.044
VAT-C16E_OPC01B08 / Old Plantation Creek - Upper [No TMDL-bact] / Upper portion of Old Plantation Creek and one southeast embayment not within TMDL-Bact (33771). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Dissolved Oxygen	2006	L	0.152
VAT-C16E_OPC02A00 / Old Plantation Creek - Lower / Lower portion of Old Plantation Creek, from approx. Red Bank (RM 2.0) downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 090-152 (20190815).	4A	Dissolved Oxygen	2006	L	0.926
VAT-C16E_ZZZ01A00 / Unsegmented estuaries in C16E. / Evaluated non segmented portions of C16E. Portion of CBP segment CB7PH. DSS Shellfish OPEN condemnation 20190815.	4A	Dissolved Oxygen	2006	L	0.146

Chesapeake Bay segment CB7PH

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
575.227		

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Chesapeake Bay segment CB7PH

Deep-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	168.626		

Chesapeake Bay segment CB7PH

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	575.227		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **CB7PH-SAV-BAY** Chesapeake Bay segment **CB7PH**

Cause Location: This cause encompasses the complete CBP segment CB7PH.

Cause City/County: Accomack County; Chesapeake Bay - County Not Applicable; Northampton County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The acres of submerged aquatic vegetation (SAV) mapped through aerial surveys does not meet the criteria. Aerial analysis of SAV over the three most recent years of data indicate segment is short of this goal by 38%. There is insufficient data to assess the water clarity criteria.

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VACB-R01E-04CE / Chesapeake Bay - Cape Charles BSS #089-011, Section A. / Va Dept of Health Shellfish (administrative) condemnation #089-011, Opposite Cape Charles City, Section A. HUC: 02080101.[effective 2005-3-08]	4A	Aquatic Plants (Macrophytes)	2006	L	0.312
VACB-R01E-CB7N / Chesapeake Bay - Northern portion of CBP Segment CB7PH / This assessment unit is the mainstem northern portion of Chesapeake Bay Program segment CB7PH, located in the northwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	168.603
VACB-R01E-CB7S / Chesapeake Bay - Southern portion of CBP Segment CB7PH / This assessment unit is the mainstem southern portion of Chesapeake Bay Program segment CB7PH, located in the southwestern half of the Virginia Chesapeake Bay between the mouths of the James and Rappahannock Rivers. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	372.814
VACB-R01E_CB7N01A20 / Chesapeake Bay - Northern portion of CBP Segment CB7PH / Chesapeake Bay - VDH DSS condemnation #079-112 (Open)	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAT-C10E_DEP01A06 / Deep Creek - Middle / East of town of Bayside. Middle portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20170620).	4A	Aquatic Plants (Macrophytes)	2006	L	0.160
VAT-C10E_DEP01B10 / Deep Creek - Upper [DSS ADMIN] / East of town of Bayside. Upper portion of creek adjacent to Town of Deep Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.114
VAT-C10E_DEP02A06 / Deep Creek - Lower / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 077-138 C (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.420

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VAT-C10E_DEP03A08 / Deep Creek - Lower [No DSS] / East of town of Bayside. Lower portion of creek, from RM 1.6 downstream to mouth. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.220
VAT-C10E_ISB01A06 / Island Bay - [No DSS] / Between Russell Island & Long Ridge area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	4A	Aquatic Plants (Macrophytes)	2006	L	0.953
VAT-C10E_PMC01A20 / Pompcro Creek / Inlets of unnamed island on the eastern portion of Pompcro Creek. Portion of CBP segment CB7PH. Shellfishing OPEN Condemnation (20180614).	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAT-C10E_ZZZ01A06 / Unsegmented Bay Waters in C10E-CB7PH. / Evaluated non-segmented Bay Waters in C10E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnations.	4A	Aquatic Plants (Macrophytes)	2006	L	1.405
VAT-C11E_CED01A00 / Cedar Creek / Entire estuarine portion of creek. North shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.063
VAT-C11E_CSX01A00 / Chesconessex Creek - South Br. - Upper / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 A (effective 20180620).	4A	Aquatic Plants (Macrophytes)	2006	L	0.109
VAT-C11E_CSX01B10 / Chesconessex Creek - South Br. - Middle / South of Chesconessex and northwest of Onancock. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 079-112 Restricted(effective 20180614).	4A	Aquatic Plants (Macrophytes)	2006	L	0.100
VAT-C11E_CSX02A06 / Chesconessex Creek - N. Branch / Lower portion of Creek, including tidal tribs., from the end DSS condemnation # 079-112 downstream to mouth. Portion of CBP segment CB7PH. Part of area contains no DSS Condemnation remainder is OPEN 079-112 (20180614).	4A	Aquatic Plants (Macrophytes)	2006	L	1.832
VAT-C11E_CSX02B10 / Chesconessex Creek - N. Branch / North Branch portion of creek at marina area. DSS Admin condemnation # 079-112 B (effective 20180614). Portion of CBP segment CB7PH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAT-C11E_FNN01A00 / Finneys Creek - Upper / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.069

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VAT-C11E_FNN02A00 / Finneys Creek - Lower / East of Bailey Neck area. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.119
VAT-C11E_LTH01A00 / Leatherberry Creek / Entire estuarine portion of creek. South shore tributary of Onancock Creek. Portion of CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.070
VAT-C11E_MTC01A06 / Matchotank Creek - Upper / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-169 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.069
VAT-C11E_MTC02A06 / Matchotank Creek - Lower / South of Broadway Neck area. Portion of CBP segment CB7PH. DSS (Restricted) shellfish direct harvesting condemnation # 080-169 A (effective 20200515)	4A	Aquatic Plants (Macrophytes)	2006	L	0.116
VAT-C11E_OCB01A00 / Central Branch, Onancock Creek / CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAT-C11E_OCN01A04 / Onancock Creek Mainstem - Upper [Admin Cond] / Near Town of Onancock. From junction of N, Central & S Brs downstream to end of Admin DSS condemnation. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.129
VAT-C11E_OCN01C10 / Onancock Creek Mainstem - Upper / Near Town of Onancock. From junction of N, Central & S Brs downstream to north of Cedar Cr. CBP segment CB7PH. Portion of DSS shellfish condemnation # 081-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.097
VAT-C11E_OCN02A04 / Onancock Creek Mainstem - Lower / East of Bailey Neck area. Mainstem of Onancock Creek- lower. From Parker Cr downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	1.163
VAT-C11E_OCN02B08 / Onancock Creek Mainstem - Poplar Cove / East of Bailey Neck area. Mainstem of Onancock Creek. Marina in area of Poplar Cove. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_OCN02C22 / Onancock Creek Mainstem - Lower / Mainstem of Onancock Creek- Upper. From area near Cedar Creek downstream to Parker Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 A(effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.790
VAT-C11E_ONB01A02 / North Branch, Onancock Creek / Located near Town of Onancock. Entire North Branch, Onancock Creek. CBP segment CB7PH. DSS shellfish condemnation (Admin Cond-PROHIBITION) # 081-013 D (effective 20180327).	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAT-C11E_OSB01A02 / Southern Branch, Onancock Creek / Near Town of Onancock. Entire Southern Branch Onancock Creek. CBP segment CB7PH. Portion of DSS (Admin Cond) shellfish condemnation # 081-013 A (effective 20180327).	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAT-C11E_PMC01B20 / Lower Pompc Creek / Portions of Pompc Creek encompassing Tobacco Island and Rogue Island.	4A	Aquatic Plants (Macrophytes)	2006	L	0.934
VAT-C11E_PMC02B20 / Pompc Cr- SW Inlet of UT off of Rogue Island / Southwest Inlet of Pompc Creek trib at Tobacco Island. VDH DSS Restricted-Condemnation #079-112 (20180614).	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAT-C11E_PRK01A08 / Parkers Creek - Upper / South shore tributary of Onancock Creek at Finneys Neck. Upstream portion of creek. Portion of CBP segment CB7PH. DSS shellfish Restricted-condemnation direct harvesting condemnation # 080-013 (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.035
VAT-C11E_PRK02A08 / Parkers Creek - Middle / South shore tributary of Onancock Creek at Finneys Neck. Middle portion of creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted condemnation # 080-013 (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAT-C11E_PRK03A08 / Parkers Creek - Lower / South shore tributary of Onancock Creek at Finneys Neck. Area around marina at mouth of Parkers Creek. Portion of CBP segment CB7PH. DSS shellfish seasonal condemnation # 080-013 A (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.086
VAT-C11E_TAR01A06 / Tarkill Creek / Located in Sluitkill Neck area. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.190
VAT-C11E_ZZZ01A00 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 080-013 (20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.550

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C11E_ZZZ01B22 / Unsegmented estuaries in C11E. / Evaluated non segmented portions of C11E not contained within VACB-R01E-CB7S. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 080-013 (20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAT-C12E_PUN01A06 / Pungoteague Creek - Upper / W of Melfa. Upper portion of Pungoteague Cr. from the end of tidal waters downstream to Boggs Wharf and Route 634. CBP segment CB7PH. DSS condemnation # 081-119 B (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.232
VAT-C12E_PUN01B16 / Pungoteague Creek - Middle-Upper / W of Melfa. Upper portion of Pungoteague Cr. from the Boggs Warf to Horse Hole Creek. CBP segment CB7PH. DSS condemnation Conditionally Approved # 081-119 C4 (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.265
VAT-C12E_PUN02A06 / Pungoteague Creek - Lower / Located west of Town of Melfa. Lower portion of Pungoteague Cr. from Horse Hole Creek downstream to mouth. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 081-119 (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	1.186
VAT-C12E_TAY01A06 / Taylor Creek / Located southwest of Harborton. From the end of tidal waters downstream Route 628 and Eastern Shore Yacht Club. Portion of CBP segment CB7PH. Portion of DSS condemnation # 081-119 C (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.130
VAT-C12E_TAY02A14 / Taylor Creek- Mouth / Located southwest of Harborton. From Route 628 and Eastern Shore Yacht Club to Puncoteague confluence. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 C (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAT-C12E_UNR01A06 / Underhill Creek / In area of Mount Nebo. North shore tributary to Pungoteague Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 081-119 A (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.070
VAT-C12E_WRP01A06 / Warehouse Prong - Upper / Located north of Bobtown and east of Boggs Wharf. Upper portion, from headwaters to confluence with UT. Portion of CBP segment CB7PH. Portion of DSS Restricted condemnation # 081-119 B (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-C12E_WRP02A06 / Warehouse Prong - Lower / Located north of Bobtown and east of Boggs Wharf. Lower portion, from confluence with UT downstream to confluence with Pungoteague Cr. Portion of CBP segment CB7PH. DSS (Admin Cond) condemnation # 081-119 B (effective 20200518).	4A	Aquatic Plants (Macrophytes)	2006	L	0.054

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C12E_ZZZ01A00 / Unsegmented Bay Waters in C12E. / Evaluated non segmented portions of C12E, UT south of Pungoteague Cr. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAT-C13E_BCE01A08 / Back Creek / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. Portion of CBP segment CB7PH. DSS Open and Conditionally Approved shellfish direct harvesting condemnation # 082-160 C7 (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.141
VAT-C13E_BOS01A08 / Boggs Gut / Southwest of Fairview Neck area. South shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 D (effective 20200515)	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAT-C13E_CHC01A00 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting OPEN # 085-185 (effective 20191115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.323
VAT-C13E_CHC01B16 / Church Creek -Upper / In area of Elliotts Neck. Tributary to Nassawadox Creek, upstream portion of Church Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-185 B (effective 20191115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.165
VAT-C13E_CHC01C10 / Church Creek - Middle-UT North Cove / In area of Elliotts Neck. Tributary to Church Creek - Middle, UT North Cove. Portion of CBP segment CB7PH. DSS shellfish harvesting condemnation # 085-185 A (effective 20191115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.059
VAT-C13E_CHC01D22 / Church Creek / In area of Elliotts Neck. Tributary to Nassawadox Creek. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted # 085-185 D (effective 20191115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAT-C13E_CRA01A06 / Craddock Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to end of shellfish condemnation (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 083-195 A (effective 20121210).	4A	Aquatic Plants (Macrophytes)	2006	L	0.082
VAT-C13E_CRA02A08 / Craddock Creek - Lower and UT / Most of Craddock Cr. excluding SF condemnation in upper creek. Including all tribs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 083-195 (effective 20121210).	4A	Aquatic Plants (Macrophytes)	2006	L	0.911

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_CRR01A08 / Curratuck Creek / Southwest of Fairview Neck area. Lower south shore tributary of middle Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN & Conditionally Approved) shellfish direct harvesting condemnation # 082-160 C6(effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.277
VAT-C13E_HGC01A06 / Holly Grove Cove- Upper / Located near Wellington Neck. From end of tidal waters downstream to mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-110 E (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.143
VAT-C13E_KLL01A06 / Kelley Cove / From end of tidal waters downstream to confluence with Nassawadox Cr. (area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAT-C13E_MAG01A08 / McLean Gut - Upper / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAT-C13E_MAG02A08 / McLean Gut - Lower / Southwest of Fairview Neck area. Middle south shore tributary of middle Nandua Cr. Portion of CBP segment CB7PH. DSS Restricted shellfish direct harvesting condemnation # 082-160 B (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.032
VAT-C13E_NAN01A00 / Nandua Creek - Upper [TMDL-bact.] / Southeast of Hacks Neck area. The two most upstream branches of Nandua Creek, incl. Kusian Cove. Portion of CBP segment CB7PH. DSS condemnation # 082-160 A&C (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.144
VAT-C13E_NAN01B08 / Nandua Creek - Lower Upper / Southwest of Fairview Neck area. North shore tributary of Nandua Cr. near mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 082-160 (effective 20200515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.223
VAT-C13E_NAN02A06 / Nandua Creek - Lower / Lower portion of Nandua Creek including unsegmented tidal tribs., from the confluence of Boggs Gut downstream to mouth (RM 0.0). Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	3.150
VAT-C13E_NSS01A06 / Nassawadox Creek - Upper [TMDL-bact.] / From end of tidal waters downstream to confluence with Kelly Cove (RM 5.2) area of TMDL-bact 6/07. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.205

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_NSS01B08 / Nassawadox Creek - Upper [No TMDL-bact] / From confluence with Kelly Cove (RM 5.2) downstream to mainstem (outside of area of TMDL-bact 6/07). Portion of CBP segment CB7PH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.169
VAT-C13E_NSS02A06 / Nassawadox Creek - Lower / Mainstem of lower portion of creek to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 & 085-185 (effective 20191115).	4A	Aquatic Plants (Macrophytes)	2006	L	2.121
VAT-C13E_NSS03A08 / Nassawadox Creek - Middle, N. Shore Tribs / Occohannock Neck Area. North Shore UTs to lower-middle mainstem Nassawadox. Portion of CBP segment CB7PH. Portion of DSS shellfish direct harvesting condemnation # 085-110 A & C (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.126
VAT-C13E_OCH01A06 / Occohannock Creek - Upper / Upper portion of Occohannock Creek and tidal tribs., from end of tidal waters downstream to Creekside Dr at end of SF restricted area. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 A (effective 20201215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.538
VAT-C13E_OCH02A06 / Occohannock Creek - Lower / Lower portion of Occohannock Creek and tidal tribs., from downstream of Youngs Pt. to mouth (RM 0.0). Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 084-043 (effective 20201215).	4A	Aquatic Plants (Macrophytes)	2006	L	2.469
VAT-C13E_OCH02B08 / Occohannock Creek - Middle Marina Area / In middle portion of Occohannock Creek, marina area of Davis Wharf. Portion of CBP segment CB7PH. DSS SEASONAL shellfish direct harvesting condemnation # 084-043 M1 (effective 20201215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAT-C13E_OCH03A08 / Shields Cove & Fisher Cove / West of Belle Haven area. North and South shore tributaries of Occohannock Cr., NW of Youngs Pt. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 084-043 B & C (effective 20201215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.087
VAT-C13E_WHC01A06 / Warehouse Creek - Upper / Southeast fork of upper portion of creek. Portion of CBP segment CB7PH. DSS ADMIN-PROHIB shellfish direct harvesting condemnation # 085-110 F (effective 20201115) (VPDES outfall condemnation for Shore Memorial Hospital STP VA0027537).	4A	Aquatic Plants (Macrophytes)	2006	L	0.032

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C13E_WHC01B10 / Warehouse Creek - Upper Middle (Admin Cond) / Including northern fork and continuing downstream to bend near Wellington Neck. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 085-110C (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.166
VAT-C13E_WHC02A06 / Warehouse Creek - Lower / Including bend near Wellington Neck to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 085-110 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.246
VAT-C13E_ZZZ01A00 / Unsegmented estuaries in C13E. / Evaluated non segmented portions of C13E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.752
VAT-C14E_BRL01A06 / Barlow Creek / In area of Old Town Neck. South shore tributary to lower Mattawoman Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAT-C14E_HUG01A00 / Hungars Creek - Upper / Upper portion of Hungars Creek from end tidal waters downstream to end of TMDL boundary near Holloway Dr. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAT-C14E_HUG01B22 / Hungars Creek - Upper / Upper portion of Hungars Creek from end of TMDL boundary near Holloway Dr to start of open shellfish area near Park Ln. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 A & S195 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.080
VAT-C14E_HUG02A00 / Hungars Creek - Lower / Lower portion of Hungars Creek near Park Ln upstream of confluence with Jacobus Cr. downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	1.187
VAT-C14E_HUG02B12 / UT to Hungars Creek / Northern trib between Great Neck and Sparrow Point. Restricted portion of SF. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 C (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAT-C14E_HUG02C14 / Hungars Creek - Northern Trib / Lower portion of Hungars Creek, Trib north of the mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 S196 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.073

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_JAC01A06 / Jacobus Creek - Upper South Fork / West of Johnstown. Trib to Hungars Cr. Uppermost portion of south branch. Portion of CBP segment CB7PH. DSS (Admin - Prohibition) due to STP VA0023817 Outfall) shellfish direct harvesting condemnation # 086-136F (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAT-C14E_JAC02A06 / Jacobus Creek - Upper Forks / West of Johnstown. Trib to Hungars Cr. Middle mainstem, north fork and lower portion of south fork. Portion of CBP segment CB7PH. DSS (Admin Cond) shellfish direct harvesting condemnation # 086-136 B (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.152
VAT-C14E_JAC03A06 / Jacobus Creek - Lower / West of Johnstown. South shore trib. to Hungars Cr. Lower mainstem portion. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.187
VAT-C14E_MAT01A06 / Mattawoman Creek - Upper / South of Wilsonia Neck. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 086-136 D & S48 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.155
VAT-C14E_MAT02A10 / Mattawoman Creek - Lower / South of Wilsonia Neck - mouth of Mattawoman Cr. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.357
VAT-C14E_THG01A06 / The Gulf - Upper / From end of tidal waters downstream to narrowing 0.45 mi. from mouth. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 087-174 A (effective 20150827).	4A	Aquatic Plants (Macrophytes)	2006	L	0.090
VAT-C14E_THG02A06 / The Gulf - Lower / From narrowing 0.45 mi. from mouth downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish condemnation # 087-174 (20150827) & no DSS.	4A	Aquatic Plants (Macrophytes)	2006	L	0.204
VAT-C14E_WHS01A06 / Westerhouse Creek - North Branch [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 085-199 (20181115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.214
VAT-C14E_WHS02A06 / Westerhouse Creek - Upper South Branch [TMDL] / In Church Neck area, west of Bridgetown. Upper portion of Westerhouse Creek South Branch. Portion of CBP segment CB7PH. Portion DSS shellfish direct harvesting condemnation # 085-199 A (effective 20181115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.019

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C14E_WHS03A20 / Upper Westerhouse Creek - North Branch& Upper Middle [TMDL] / In Church Neck area, west of Bridgetown. Portion of CBP segment CB7PH. DSS shellfish direct harvesting Restricted-condemnation # 085-199 (20181115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAT-C14E_ZZZ01A00 / Unsegmented estuaries in C14E. / Evaluated non segmented portions of C14E - mouth of Matchotank & Hungars Crs. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 086-136 20200915.	4A	Aquatic Plants (Macrophytes)	2006	L	0.838
VAT-C15E_CCB01A06 / Cape Charles Beach / Located west of Town of Cape Charles, along Chesapeake Bay. Portion of CBP segment CB7PH. DSS (Administrative) shellfish harvesting condemnation 089-011 A (effective 20051202) which is present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.079
VAT-C15E_CRS01A06 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to confluence with Chesapeake Bay. Including Old Castle Cr. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815)	4A	Aquatic Plants (Macrophytes)	2006	L	2.138
VAT-C15E_CRS01B18 / Cherrystone Inlet - Eyrehall Cr / SE trib to Cherrystone Inlet. Portion of CBP segment CB7PH. DSS OPEN shellfish direct harvesting condemnation # 088-139 (20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.103
VAT-C15E_CRS02A20 / Cherrystone Inlet - Upper / From Eyreville Neck end of tidal waters downstream to the mouth of the inlet. Portion of CBP segment CB7PH. DSS shellfish OPEN # 088-139 (20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.243
VAT-C15E_KNS01A00 / Kings Creek - Upper Forks and Middle / From end of tidal waters downstream 0.16 mi. past confluence of the two most upstream forks. Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 088-139 A (20180821).	4A	Aquatic Plants (Macrophytes)	2006	L	0.093
VAT-C15E_KNS03A08 / Kings Creek - Lower Middle / From start of DSS marina area downstream to Cherrystone. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 088-139 (20200815) &Seasonal Condemnation M1.	4A	Aquatic Plants (Macrophytes)	2006	L	0.167
VAT-C15E_KNS03B22 / Kings Creek - Lower Middle / DSS marina area DSS (Admin) shellfish direct harvesting condemnation # 088-139 (20200815) Section B. Portion of CBP segment CB7PH	4A	Aquatic Plants (Macrophytes)	2006	L	0.040
VAT-C15E_KNS04A22 / Kings Creek - Lower Middle / From Townfield Dr to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation OPEN # 088-139 (20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.040

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VAT-C15E_ZZZ01A08 / Unsegmented estuaries in C15E. / Evaluated non segmented portions of C15E. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.587
VAT-C16E_CCH01A04 / Cape Charles Harbor - Upper / From most upstream end of harbor downstream to 1/2 distance to mouth (RM 0.23). Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 B (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	4A	Aquatic Plants (Macrophytes)	2006	L	0.056
VAT-C16E_CCH02A00 / Cape Charles Harbor - Lower / From 1/2 distance to mouth (RM 0.23) downstream to mouth. Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 A (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).	4A	Aquatic Plants (Macrophytes)	2006	L	0.060
VAT-C16E_KPT01A06 / Kiptopeke Beach / Located west of Cedar Grove, along Chesapeake Bay, near southern tip of Eastern Shore. Portion of CBP segment CB7PH. No DSS shellfish direct harvesting condemnation present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAT-C16E_OPC01A06 / Old Plantation Creek - Upper [TMDL-bact] / Upper portion of Old Plantation Creek within TMDL-Bact (33771). CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAT-C16E_OPC01B08 / Old Plantation Creek - Upper [No TMDL-bact] / Upper portion of Old Plantation Creek and one southeast embayment not within TMDL-Bact (33771). Portion of CBP segment CB7PH. DSS shellfish direct harvesting condemnation # 090-152 A (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.152
VAT-C16E_OPC02A00 / Old Plantation Creek - Lower / Lower portion of Old Plantation Creek, from approx. Red Bank (RM 2.0) downstream to mouth. Portion of CBP segment CB7PH. DSS (OPEN) shellfish direct harvesting condemnation # 090-152 (20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.926
VAT-C16E_ZZZ01A00 / Unsegmented estuaries in C16E. / Evaluated non segmented portions of C16E. Portion of CBP segment CB7PH. DSS Shellfish OPEN condemnation 20190815.	4A	Aquatic Plants (Macrophytes)	2006	L	0.146

Chesapeake Bay segment CB7PH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
575.227		

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Chesapeake Bay segment CB7PH

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shallow-Water Submerged Aquatic Vegetation			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	575.227		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: CB8PH-SAV-BAY Chesapeake Bay segment CB8PH

Cause Location: This cause encompasses the complete CBP segment CB8PH.

Cause City/County: Chesapeake Bay - County Not Applicable; Hampton; Norfolk; Virginia Beach

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The acres of submerged aquatic vegetation (SAV) mapped through aerial surveys do not meet the criteria. Submerged Aquatic Vegetation acres goal is 10 acres. Aerial analysis of SAV over the three most recent years of data indicate segment has attained 35% of this goal. There is insufficient data to assess the water clarity criteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-04DE / Chesapeake Bay - S. Thimble Island BSS Condemnation #163 / Va Dept of Health Shellfish zone #163. Open to shellfish harvesting as of 4/25/2007. S. Thimble Island. HUC: 02080101	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VACB-R01E-04EE / Chesapeake Bay - Off Little Creek BSS #068-017, Section C. / Va Dept of Health Shellfish (administrative) closure #068-017, A portion of section C. Off Little Creek. HUC: 02080101.[effective 2005-3-08]	4A	Aquatic Plants (Macrophytes)	2006	L	0.540
VACB-R01E-04GE / Chesapeake Bay - Off Little Creek BSS #068-017, Areas A & B / Va Dept of Health Shellfish (administrative) closure #068-017, Off Little Creek, Sections A and B. HUC: 02080101.[effective 2005-3-08]	4A	Aquatic Plants (Macrophytes)	2006	L	1.355
VACB-R01E-CB8 / Chesapeake Bay - CBP Segment CB8PH / This assessment unit is the mainstem portion of Chesapeake Bay Program segment CB8PH, located in the Virginia Chesapeake Bay between the mouths of the James River and mouth of Chesapeake Bay. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	141.796
VAT-C07E_BCB01A06 / Buckroe Beaches / From northeast of Buckroe Beach southwest to parallel with start of Mill Cr. Portion of CBP Segment CB8PH. No DSS shellfish condemnations.	4A	Aquatic Plants (Macrophytes)	2006	L	0.224
VAT-C07E_FMB01A12 / Fort Monroe Beaches / All of Fort Monroe Beach from the start of Mill Cr south to Lighthouse Old Point Comfort. Portion of CBP Segment CB8PH. No DSS shellfish condemnations.	4A	Aquatic Plants (Macrophytes)	2006	L	0.333
VAT-C07E_GRV01A06 / Grandview Pier & Saltponds Beaches / From Grandview beach southwest to northeast of Buckroe Beach. Offshore of Buckroe Beach VDH monitoring. area Portion of CBP Segment CB8PH. No DSS shellfish condemnation present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.241

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_GRV02A10 / Grandview Pier & Saltponds Beaches [No TMDL] / From southernmost point of Grandview Beach southwest to northeast of Buckroe Beach. Shoreward of GRV01A06. Portion of CBP Segment CB8PH. DSS ADMIN shellfish condemnation # 055-216 A (effective 20080530).	4A	Aquatic Plants (Macrophytes)	2006	L	0.119
VAT-C07E_LON02A10 / Long & Grunland Creeks - DSS Admin Area / South shore trib. to mainstem Back R. Portion adjacent to Grandview area. CBP Segment CB8PH. DSS shellfish harvesting condemnation # 055-216 A ADMIN. Cond. (effective 20080530).	4A	Aquatic Plants (Macrophytes)	2006	L	0.085
VAT-C08E_CBB01A06 / 13th View Beach / Located along Chesapeake Bay, in Norfolk. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.353
VAT-C08E_CBB01B14 / Sara Constance Park and Ocean View Park Beaches / Located along Chesapeake Bay, in Norfolk. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.140
VAT-C08E_CBB01C16 / 10th View Beach / Located along Chesapeake Bay, in cities of Norfolk and Virginia Beach. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.152
VAT-C08E_CBB02A16 / Ches Bay Beaches / Located along Chesapeake Bay, in cities of Norfolk and Virginia Beach. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.631
VAT-C08E_CBB02B20 / North Community Beach / Located along Chesapeake Bay, in cities of Norfolk and Virginia Beach. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAT-C08E_CBB03A16 / Chicks Beach / Located along Chesapeake Bay near Chesapeake Bay Bridge Tunnel, in cities of Norfolk and Virginia Beach. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	0.433
VAT-C08E_CBB04A16 / Shore Drive Beaches -East / Located along Chesapeake Bay, Virginia Beach. Portion of CBP segment CB8PH. No DSS shellfish direct harvesting condemnations present.	4A	Aquatic Plants (Macrophytes)	2006	L	1.041

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_LCC01A08 / Little Creek & Harbor / Entire area of Little Creek and upper portion of Little Creek Harbor. From headwaters of Little Cr. downstream to lower portion of Harbor at mouth of Bay. CBP segment CB8PH. DSS (ADMINISTRATIVE) condemnation # 068-017 C (effective 20050308).	4A	Aquatic Plants (Macrophytes)	2006	L	1.064

Chesapeake Bay segment CB8PH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
148.577		

Chesapeake Bay segment CB8PH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
148.577		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D01E-02-BAC Little Mosquito Creek

Cause Location: This cause encompasses the upper and lower portions of the Creek.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting due to exceedance of the criteria for Enterococci bacteria (7 violates / 34 obs.) at 7-LTM000.80. TMDL for Little Mosquito approved for SF and Recreation 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_LTM01A06 / Little Mosquito Creek - Upper / From headwaters downstream to confluence of Snead Branch. Area of DSS Prohibited (ADMINISTRATIVE-due to VPDES outfall @ VA0024457) condemnation 100-032 B (effective 2010-11-08).	4A	Enterococcus	2004	L	0.071
VAT-D01E_LTM02A04 / Little Mosquito Creek - Lower / From confluence of Snead Branch downstream to mouth. DSS shellfish ADMINISTRATIVE CONDEMNATION # 100-032 A (effective 2010-11-08).	4A	Enterococcus	2004	L	0.138

Little Mosquito Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.208		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D01E-02-DO Little Mosquito Creek

Cause Location: This cause encompasses the upper and lower portions of the Creek.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Aquatic Life Use not supporting based on DO criteria exceedances with 4 violations / 35 observation at the downstream station. pH supports Aquatic Life Use with 0 violations / 35 observations. The data to assess the Aquatic Life Use is extrapolated from downstream station (DEQ-AQM station @ 7-LTM000.80).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_LTM01A06 / Little Mosquito Creek - Upper / From headwaters downstream to confluence of Snead Branch. Area of DSS Prohibited (ADMINISTRATIVE-due to VPDES outfall @ VA0024457) condemnation 100-032 B (effective 2010-11-08).	5A	Dissolved Oxygen	2008	H	0.071
VAT-D01E_LTM02A04 / Little Mosquito Creek - Lower / From confluence of Snead Branch downstream to mouth. DSS shellfish ADMINISTRATIVE CONDEMNATION # 100-032 A (effective 2010-11-08).	5A	Dissolved Oxygen	2004	H	0.138

Little Mosquito Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.208		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D01E-04-BAC** **Swans Gut Creek**

Cause Location: This cause encompasses from the Virginia/Maryland state line downstream to Rivermile 0.13, above the confluence with Chincoteague Bay.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Recreation Use is impaired based on exceeding criteria (8 violates / 17 obs.) for Enterococcus bacteria @ 7-SGT002.46. Impairment is included in the Bacteria TMDL for Swans Gut Creek EPA approved 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_SGT01A04 / Swans Gut Creek / From Virginia/Maryland state line downstream to RM 0.13, above the confluence with Chincoteague Bay. DSS shellfish direct harvesting Restricted ADMIN condemnation # 100-097 A (effective 2018-12-18).	4A	Enterococcus	2006	L	0.1

Swans Gut Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.1		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D01E-04-DO** **Swan Gut Creek**

Cause Location: This cause encompasses the entirety of Swan Gut Creek. From Virginia/Maryland state line downstream to Rivermile 0.13, above the confluence with Chincoteague Bay.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on DO exceedances of 7 / 25 at station 7-SGT002.46.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_SGT01A04 / Swans Gut Creek / From Virginia/Maryland state line downstream to RM 0.13, above the confluence with Chincoteague Bay. DSS shellfish direct harvesting Restricted ADMIN condemnation # 100-097 A (effective 2018-12-18).	5A	Dissolved Oxygen	2004	L	0.1

Swan Gut Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.1		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D01E-17-SF Swans Gut Creek-restricted SF

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation # 100-097 A effective date 20181206

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is not supported based on the DSS Condemnation # 100-097 A effective date 20181206. This impairment was split from VAT-D01E_SGT02A08 in 2016. This SF restricted area in 2016 is included in the TMDL for Shellfish Areas Listed due to Bacterial Contamination: Chincoteague Bay EPA approved 7/31/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_SGT01B16 / Swans Gut Creek / From RM 0.13 to end of restricted SF area (confluence with Chincoteague Bay). DSS shellfish direct harvesting condemnation # 100-097 A (effective 2018-12-06).	4A	Fecal Coliform	2016	L	0.013

Swans Gut Creek-restricted SF

Shellfishing		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.013		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D01E-19-EBEN** **Chincoteague Bay**

Cause Location: This cause encompasses the southwest portion of Chincoteague Bay and west of Chincoteague Island; this cause is a relatively small circular area of southwest Chincoteague Bay.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Benthic probmon; WoE Station 7-CHT001.12. Potential chronic effects of cumulative sediment metals; excessive abundance of tubificids and spionids suggests possible eutrophication.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D01E_CHT01B20 / Chincoteague Bay / West of Chincoteague Island (southwest circular area). DSS condemnation #s (OPEN) 100-097, 100-032, 100-153 & 101-020 (effective dates 10-25-2012, 11-9-2005, 5-16-2007)	5A	Estuarine Bioassessments	2020	L	0.016

Chincoteague Bay

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.016		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D02E-01-BAC Assawoman Creek- Upper/Lower

Cause Location: This cause encompasses the entirety of Assawoman Creek. This Creek is North of Assawoman Island and discharges to Womans Bay.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is not supporting based on Enterococcus exceedances of the swimming criteria indicator at the lower segment (13 violates / 36 obs.) at Station 7-ASW003.36. The upper portion of Assawoman assess Recreation Use based on the extrapolated from downstream station.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02E_ASW01A00 / Assawoman Creek - Upper / From headwaters downstream to confluence of Pettit Branch (RM 3.4). Portion of DSS shellfish direct harvesting condemnation # 099-135A (effective 2017-12-12)	4A	Enterococcus	1998	L	0.073
VAT-D02E_ASW02A00 / Assawoman Creek - Lower / From confluence of Pettit Branch downstream to end of Shellfish Condemnation. Portion of DSS shellfish direct harvesting condemnation # 099-135 (effective date 2017-12-12).	4A	Enterococcus	1998	L	0.054
VAT-D02E_ASW02B12 / Assawoman Creek - Lower / From end of condemnation to mouth . Portion of DSS shellfish direct harvesting condemnation # OPEN 099-135 (effective date 2017-12-12).	4A	Enterococcus	1998	L	0.010

Assawoman Creek- Upper/Lower

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.136		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D02E-01-DO Assawoman Creek- Upper/Lower

Cause Location: This cause encompasses the entirety of Assawoman Creek. This Creek is North of Assawoman Island and discharges to Womans Bay.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired based on DO concentrations that exceed the criteria for this parameter with 8 violates/ 36 obs. At Station 7-ASW003.36. The upper portion of Assawoman Creek assessed using downstream monitoring at Station 7-ASW003.36.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02E_ASW01A00 / Assawoman Creek - Upper / From headwaters downstream to confluence of Pettit Branch (RM 3.4). Portion of DSS shellfish direct harvesting condemnation # 099-135A (effective 2017-12-12)	5A	Dissolved Oxygen	2008	H	0.073
VAT-D02E_ASW02A00 / Assawoman Creek - Lower / From confluence of Pettit Branch downstream to end of Shellfish Condemnation. Portion of DSS shellfish direct harvesting condemnation # 099-135 (effective date 2017-12-12).	5A	Dissolved Oxygen	2004	H	0.054
VAT-D02E_ASW02B12 / Assawoman Creek - Lower / From end of condemnation to mouth . Portion of DSS shellfish direct harvesting condemnation # OPEN 099-135 (effective date 2017-12-12).	5A	Dissolved Oxygen	2004	H	0.010

Assawoman Creek- Upper/Lower

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.136		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D02E-01-SF Assawoman Creek- Upper/Lower

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 099-135 A (effective 2017-12-12).

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting based on DSS Condemnation # 099-135 A (effective 2017-12-12).

TMDL for Recreation and Shellfish bacteria impairments completed and approved 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02E_ASW01A00 / Assawoman Creek - Upper / From headwaters downstream to confluence of Pettit Branch (RM 3.4). Portion of DSS shellfish direct harvesting condemnation # 099-135A (effective 2017-12-12)	4A	Fecal Coliform	1998	L	0.073
VAT-D02E_ASW02A00 / Assawoman Creek - Lower / From confluence of Pettit Branch downstream to end of Shellfish Condemnation. Portion of DSS shellfish direct harvesting condemnation # 099-135 (effective date 2017-12-12).	4A	Fecal Coliform	1998	L	0.054

Assawoman Creek- Upper/Lower

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.126		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D02E-10-SF Unsegmented estuaries in D02E

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 099-135 A 10/27/2016.

Cause City/County: Accomack County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting based on DSS Condemnation # 099-135 A effective date 10-27-2016. Nested within Assawoman Creek TMDL completed and approved 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02E_ZZZ01B10 / Unsegmented estuaries in D02E / Evaluated non-segmented estuaries in D02E. DSS shellfish condemnations 099-135 A (effective 12/12/2018).	4A	Fecal Coliform	2010	L	0.007

Unsegmented estuaries in D02E

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	0.007		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D02R-01-BAC** **Pettit Branch**

Cause Location: This cause encompasses the entirety of the Pettit Branch water. South shore tributary to Assawoman Creek. From headwaters to start of tidal waters.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired due to exceedance of the criteria for E.coli bacteria at station 7-PET000.80. TMDL completed and approved 11/7/2008.

1998 CD segment for FC & benthics (Attachment A, Category 1, Part 1) VAT-D02R-01.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02R_PET01A00 / Pettit Branch / South shore tributary to Assawoman Creek. From headwaters to start of tidal waters.	4A	Escherichia coli (E. coli)	1998	L	1.89

Pettit Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.89

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D02R-01-BEN Pettit Branch

Cause Location: This cause encompasses the entirety of the Pettit Branch water. South shore tributary to Assawoman Creek. From headwaters to start of tidal waters.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: DEQ Streams Benthic-Macroinvertebrate Bioassessments using VCPMI. The Aquatic Life Use is impaired due to impacts to the stream's benthic population (VCPMI [2015: S= 25.4 F= 9.2 ; 2013: 14.4, 2010_IM: S=9.0, F=20.2] [2008_IM:S=11.7, F=23.0]). Possible runoff effects from Eastern Shore Seafood.

TMDL EPA approved 7/29/2010 for benthic D02R-01-BEN

1998 CD segment for FC & benthics (Attachment A, Category 1, Part 1) VAT-D02R-01.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02R_PET01A00 / Pettit Branch / South shore tributary to Assawoman Creek. From headwaters to start of tidal waters.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.89

Pettit Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.89

Sources: Seafood Processing Operations

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D02R-02-BAC** **Assawoman Creek**

Cause Location: Riverine Portion of Assawoman Creek near Temperanceville Rd and east of Hwy 13.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is impaired based on E. coli data collected @ Station 7-ASW008.88 (2020 Cycle: 2 viol / 3 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D02R_ASW01A16 / Assawoman Creek / Riverine Portion of Assawoman Creek near Temperanceville Rd and east of Hwy 13.	5A	Escherichia coli (E. coli)	2020	L	1.03

Assawoman Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.03

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03E-02-BAC Finney Creek - Upper

Cause Location: This cause encompasses the upper portion of Gargathy Creek. Tributary to Hummock Cove, station located near Locustville. Upper portion upstream of widening (approx, RM 2.38).

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Recreation Use is impaired due to 7 viol / 11 obs. of the criteria for Enterococci bacteria at DEQ (AQM) station @ 7-FNC002.46. Previous impairment was based on Fecal Coliform data during the 2006 cycle at Station 7-FNC002.43. The Recreation Use impairment is included in the TMDL for Pathogens for Finney Creek, EPA approved 9/ 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03E_FNC01A04 / Finney Creek - Upper / Tributary to Hummock Cove, station located near Locustville. Upper portion upstream of widening (approx. RM 2.38). No DSS shellfish direct harvesting condemnation.	4A	Fecal Coliform	2004	L	0.002

Finney Creek - Upper

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Fecal Coliform - Total Impaired Size by Water Type:	0.002		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03E-05-BAC Parker Creek - Middle and Lower

Cause Location: This cause encompasses the middle and lower portions of Parker Creek. Tributary to Metompkin Bay. Middle estuarine portion of creek, from confluence of North Fork (RM 1.3) downstream to end of DSS condemnation.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on Enterococcus data collected at 7-PAR001.20 with 4 viol /11 obs. There is a TMDL for Recreation and Shellfish impairments that was EPA approved 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03E_PAR01A06 / Parker Creek - Middle / Tributary to Metompkin Bay. Middle estuarine portion of creek, from confluence of North Fork (RM 1.3) downstream to end of DSS (ADMINISTRATIVE) shellfish condemnation # 098-098B (effective 2005-06-15).	4A	Enterococcus	2006	L	0.018
VAT-D03E_PAR02A06 / Parker Creek - Lower / Tributary to Metompkin Bay. Lower estuarine portion of creek, from start of DSS shellfish Admin condemnation downstream to mouth (RM 0.0). DSS shellfish condemnation # 098-098A (effective 2005-06-15).	4A	Enterococcus	2006	L	0.029

Parker Creek - Middle and Lower

Recreation	Enterococcus - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.047		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D03E-07-BAC** Wachapreague Channel

Cause Location: This cause encompasses a portion of Wachapreague Channel. Portion below Bunting Point Road to boat launch. Segment around area at Wachapreague Harbor.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: Data to assess the Use extrapolated from upstream station at 7-WAS003.26. Recreation Use was previously not supporting based on data for Enterococci with 1 exceedance of 17 samples. In the 2022 IR cycle, there are 0 out of 24 samples with an insufficient status due to no STV exceedances but insufficient data to analyze geomean. The impaired status is retained.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_WAS02A14 / Wachapreague Channel / Located east of Wachapreague. Segment around area at Wachapreague harbor. DSS shellfish harvesting condemnation # 097-219 M1 (effective 2013-09-05).	5A	Enterococcus	2008	L	0.026

Wachapreague Channel

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.026		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D03E-08-DO** Northam Creek

Cause Location: This cause encompasses a portion of Northam narrows between Hog Neck Creek and Mud Narrows, below Assawoman Creek.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use impairment is retained due to dissolved oxygen concentrations from 2008 Assessment (3 violates / 3 obs.) below the criteria minimum.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03E_NOT01A08 / Northam Creek / Estuarine portion of Northam Creek DSS (OPEN) # 099-135 OPEN effective date 2017-12-12.	5A	Dissolved Oxygen	2004	L	0.028

Northam Creek

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.028		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-01-BAC Parker Creek

Cause Location: This cause encompasses the Riverine section of Parker Creek, from headwaters (at PERDUE plant - VA0003808) downstream to start of tidal waters (downstream of RM 2.9). Located northeast of Accomack.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use is impaired due to exceedance of the criteria for E.coli bacteria (7-PAR003.09 - 26 violates / 33 obs.) and (7-PAR004.35 - 0 violates / 2 obs. impairments dropped off and therefore station can not be delisted).NESTED within Parker Creek TMDL for Recreation and Shellfish impairments EPA approved 1/15/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_PAR01A00 / Parker Creek / Riverine section of Parker Creek, from headwaters (at PERDUE plant - VA0003808) downstream to start of tidal waters (downstream of RM 2.9). Located northeast of Accomack.	4A	Escherichia coli (E. coli)	1994	L	2.03

Parker Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.03

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-01-BEN Parker Creek

Cause Location: This cause encompasses the Riverine section of Parker Creek, from headwaters (at PERDUE plant - VA0003808) downstream to start of tidal waters (downstream of RM 2.9). Located northeast of Accomack.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Aquatic Life Use is impaired due to impacts to the stream's benthic population. Benthic population impacts were recorded at the following sample events:

7-PAR003.09 - VCPMI [2012_IM: S=8.0, F=14.4, 2013:S=10.7 F=15.5 2014: F=18.0 2015: S= 9.1 F = 7.7 2016: S = 8.0 F= 31.2 2018: S=17.2 F=22.7 2017: S=31.1]

7-PAR004.35 - VCPMI [2009: S=1.9 F=10.5 2010: S=12.7 F=19.1 2011:S=16.5 F=12.5 2012: S=13.2, F=31.2; 2013: S=19.4 F=17.6 2014: F=18.8 2015: S= 13.2 F= 18.8 2016: S= 9.0 F= 22.3 2018: S=11.4 F=28.5 2017: S=17.4 F=12.4]

TMDL for benthic EPA approved 11/7/08.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_PAR01A00 / Parker Creek / Riverine section of Parker Creek, from headwaters (at PERDUE plant - VA0003808) downstream to start of tidal waters (downstream of RM 2.9). Located northeast of Accomack.	4A	Benthic Macroinvertebrates Bioassessments	1994	L	2.03

Parker Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.03

Sources: Agriculture; Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-01-DO Rattrap Creek

Cause Location: Rattrap Creek perpendicular to Forest Rd and Eastern Shore Railroad.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic life Use is impaired due to DO data collected @ Station 7-RTT004.32 (2/7 exceedance rate).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_RTT02A20 / Rattrap Creek / Rattrap Creek perpendicular to Forest Rd and Eastern Shore Railroad.	5A	Dissolved Oxygen	2022	L	1.51

Rattrap Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.51

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-02-BAC Gargathy Creek

Cause Location: This cause encompasses the Riverine portion of Gargathy Creek, from headwaters downstream to beginning of tidal waters. Located southeast of Nelsonia.

Cause City/County: Accomack County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreation Use impairment is retained from 2004 list date for Fecal Coliform. No bacteria data within assessment window. TMDL of DO and Pathogens for Gargathy Creek (Upper, Lower and Riverine Portions) in Accomack County, Virginia EPA approved 10/17/2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_GAR01A02 / Gargathy Creek / Riverine portion of Gargathy Creek, from headwaters downstream to beginning of tidal waters. Located southeast of Nelsonia.	4A	Escherichia coli (E. coli)	2004	L	2.84

Gargathy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.84

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-03-BEN Ross Branch

Cause Location: This cause encompasses the Riverine section of Ross Branch, segment begins at headwaters extending downstream to start of tidal waters. Located south of Accomack. Tributary to Folly Creek.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired due to impacts to the stream's benthic population. DEQ Streams Benthic-Macroinvertebrate Bioassessments using VCPMI at Station 7-RSS001.40.

VCPMI [2020: S=8.5 F=33.5 2019: S=12.6 2014: F=26.4 2012: F=29.3, 2010: S=13.0, F=12.6] Site is often dominated by high numbers of scuds which drive down taxa richness scores. Site is possibly affected by agricultural runoff.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_RSS01A02 / Ross Branch / Tributary to Folly Creek. Riverine section of Ross Branch, segment begins at headwaters extending downstream to start of tidal waters. Located south of Accomack.	5A	Benthic Macroinvertebrates Bioassessments	2002	H	3.2

Ross Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.2

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-04-BEN Unnamed tributary to Folly Creek

Cause Location: This cause encompasses the headwaters downstream to start of tidal waters. Located east of Accomack, near Edge Hill Cemetery.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: ALUS is impaired based on benthic VCPMI scores. Benthic population impacts were recorded at the following sample events: 7-XDE000.40 - VCPMI [2020: S=10 F=51] and [2018: S=12.6 F=36.8I] and [2012: F=36.4] and [2014: F=50.4] and [2010_IM:S=14.1, F=54.0] and [2008: S=13.0, F=37.3] and [2007: S=12.2 and F = 29.7]. Observations during benthic data collection - Stream has a petroleum smell .

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_XDE01A02 / Unnamed tributary to Folly Creek / Segment begins at headwaters downstream to start of tidal waters. Located east of Accomack, near Edge Hill Cemetery.	5A	Benthic Macroinvertebrates Bioassessments	2002	H	1.54

Unnamed tributary to Folly Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.54

Sources: Leaking Underground Storage Tanks; Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D03R-05-BEN** **Rattrap Creek**

Cause Location: This cause encompasses the end of Finneys Creek near Locustville. Near Intersection of Drummond Rd and Locustville Rd, approx 2.6 mi.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on the streams Benthic population as recorded at the following sample event: 7-RTT000.49 with VCPMI [IM_ 2014: S=35.3 2013: F=31.6 2010: S=23.2, F=26.8] and 7-RTT000.74 [2020: S= 28 F=32].

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_RTT01A12 / Rattrap Creek / End of Finneys Creek near Locustville. Near Intersection of Drummond Rd and Locustville Rd, approx 2.6 mi.	5A	Benthic Macroinvertebrates Bioassessments	2012	H	2.74

Rattrap Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.74

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D03R-06-BEN** North Fork

Cause Location: This cause encompasses the north Fork of Parker Creek. Near Parker Neck. From the end of tidal waters crossing US Route 13 to end of stream.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired based on the benthic VCPMI scores collected at station 7-PNF001.98. Benthic Data IM [2011:S=39.4 F=10.0 2013: F=7.2 2014: S=16.4 2020: F=28]. There is potential stress causing the low scores at this site. Physical habitat conditions may also be influencing diversity, as riparian zone width is suboptimal and there is noticeable sedimentation in the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_PNF01A14 / North Fork / North Fork of Parker Creek. Near Parker Neck. From the end of tidal waters crossing US Route 13 to end of stream.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	3.13

North Fork

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.13

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D03R-07-BEN Custis Creek

Cause Location: This cause encompasses the riverine portion of Creek off of Burtons Bay near Locustville.

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use is not supported based on the benthic macroinvertebrate data collected at Station 7-CUS004.08. Benthic data was evaluated using the VCPMI index. Data was collected in 2013 with S=17.5 and F= 15.5. This is a small first order stream on the eastern shore similar to Ross Branch in habitat. Custis Creek site has limited instream habitat for colonization of benthic organisms and may be subject to agricultural runoff from nearby farm fields. The stream seems to be dominated by midges and fingernail clams. Both values are below the 40 VCPMI criteria and therefore this station is listed as impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D03R_CUS01A16 / Custis Creek / Riverine portion of Creek off of Burtons Bay near Locustville.	5A	Benthic Macroinvertebrates Bioassessments	2016	H	1.23

Custis Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.23

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04E-01-DO Red Bank Creek-Upper

Cause Location: This cause encompasses all portions of Red Bank Creek. Tributary to Hog Island Bay.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use impairment is retained from 2008 Assessment. No new data within assessment window. Impaired (2 violates / 3obs.) due to dissolved oxygen concentrations below the criteria minimum (4.0 mg/l).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_RBC01A08 / Red Bank Creek - Upper / Tributary to Hog Island Bay. Southeast of Marionville, near Brick House Neck. Segment from end of tidal waters downstream to confluence of UT (XDF). DSS shellfish direct harvesting condemnation # 095-192 (effective 2018-05-30).	5A	Dissolved Oxygen	2004	L	0.003

Red Bank Creek-Upper

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.002		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04E-02-DO Unnamed tributary to Red Bank Creek

Cause Location: This cause encompasses a portion of an unnamed Tributary to Red Bank Creek. Southeast of Marionville, near Brick House Neck. Segment from first branching of creek (RM 0.3) downstream to confluence with Red Bank Creek. DSS shellfish direct harvesting conde

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use impairment is retained based on DO violations. Previous Assessment: The Aquatic Life Use is impaired due to dissolved oxygen concentrations (2 exc/ 4 samples) below the criteria minimum (4.0 mg/l).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_XDF01A04 / Unnamed tributary to Red Bank Creek / Tributary to Red Bank Creek. Southeast of Marionville, near Brick House Neck. Segment from first branching of creek (RM 0.3) downstream to confluence with Red Bank Creek. DSS OPEN shellfish direct harvesting condemnation # 095-192 A (effective 2011-9-08).	5A	Dissolved Oxygen	2020	L	0.009

Unnamed tributary to Red Bank Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.009		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D04E-05-BAC** **Machipongo River**

Cause Location: This cause encompasses from the end of tidal waters downstream to 0.5 mi. south of Rt 182 crossing (minus area at mouth of Greens Creek).

Cause City/County: Accomack County; Northampton County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Recreation Use is impaired based on E.coli concentration exceed the swimming criteria indicator at station 7-MAC008.55 (2 violates/ 12 obs.). Bacteria TMDL Development in Red Bank Creek and Machipongo River, Virginia was completed and EPA approved 1/26/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_MAC01A00 / Machipongo River / Located east of Exmore. Segment extends from end of tidal waters downstream to 0.5 mi. south of Rt 182 crossing (minus area at mouth of Greens Creek). DSS Admin condemnation # 096-218 A (effective date 2009-9-11).	4A	Enterococcus	2008	L	0.314

Machipongo River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.314		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04E-07-SF Red Bank Creek - Upper

Cause Location: Tributary to Hog Island Bay. Southeast of Marionville, near Brick House Neck. Segment from end of tidal waters downstream to confluence of UT (XDF).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the DSS shellfish Restricted condemnation # 095-192 effective 2018-05-30.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_RBC01A08 / Red Bank Creek - Upper / Tributary to Hog Island Bay. Southeast of Marionville, near Brick House Neck. Segment from end of tidal waters downstream to confluence of UT (XDF). DSS shellfish direct harvesting condemnation # 095-192 (effective 2018-05-30).	4A	Fecal Coliform	2020	L	0.003

Red Bank Creek - Upper

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles) 0.002	Reservoir (Acres)	River (Miles)
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Sources: Agriculture; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04E-08-SF Red Bank Creek - Middle and Lower

Cause Location: Tributary to Hog Island Bay. Segment approx 0.37 mi. from UT (XDF) to boat dock. DSS shellfish Restricted condemnation # 095-192 (effective 2018-05-30).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the DSS shellfish Restricted condemnation # 095-192 effective 2018-05-30.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_RBC02A08 / Red Bank Creek - Middle & Lower / Tributary to Hog Island Bay. Segment approx 0.37 mi. from UT (XDF) to boat dock. DSS shellfish Restricted condemnation # 095-192 (effective 2018-05-30).	4A	Fecal Coliform	2020	L	0.029

Red Bank Creek - Middle and Lower

Shellfishing

Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	0.029		

Sources: Agriculture; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04E-09-DO **Quinby Harbor-Upshur Bay**

Cause Location: Located east of Quinby. Segment around area at mouth of Quinby Harbor. DSS shellfish seasonal direct harvesting condemnation # 096-218 M1 (effective 2009-9-11).

Cause City/County: Accomack County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired due to DO impairment @ Station 7-UPS001.97 (5 viol / 22 obs).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_UPS01A06 / Quinby Harbor-Upshur Bay / Located east of Quinby. Segment around area at mouth of Quinby Harbor. DSS shellfish seasonal direct harvesting condemnation # 096-218 M1 (effective 2009-9-11).	5A	Dissolved Oxygen	2020	L	3.389

Quinby Harbor-Upshur Bay

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	3.389		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D04E-10-SF** **Unnamed tributary to Red Bank Creek**

Cause Location: Tributary to Red Bank Creek. Southeast of Marionville, near Brick House Neck. Segment from first branching of creek (RM 0.3) downstream to confluence with Red Bank Creek.

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the DSS shellfish Restricted condemnation # 095-192 A effective 2018-05-30.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_XDF01A04 / Unnamed tributary to Red Bank Creek / Tributary to Red Bank Creek. Southeast of Marionville, near Brick House Neck. Segment from first branching of creek (RM 0.3) downstream to confluence with Red Bank Creek. DSS OPEN shellfish direct harvesting condemnation # 095-192 A (effective 2011-9-08).	4A	Fecal Coliform	2006	L	0.009

Unnamed tributary to Red Bank Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.009		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D04E-11-EBEN** Machipongo River-Middle

Cause Location: Middle-Machipongo River

Cause City/County: Accomack County; Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: 7CMAC002.45 - '17 C2 (5A). Benthic probmon. Potential exists for chronic effects of sediment metals.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04E_MAC01B20 / Machipongo River-Middle / Middle-Machipongo River	5A	Estuarine Bioassessments	2020	L	0.134

Machipongo River-Middle

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.134		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D04R-01-DO Red Bank Creek

Cause Location: This cause encompasses the area southeast of Marionville. Segment from headwaters downstream to end of tidal waters.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: The Aquatic Life Use is impaired for DO at Station 3-RBC003.87 with DO 3 exc/11 samples. pH is supported with 0 exc/ 11 samples. Draft DO natural conditions evaluation for this impairment and Unnamed tributary to Red Bank Creek .

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04R_RBC01A04 / Red Bank Creek / Southeast of Marionville. Segment from headwaters downstream to end of tidal waters.	5C	Dissolved Oxygen	2016	L	1.37

Red Bank Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.37

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D04R-04-BEN** UT to Mill Creek

Cause Location: This cause encompasses the Unnamed trib to Mill Creek Stream. Stream is east of Treherneville crossing over Route 600.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The ALUS is not supported based on the benthic data collected in 2011 using the VCPMI. The Spring score was 20.9 and the Fall was 9.0. Habitat is adequate for colonization of a healthy benthic community, but pH is somewhat acidic and dissolved oxygen was very low in the spring. The stream was dominated by midge larvae, a frequent indicator of human disturbance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D04R_XER01A14 / UT to Mill Creek / Unnamed trib to Mill Creek Stream. Stream is east of Treherneville crossing over Route 600.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	1.49

UT to Mill Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			1.49

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D05E-01-BAC Oyster Slip (Harbor) - Upper

Cause Location: This cause encompasses area adjacent to Brockenberry Bay within upper portion of the harbor. Located in the town of Oyster, east of Cheriton.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: No data to assess within the assessment window. The status is retained.

The Recreation Use impairment is retained, data within assessment window is from 2005 with 0 exc/ 3 samples. of the instantaneous criteria for Enterococcus bacteria at DEQ (AQM) station @ 7-OSS000.37. Nested within Shellfish TMDL completed 6/19/2009.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05E_OSS01A00 / Oyster Slip (Harbor) - Upper / Located in the town of Oyster, east of Cheriton. Adjacent to Brockenberry Bay. Upper portion of the harbor. DSS shellfish direct harvesting Restricted condemnation # 094-012 A (effective 2014-02-26).	4A	Enterococcus	2006	L	0.034

Oyster Slip (Harbor) - Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.034		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D05E-01-HG Oyster Slip (Harbor) - Upper

Cause Location: This causes encompasses the area adjacent to Brockenberry Bay within upper portion of the harbor. Located in the town of Oyster, east of Cheriton.

Cause City/County: Northampton County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish Consumption is impaired based on Fish Tissue data collected 08-IM, FT_Met-Hg Sandbar Shark; 08-OE-Pb Oyster; 08 PCB Support at DEQ (AQM) station @ 7-OSS000.20.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05E_OSS01A00 / Oyster Slip (Harbor) - Upper / Located in the town of Oyster, east of Cheriton. Adjacent to Brockenberry Bay. Upper portion of the harbor. DSS shellfish direct harvesting Restricted condemnation # 094-012 A (effective 2014-02-26).	5A	Mercury in Fish Tissue	2010	L	0.034

Oyster Slip (Harbor) - Upper

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:	0.034		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D05E-02-SF Oyster Slip (Harbor) - Upper

Cause Location: Located in the town of Oyster, east of Cheriton. Adjacent to Brockenberry Bay. Upper portion of the harbor. DSS shellfish direct harvesting Restricted condemnation # 094-012 A (effective 2014-02-26).

Cause City/County: Northampton County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: This impairment was listed in the TMDL extent and is therefore not a nested impairment. The use was delisted in the 2016 IR. # 094-12 A (effective 2014-02-26).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05E_OSS01A00 / Oyster Slip (Harbor) - Upper / Located in the town of Oyster, east of Cheriton. Adjacent to Brockenberry Bay. Upper portion of the harbor. DSS shellfish direct harvesting Restricted condemnation # 094-012 A (effective 2014-02-26).	4A	Fecal Coliform	2020	L	0.034

Oyster Slip (Harbor) - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.034		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D05R-01-BAC** Taylor Creek

Cause Location: This cause encompasses area from Penn Central RR crossing downstream to impoundment 0.1 mi. downstream of station. Located northeast of Simpkins.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation Use is impaired based on E.coli data from Station 7-TAL000.80 with 4 exceedances/ 12 samples. The impaired status is given due to 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05R_TAL01A02 / Taylor Creek / Located northeast of Simpkins. Segment from Penn Central RR crossing downstream to impoundment 0.1 mi. downstream of station.	5A	Escherichia coli (E. coli)	2002	L	1.26

Taylor Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.26

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D05R-02-BAC** Holt Creek

Cause Location: This cause encompasses the area from headwaters downstream to start of tidal waters. Located east of Martins Siding.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Recreation use is impaired due to E. coli data at station @ 7-HLT002.08 (3 exceedances/ 24 samples). The impairment status is given due to 2 or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05R_HLT01A04 / Holt Creek / Located east of Martins Siding. Segment from headwaters downstream to start of tidal waters.	5A	Escherichia coli (E. coli)	2004	L	1.75

Holt Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.75

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D05R-03-BAC Holt Creek Unnamed Tributary

Cause Location: This cause encompasses the area from Penn Central RR crossing near headwaters downstream to confluence with Holt Creek. Located east of Martins Siding.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: No data to assess within the assessment window. The status is retained.

The Recreation Use impairment is retained based on Fecal Coliform data. Current E.coli data collected is 1 exc/ 1 sample. Previous (2006 IR) TMDL ID = VAT-D05R-03.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05R_XDI01A04 / Holt Creek Unnamed Tributary / Located east of Martins Siding. Segment from Penn Central RR crossing near headwaters downstream to confluence with Holt Creek.	5A	Escherichia coli (E. coli)	2004	L	1.42

Holt Creek Unnamed Tributary

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.42

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D05R-03-BEN Holt Creek Unnamed Tributary

Cause Location: This cause encompasses the area from Penn Central RR crossing near headwaters downstream to confluence with Holt Creek. Located east of Martins Siding.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Benthic IM based on VCPMI [2020: S=15][2018: S=20.8 F=11.7] [2014: S=25.4] [2013: F=41.3] [2009_IM: S=8.6, F=48.4] and [2008: F=29.0]

Habitat is good at this site and there are no obvious point sources, so it is likely that non-point sources are responsible for impairment here. The scores at this site jump around a good bit with a tendency for higher scores in the fall indicating that seasonal effects are probably also being picked up by the metrics in addition to any anthropogenic effects

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D05R_XDI01A04 / Holt Creek Unnamed Tributary / Located east of Martins Siding. Segment from Penn Central RR crossing near headwaters downstream to confluence with Holt Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.42

Holt Creek Unnamed Tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.42

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D06E-01-DO Magothy Bay - Lower

Cause Location: This cause encompasses the area east of Skidmore Island.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: No new data to assess in the 2022 IR cycle.

The Aquatic Life use is impaired based on data from 2008 Assessment for the DO concentration exceeding the criteria for this parameter (2 exc/ 5 samples.). Now data from 01 and 02 drop out therefore 2 /5 violate. Can not delist DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06E_MAG01A04 / Magothy Bay - Lower / Located east of Skidmore Island. No DSS shellfish condemnation.	5A	Dissolved Oxygen	2004	L	0.037

Magothy Bay - Lower

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.037		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D06E-02-PCB Raccoon Creek

Cause Location: This cause encompasses Raccoon Creek. The area southwest of Magothy Bay.

Cause City/County: Northampton County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: No new data to assess in the 2022 IR cycle.

The Fish Consumption Use is impaired based on Fish Tissue data collected for PCBs with an observed effect for arsenic. Station 7-RAC000.00 is impaired for PCBs in FT found in Bass, Trout and Blue Crab from 2008 and 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06E_RAC01A08 / Raccoon Creek / South west of Magothy Bay. No DSS condemnation area.	5A	PCBs in Fish Tissue	2010	L	0.004

Raccoon Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
0.004		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D06R-01-DO** Mill Creek

Cause Location: This cause encompasses the area at the start of Mill Creek upstream of Penn central RR crossing and ends downstream of Rt 600 at the beginning of the impoundment upstream of tidal waters. Located north of Capeville.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: DO remains impaired in the 2022 IR cycle due to impaired data (7 exceedances/ 29 samples) collected @ Station 7-MCR002.00. The DO impairment is covered under the TMDL for DO in Mill Creek, Northampton County VA with EPA approval date of 6/24/2009 which establishes both Total Organic Carbon and Total Nitrogen. pH will be reviewed in 2020 with additional year of data to determine if a delist is possible. Current 2018 IR is based on 2014 data.

TMDL EPA approved 6/24/2009 for DO. Low DO is caused by high inflow of nitrogen and organic carbon. The high temperature, low re-aeration, decay of organic materials and nitrogen oxidation, and the high SOD due to accumulated deposition of organic matter, are the dominant causes of low DO (reference from TMDL).

1998 CD segment for DO (Attachment A, Category 1, Part 2) VAT-D06R-01.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_MCR01A00 / Mill Creek / Located north of Capeville. Segment begins at the start of Mill Creek upstream of Penn central RR crossing and ends downstream of Rt 600 at the beginning of the impoundment upstream of tidal waters.	4A	Dissolved Oxygen	1998	L	2.24

Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.24

Sources: Atmospheric Deposition; Crop Production (Crop Land or Dry Land); Groundwater Loadings; Manure Runoff; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D06R-02-BAC Narrow Channel Branch

Cause Location: This cause encompasses the area from headwaters downstream to start of tidal waters. Located east of Bayview.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: No data to assess within the assessment window. The status is retained.

The Recreation Use is impaired based on the E.coli data collected at Station 7-NCB000.97 which had 3 exc/ 5 samples within the 2018 IR data window. The impairment is retained in the 2020 IR cycle; there is no data within the 2020 IR cycle to assess.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_NCB01A04 / Narrow Channel Branch / Located east of Bayview. Segment from headwaters downstream to start of tidal waters.	5A	Escherichia coli (E. coli)	2004	L	1.85

Narrow Channel Branch

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.85

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D06R-02-BEN Narrow Channel Branch

Cause Location: This cause encompasses the area from headwaters downstream to start of tidal waters. Located east of Bayview.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The Aquatic Life Use impairment is retained for 2020 Assessment. No new benthic data within the assessment window. The Aquatic Life Use is impaired due to impacts to the stream's benthic population. DEQ (Bio) monitoring determines impairment by benthic assessment ratings of SI (spring 2001) & MI (fall 2001).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_NCB01A04 / Narrow Channel Branch / Located east of Bayview. Segment from headwaters downstream to start of tidal waters.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	1.85

Narrow Channel Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			1.85

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D06R-02-DO Narrow Channel Branch

Cause Location: This cause encompasses the area from headwaters downstream to start of tidal waters. Located east of Bayview.

Cause City/County: Northampton County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: No data to assess within the assessment window. The status is retained.

The Aquatic Life Use is impaired based on 2011 and 2012 data for DO that exceed the WQS with 2 exc/ 6 samples. Additional monitoring is requested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_NCB01A04 / Narrow Channel Branch / Located east of Bayview. Segment from headwaters downstream to start of tidal waters.	5A	Dissolved Oxygen	2014	L	1.85

Narrow Channel Branch

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.85

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D06R-03-BAC** **Tommy's Ditch**

Cause Location: This cause encompasses the entirety of Tommy's Ditch west of Kiptopeke State Park.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is impaired based on E.coli criteria exceeded (5 viol / 11 obs) at DEQ station @ 7-TOM001.73.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_TOM01A08 / Tommy's Ditch / East of Kiptopeke State Park	5A	Escherichia coli (E. coli)	2008	L	1.45

Tommy's Ditch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.45

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D06R-04-BAC** Mill Creek

Cause Location: Located north of Capeville. Segment begins at the start of Mill Creek upstream of Penn central RR crossing and ends downstream of Rt 600 at the beginning of the impoundment upstream of tidal waters.

Cause City/County: Northampton County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The Recreation Use is insufficient based on data collected at station 7-MCR002.00 with 2 exceedance/12 samples in the 2022 IR cycle. The insufficient status is given due to one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. This AU was impaired in the 2020 IR cycle. Recreation remains impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D06R_MCR01A00 / Mill Creek / Located north of Capeville. Segment begins at the start of Mill Creek upstream of Penn central RR crossing and ends downstream of Rt 600 at the beginning of the impoundment upstream of tidal waters.	5A	Escherichia coli (E. coli)	2020	L	2.24

Mill Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.24

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-02-SF Lake Wesley - Upstream Branches

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Condemnation # 073-074A (effective 2013-06-11).

Cause City/County: Virginia Beach

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting with DSS shellfish condemnation # 073-074A (effective 2013-06-11)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_LAI01A06 / Lake Rudee - Upper / Lake Rudee, from end of Owl Creek downstream to approx. RM 0.4 (upstream of confluence of Lake Holly with Rudee Inlet canal). Portion of DSS shellfish condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.093
VAT-D07E_LAI03A20 / Lake Rudee - Upper (northwest trib.) / Tributary of Lake Rudee between Terrace Ct and Caspian Ave	4A	Fecal Coliform	2006	L	0.007

Lake Wesley - Upstream Branches

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.099		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-04-BAC Owl Creek - Upper

Cause Location: This cause encompasses the Headwaters of Owl Creek downstream to point where creek widens.

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A; Enterococcus/5A

Cause Description: Recreation Use impaired due to Enterococcus bacteria concentrations exceeding (2 violates / 11 obs.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_OWL01A02 / Owl Creek- Upper / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from headwaters downstream to point where creek broadens. Portion of DSS shellfish direct harvesting condemnation # 073-074 A (effective 2013-06-11).	4A	Enterococcus	2002	L	0.006
VAT-D07E_OWL03A20 / Owl Creek- Upper Trib. / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from headwaters upstream to the upper-middle portion. Portion of DSS shellfish direct harvesting condemnation # 073-074 A (effective 2013-06-11).	5A	Enterococcus	2002	L	0.001

Owl Creek - Upper

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.007		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Source Unknown; Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-04-DO Owl Creek - Upper

Cause Location: This cause encompasses the upper portion of Owl Creek a tributary to Lake Rudee, located west of Lake Christine.

Cause City/County: Virginia Beach

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: The Aquatic Life Use is impaired due to dissolved oxygen concentrations at station 7-OWL000.77 and 7OWL-2-VAMSC with 2 violates / 6 obs. and 5 viol/ 9 obs below the criteria minimum (4.0 mg/l). This TMDL ID (VAT-D07E-05) is added for the 2006 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_OWL03A20 / Owl Creek- Upper Trib. / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from headwaters upstream to the upper-middle portion. Portion of DSS shellfish direct harvesting condemnation # 073-074 A (effective 2013-06-11).	5A	Dissolved Oxygen	2006	L	0.001

Owl Creek - Upper

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	0.001		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-04-SF Owl Creek - Upper and Lower

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Restricted
 Condemnation # 073-074A (effective 2013-06-11).

Cause City/County: Virginia Beach

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is not supporting with DSS shellfish Restricted condemnation # 073-074A
 (effective 2013-06-11).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_OWL01A02 / Owl Creek- Upper / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from headwaters downstream to point where creek broadens. Portion of DSS shellfish direct harvesting condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.006
VAT-D07E_OWL02A02 / Owl Creek - Lower / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from mid-way point where creek broadens downstream to confluence with Lake Rudee. Portion of DSS shellfish direct harvesting Restricted condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.019
VAT-D07E_OWL03A20 / Owl Creek- Upper Trib. / Headwaters tributary to Lake Rudee, located west of Lake Christine. Segment from headwaters upstream to the upper-middle portion. Portion of DSS shellfish direct harvesting condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.001

Owl Creek - Upper and Lower

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.026		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-10-SF Lake Wesley - Upstream Branches

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 073-074 A, 6/11/2013.

Cause City/County: Virginia Beach

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on DSS Condemnation # 073-074 A effective date 2013-06-11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_LAE01A06 / Lake Wesley - Upstream Branches / From start of both branches downstream to confluence with Rudee Inlet; western portions. Segment reflects status of station at mid-embayment. DSS shellfish condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.018
VAT-D07E_LAE02A20 / Lake Wesley - Upstream Branches / From start of both branches downstream to confluence with Rudee Inlet; eastern portion. Segment reflects status of station at mid-embayment. DSS shellfish condemnation # 073-074 A (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.016
VAT-D07E_LAI02A06 / Lake Rudee - Lower (Rudee Inlet Canal) / Lower portion of Lake Rudee, including Rudee Inlet Canal. From RM 0.4 (upstream of confluence of Lake Holly with Rudee Inlet canal) downstream through Inlet canal to mouth. Portion of DSS shellfish harvesting condemnation # 073-074 (effective 2013-06-11).	4A	Fecal Coliform	2006	L	0.026

Lake Wesley - Upstream Branches

Shellfishing		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.06		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: D07E-11-BAC Lake Wesley - Upstream Branches

Cause Location: From start of both branches downstream to confluence with Rudee Inlet; eastern portion. Segment reflects status of station at mid-embayment. DSS shellfish condemnation # 073-074 A (effective 2013-06-11).

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: No new data to assess in the 2022 IR cycle.

The Recreation Use is impaired due to Enterococci data collected @ Station 7LAE-7-VAMSC (2 exc/ 13 samples). This is an initial listing in the 2020 IR cycle. Split from VAT-D07E_LAE01A06 due to this impairment. Citizen monitoring data from Virginia Aquarium and Marine Science Center.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_LAE02A20 / Lake Wesley - Upstream Branches / From start of both branches downstream to confluence with Rudee Inlet; eastern portion. Segment reflects status of station at mid-embayment. DSS shellfish condemnation # 073-074 A (effective 2013-06-11).	5A	Enterococcus	2020	L	0.016

Lake Wesley - Upstream Branches

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.016		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **D07E-12-BAC** **Lake Rudee - Upper (northwest trib.)**

Cause Location: Tributary of Lake Rudee between Terrace Ct and Caspian Ave

Cause City/County: Virginia Beach

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/5A

Cause Description: No new data in the 2022 IR cycle.

The Recreation Use is impaired due to data collected @ Station 7LAI-4-VAMSC (5 exc/ 27 samples) . This is a relisting from the 2018 delisting.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-D07E_LAI03A20 / Lake Rudee - Upper (northwest trib.) / Tributary of Lake Rudee between Terrace Ct and Caspian Ave	5A	Enterococcus	2020	L	0.007

Lake Rudee - Upper (northwest trib.)

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.006		

Sources: Source Unknown

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **LYNPH-DO-BAY** Lynnhaven River and Broad Bay System CBP segment **LYNPH and Tributaries**

Cause Location: This cause encompasses the entirety of the Lynnhaven River CBP segment LYNPH and Tributaries. Tributary to south shore of Chesapeake Bay. CBP segment LYNPH.

Cause City/County: Virginia Beach

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_BBY01A14 / Broad Bay / East of Lynnhaven River. Located adjacent to Broad Bay Colony area of VB. CBP segment LYNPH. BIBI segment LYNPHa. DSS (OPEN) shellfish direct harvesting condemnation # 071-095 (effective 20190215)	4A	Dissolved Oxygen	2006	L	1.213
VAT-C08E_BBY01B10 / Broad Bay - Upper, UTs W. Shore [Admin Cond] / East of Lynnhaven River. Located adjacent to Broad Bay Colony area. UTs along W. Shore of Broad Bay [Admin Cond]. CBP segment LYNPH. BIBI segment LYNPHa. DSS (Admin Cond) shellfish condemnation # 071-095 D, F, H (effective 20190215).	4A	Dissolved Oxygen	2006	L	0.039
VAT-C08E_CRY01A00 / Crystal Lake / Includes Rainey Gut. Located in North Linkhorn Park area in Virginia Beach. East of Lynnhaven River. CBP segment LYNPH. DSS ADMIN condemnation # 071-010 B (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.128
VAT-C08E_DEY01A00 / Dey Cove/Mill Dam Creek / Tributary on western shore of Broad Bay near Great Neck Area in VB. East of Lynnhaven River. CBP segment LYNPH BIBI segment LYNPHa. DSS condemnation # 071-095 E (effective 20190215).	4A	Dissolved Oxygen	2006	L	0.075
VAT-C08E_DEY02A18 / Dey Cove/Mill Dam Creek-Mouth / Located attached to west shore of Broad Bay Colony area of VB. East of Lynnhaven River. CBP segment LYNPH BIBI segment LYNPHa. DSS condemnation # 071-095 E (effective 20190215).	4A	Dissolved Oxygen	2006	L	0.020
VAT-C08E_EBL01A06 / Eastern Branch - Upper, Lynnhaven River / From end of London Br. Cr. (Rt 58 crossing) downstream to Smith Point. CBP segment LYNPH. BIBI segment LYNPHa. Portion of DSS ADMIN condemnation # 070-025 A (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.226

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_EBL01B10 / Eastern Branch - Lower Upper, Lynnhaven River / From Smith Point downstream to Sandy point. CBP segment LYNPH. BIBI segment LYNPHa. Portion of DSS condemnation # 070-025 A (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.263
VAT-C08E_EBL02A08 / Eastern Branch - Lower, Lynnhaven River / From Mapps Point to the eastern shore embayment near Forest Hills. CBP segment LYNPH. Portion of DSS condemnation # 070-025 A (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.385
VAT-C08E_LKN01A00 / Linkhorn Bay - Upper / South of Linkhorn Estates area of VB upstream to Laskin Rd (58). East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish ADMIN harvesting condemnation # 071-010 A (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.103
VAT-C08E_LKN01B14 / Linkhorn Bay - Upper / Located adjacent to Alexander Estates area of VB. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa Restricted-condemn DSS shellfish direct harvesting condemnation # 071-010 A (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.061
VAT-C08E_LKN02A10 / Linkhorn Bay - Lower / Located adjacent to Linkhorn Estates area of VB upstream to Alanton at The Narrows. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS OPEN shellfish direct harvesting area # 071-010 C3 (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.560
VAT-C08E_LKN02B10 / Linkhorn Bay - Coves [Admin Condem] / Embayments adjacent to LKN02A10. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS [Admin Cond] shellfish direct harvesting condemnation # 071-010 (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.223
VAT-C08E_LKN03B20 / Linkhorn Bay - Upper / Southern tip of Linkhorn Bay, north of Rt. 264. CBP segment LYNPH. No DSS category.	4A	Dissolved Oxygen	2006	L	0.004
VAT-C08E_LNC01A00 / Little Neck Creek - Upper / Eastern shore tributary of Linkhorn Bay, near Laskin Road and south of Linkhorn Park. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting ADMIN condemnation # 071-227 A (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.078
VAT-C08E_LNC01B16 / Little Neck Creek-Lower / Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation # 071-227 A (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.035

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_LNC02A12 / Little Neck Creek-Lower / Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting Restricted-condemnation # 071-227 A (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.155
VAT-C08E_LNC02B12 / Little Neck Creek-Lower (DSS ADMIN) / Embayments adjacent to Little Neck Creek. Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting ADMIN condemnation # 071-227 (effective 20200315).	4A	Dissolved Oxygen	2006	L	0.072
VAT-C08E_LOB01A00 / London Bridge Creek / Entirety of creek, from headwaters near Shipp's Corner downstream to Rt. 58 crossing. CBP segment LYNPH. BIBI segment LYNPHa. ADMIN DSS # 070-025 A (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.059
VAT-C08E_LON01A00 / Long Creek / Northern shore tributary of Broad Bay, near Bay Island area. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS (ADMIN) shellfish direct harvesting condemnation # 071-095 A,B,C, I (effective 20190215).	4A	Dissolved Oxygen	2006	L	0.316
VAT-C08E_LYN01A06 / Lynnhaven River & Bay - Mainstem / Tributary to south shore of Chesapeake Bay. Mainstem area near mouth. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation # 070-025 C1 Conditionally Approved (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.982
VAT-C08E_LYN01B10 / Lynnhaven River & Bay Coves [Admin Cond] / Embayments of LYN01A06 [DSS Admin Cond]. Tributary to south shore of Chesapeake Bay. CBP segment LYNPH. BIBI segment LYNPHa. DSS ADMIN shellfish harvesting condemnation # 070-025 (A-M) (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.557
VAT-C08E_LYN01C12 / Lynnhaven River & Bay - DSS Cond / Tributary to south shore of Chesapeake Bay. Mainstem area. Segments near Mouth of Pleasure House and Brocks Cove. CBP segment LYNPH. DSS shellfish conditional approval condemn # 070-025 A & M (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.198
VAT-C08E_THA01A02 / Thalia Creek, Thurston Branch & Buchanan Creek / Beginning of Thalia Creek (incl. Thurston Br & Buchanan Cr) from headwaters downstream to Western Br. Lynnhaven R. CBP segment LYNPH. BIBI segment LYNPHa. DSS ADMIN condemnation # 070-025 H (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.286

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_WES01A06 / Western Branch - Upper, Lynnhaven River / From the end of Thurston Branch downstream to Hebden Cove. CBP segment LYNPH. BIBI segment LYNPHa. Portion of ADMIN DSS shellfish direct harvesting condemnation #070-025 H (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.151
VAT-C08E_WES01B16 / Western Branch - Middle, Lynnhaven River / From Witch Duck Bay to Witchduck Point. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish ADMIN condemnation #070-025 H (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.174
VAT-C08E_WES02A06 / Western Branch - Middle, Lynnhaven River / From Bayville Cr to Thoroughgood Cove. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation #070-025 H (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.156
VAT-C08E_WES03A10 / Western Branch - Lower, Lynnhaven River / From Bayville Creek downstream to confluence with mainstem. CBP segment LYNPH. BIBI segment LYNPHa. DSS Conditionally Condemned shellfish condemnation #070-025 C1 (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.170
VAT-C08E_WNC01A00 / West Neck Creek (Upper) to London Bridge Creek / From Princess Anne Rd. crossing downstream to junction with London Bridge Cr. at Shipp's Corner area. Segment determined to drain to C08E (Lynnhaven River). CBP segment LYNPH. BIBI segment LYNPHa.	4A	Dissolved Oxygen	2006	L	0.084
VAT-C08E_XBO01A00 / Canal No. 2 / Man-Made tributary to London Bridge Creek. Entire length of Canal No. 2. Portion of CBP segment LYNPH.	4A	Dissolved Oxygen	2006	L	0.040
VAT-C08E_ZZZ01A00 / Unsegmented tidal tributaries in C08E-LYNPH / Tidal tributaries to Eastern and Western Branch Lynnhaven River. Portion of CBP segment LYNPH. BIBI segment LYNPHa. Portions of DSS shellfish ADMIN condemnation # 070-025 A & H (effective 20180206).	4A	Dissolved Oxygen	2006	L	0.959
VAT-C08E_ZZZ01B10 / Unsegmented tidal tributary to Lynnhaven R. & Linkhorn Bay / Unsegmented tidal tributaries to Lynnhaven R. & Linkhorn Bay. CBP segment LYNPH. No DSS category.	4A	Dissolved Oxygen	2006	L	0.206

Lynnhaven River and Broad Bay System CBP segment LYNPH and Tributaries

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
7.976		

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Lynnhaven River and Broad Bay System CBP segment LYNPH and Tributaries

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	7.976		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Contaminated Sediments; Industrial Point Source Discharge; Industrial Thermal Discharges; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **LYNPH-SAV-BAY** **Lynnhaven River and Broad Bay System CBP segment LYNPH and Tributaries**

Cause Location: This cause encompasses the entirety of the Lynnhaven River CBP segment LYNPH and Tributaries. Tributary to south shore of Chesapeake Bay. CBP segment LYNPH.

Cause City/County: Virginia Beach

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The polyhaline Lynnhaven River did not meet the Chesapeake Bay Shallow Water Subuse's submerged aquatic vegetation acreage criterion. The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010, this segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_BBY01A14 / Broad Bay / East of Lynnhaven River. Located adjacent to Broad Bay Colony area of VB. CBP segment LYNPH. BIBI segment LYNPHa. DSS (OPEN) shellfish direct harvesting condemnation # 071-095 (effective 20190215)	4A	Aquatic Plants (Macrophytes)	2006	L	1.213
VAT-C08E_BBY01B10 / Broad Bay - Upper, UTs W. Shore [Admin Cond] / East of Lynnhaven River. Located adjacent to Broad Bay Colony area. UTs along W. Shore of Broad Bay [Admin Cond]. CBP segment LYNPH. BIBI segment LYNPHa. DSS (Admin Cond) shellfish condemnation # 071-095 D, F, H (effective 20190215).	4A	Aquatic Plants (Macrophytes)	2010	L	0.039
VAT-C08E_CRY01A00 / Crystal Lake / Includes Rainey Gut. Located in North Linkhorn Park area in Virginia Beach. East of Lynnhaven River. CBP segment LYNPH. DSS ADMIN condemnation # 071-010 B (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2006	L	0.128
VAT-C08E_DEY01A00 / Dey Cove/Mill Dam Creek / Tributary on western shore of Broad Bay near Great Neck Area in VB. East of Lynnhaven River. CBP segment LYNPH BIBI segment LYNPHa. DSS condemnation # 071-095 E (effective 20190215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.075
VAT-C08E_DEY02A18 / Dey Cove/Mill Dam Creek-Mouth / Located attached to west shore of Broad Bay Colony area of VB. East of Lynnhaven River. CBP segment LYNPH BIBI segment LYNPHa. DSS condemnation # 071-095 E (effective 20190215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAT-C08E_EBL01A06 / Eastern Branch - Upper, Lynnhaven River / From end of London Br. Cr. (Rt 58 crossing) downstream to Smith Point. CBP segment LYNPH. BIBI segment LYNPHa. Portion of DSS ADMIN condemnation # 070-025 A (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.226

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_EBL01B10 / Eastern Branch - Lower Upper, Lynnhaven River / From Smith Point downstream to Sandy point. CBP segment LYNPH. BIBI segment LYNPHa. Portion of DSS condemnation # 070-025 A (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2010	L	0.263
VAT-C08E_EBL02A08 / Eastern Branch - Lower, Lynnhaven River / From Mapps Point to the eastern shore embayment near Forest Hills. CBP segment LYNPH. Portion of DSS condemnation # 070-025 A (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2008	L	0.385
VAT-C08E_LKN01A00 / Linkhorn Bay - Upper / South of Linkhorn Estates area of VB upstream to Laskin Rd (58). East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish ADMIN harvesting condemnation # 071-010 A (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2006	L	0.103
VAT-C08E_LKN01B14 / Linkhorn Bay - Upper / Located adjacent to Alexander Estates area of VB. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa Restricted-condemn DSS shellfish direct harvesting condemnation # 071-010 A (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2006	L	0.061
VAT-C08E_LKN02A10 / Linkhorn Bay - Lower / Located adjacent to Linkhorn Estates area of VB upstream to Alanton at The Narrows. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS OPEN shellfish direct harvesting area # 071-010 C3 (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2010	L	0.560
VAT-C08E_LKN02B10 / Linkhorn Bay - Coves [Admin Condem] / Embayments adjacent to LKN02A10. East of Lynnhaven River. CBP segment LYNPH. BIBI segment LYNPHa. DSS [Admin Cond] shellfish direct harvesting condemnation # 071-010 (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2010	L	0.223
VAT-C08E_LKN03B20 / Linkhorn Bay - Upper / Southern tip of Linkhorn Bay, north of Rt. 264. CBP segment LYNPH. No DSS category.	4A	Aquatic Plants (Macrophytes)	2010	L	0.004
VAT-C08E_LNC01A00 / Little Neck Creek - Upper / Eastern shore tributary of Linkhorn Bay, near Laskin Road and south of Linkhorn Park. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting ADMIN condemnation # 071-227 A (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2006	L	0.078
VAT-C08E_LNC01B16 / Little Neck Creek-Lower / Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation # 071-227 A (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2014	L	0.035

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_LNC02A12 / Little Neck Creek-Lower / Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting Restricted-condemnation # 071-227 A (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2014	L	0.155
VAT-C08E_LNC02B12 / Little Neck Creek-Lower (DSS ADMIN) / Embayments adjacent to Little Neck Creek. Eastern shore tributary of Linkhorn Bay, near Bay Colony. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting ADMIN condemnation # 071-227 (effective 20200315).	4A	Aquatic Plants (Macrophytes)	2014	L	0.072
VAT-C08E_LOB01A00 / London Bridge Creek / Entirety of creek, from headwaters near Shipp's Corner downstream to Rt. 58 crossing. CBP segment LYNPH. BIBI segment LYNPHa. ADMIN DSS # 070-025 A (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.059
VAT-C08E_LON01A00 / Long Creek / Northern shore tributary of Broad Bay, near Bay Island area. Portion of CBP segment LYNPH. BIBI segment LYNPHa. DSS (ADMIN) shellfish direct harvesting condemnation # 071-095 A,B,C, I (effective 20190215).	4A	Aquatic Plants (Macrophytes)	2006	L	0.316
VAT-C08E_LYN01A06 / Lynnhaven River & Bay - Mainstem / Tributary to south shore of Chesapeake Bay. Mainstem area near mouth. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation # 070-025 C1 Conditionally Approved (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.982
VAT-C08E_LYN01B10 / Lynnhaven River & Bay Coves [Admin Cond] / Embayments of LYN01A06 [DSS Admin Cond]. Tributary to south shore of Chesapeake Bay. CBP segment LYNPH. BIBI segment LYNPHa. DSS ADMIN shellfish harvesting condemnation # 070-025 (A-M) (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2010	L	0.557
VAT-C08E_LYN01C12 / Lynnhaven River & Bay - DSS Cond / Tributary to south shore of Chesapeake Bay. Mainstem area. Segments near Mouth of Pleasure House and Brocks Cove. CBP segment LYNPH. DSS shellfish conditional approval condemn # 070-025 A & M (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2014	L	0.198
VAT-C08E_THA01A02 / Thalia Creek, Thurston Branch & Buchanan Creek / Beginning of Thalia Creek (incl. Thurston Br & Buchanan Cr) from headwaters downstream to Western Br. Lynnhaven R. CBP segment LYNPH. BIBI segment LYNPHa. DSS ADMIN condemnation # 070-025 H (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.286

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C08E_WES01A06 / Western Branch - Upper, Lynnhaven River / From the end of Thurston Branch downstream to Hebden Cove. CBP segment LYNPH. BIBI segment LYNPHa. Portion of ADMIN DSS shellfish direct harvesting condemnation #070-025 H (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.151
VAT-C08E_WES01B16 / Western Branch - Middle, Lynnhaven River / From Witch Duck Bay to Witchduck Point. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish ADMIN condemnation #070-025 H (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.174
VAT-C08E_WES02A06 / Western Branch - Middle, Lynnhaven River / From Bayville Cr to Thoroughgood Cove. CBP segment LYNPH. BIBI segment LYNPHa. DSS shellfish direct harvesting condemnation #070-025 H (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.156
VAT-C08E_WES03A10 / Western Branch - Lower, Lynnhaven River / From Bayville Creek downstream to confluence with mainstem. CBP segment LYNPH. BIBI segment LYNPHa. DSS Conditionally Condemned shellfish condemnation #070-025 C1 (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2010	L	0.170
VAT-C08E_WNC01A00 / West Neck Creek (Upper) to London Bridge Creek / From Princess Anne Rd. crossing downstream to junction with London Bridge Cr. at Shipp's Corner area. Segment determined to drain to C08E (Lynnhaven River). CBP segment LYNPH. BIBI segment LYNPHa.	4A	Aquatic Plants (Macrophytes)	2006	L	0.084
VAT-C08E_XBO01A00 / Canal No. 2 / Man-Made tributary to London Bridge Creek. Entire length of Canal No. 2. Portion of CBP segment LYNPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.040
VAT-C08E_ZZZ01A00 / Unsegmented tidal tributaries in C08E-LYNPH / Tidal tributaries to Eastern and Western Branch Lynnhaven River. Portion of CBP segment LYNPH. BIBI segment LYNPHa. Portions of DSS shellfish ADMIN condemnation # 070-025 A & H (effective 20180206).	4A	Aquatic Plants (Macrophytes)	2006	L	0.959
VAT-C08E_ZZZ01B10 / Unsegmented tidal tributary to Lynnhaven R. & Linkhorn Bay / Unsegmented tidal tributaries to Lynnhaven R. & Linkhorn Bay. CBP segment LYNPH. No DSS category.	4A	Aquatic Plants (Macrophytes)	2010	L	0.206

Lynnhaven River and Broad Bay System CBP segment LYNPH and Tributaries

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
7.976		

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Lynnhaven River and Broad Bay System CBP segment LYNPH and Tributaries

Shallow-Water Submerged Aquatic Vegetation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	7.976		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Contaminated Sediments; Industrial Point Source Discharge; Industrial Thermal Discharges; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **MOBPH-DO-BAY** Chesapeake Bay segment MOBPH

Cause Location: This cause encompasses the complete CBP segment MOBPH.

Cause City/County: Gloucester County; Hampton; Mathews County; Poquoson City; York County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The 30-day dissolved oxygen criteria for open water use is failing for the 2022 assessment. There are insufficient data to assess remaining shorter-term dissolved oxygen criteria for this use. All Open Water criteria must be assessed until segment can be delisted for DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-MOB / Chesapeake Bay - CBP Segment MOBPH / This assessment unit is the mainstem Chesapeake Bay and Mobjack Bay portions of Chesapeake Bay Program segment MOBPH, located off the mouth of the York River including Mobjack Bay. HUC: 02080101.	4A	Dissolved Oxygen	2006	L	92.951
VAP-C04E_BEV01A08 / Belleville Creek / Described in VDH Shellfish Condemnation 042-157S162, 7/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.053
VAP-C04E_BKA01A98 / Back Creek / Described in VDH condemnation notice 042-157C, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.056
VAP-C04E_BKA01C20 / Back Creek / Portion of VDH condemnation notice 157C, 6/3/1997 not condemned on 7/15/2020 (seasonally condemned). Merged in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.029
VAP-C04E_BLW01A98 / Blackwater Creek / Described in the condemnation notice 042-131A, 6/3/1997. MOBPH	4A	Dissolved Oxygen	2020	L	0.101
VAP-C04E_BLW02A22 / Blackwater Creek / Portion of VDH-DSS Condemnation 042-131S161, 7/15/2020 not included in 131A, 6/3/1997. MOBPH	4A	Dissolved Oxygen	2020	L	0.008
VAP-C04E_BUR01A00 / Burke Mill Stream / From extent of tide to North River MOBPH	4A	Dissolved Oxygen	2020	L	0.025
VAP-C04E_DAV01A98 / Davis Creek / Described in VDH-DSS condemnation notice 042-131S22, 7/15/2020. Merged and expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2006	L	0.072

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_DVS01A98 / Davis Creek / Described in VDH-DSS condemnation notice 85, 9/22/1997. Merged in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.016
VAP-C04E_DVS01B08 / Davis Creek / Described in the condemnation notice 040-085M2, 9/21/2010. MOBPH	4A	Dissolved Oxygen	2020	L	0.011
VAP-C04E_DVS03A12 / Davis Creek / Described in VDH-DSS condemnation 040-085A, 9/24/2018. MOBPH	4A	Dissolved Oxygen	2020	L	0.013
VAP-C04E_ELM01A98 / Elmington Creek / Described in the condemnation notice 157B, 6/3/1997. MOBPH	4A	Dissolved Oxygen	2020	L	0.023
VAP-C04E_ELM01B08 / Elmington Creek / Portion of VDH condemnation notice 042-157D, 7/15/2020 not included in 157B, 6/3/1997. MOBPH	4A	Dissolved Oxygen	2020	L	0.009
VAP-C04E_EST01A98 / East River / Described in the condemnation notice 92, 1/3/1995. MOBPH	4A	Dissolved Oxygen	2020	L	0.198
VAP-C04E_EST01B10 / East River / Portion of condemnation notice 041-092A, 10/15/2020 open in 92, 1/3/1995. Size increased in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.072
VAP-C04E_EST01D10 / East River, UT / Described in the condemnation notice 041-092S43, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.023
VAP-C04E_EST02A00 / East River / East River from SFC 92 to mouth, not otherwise segmented. MOBPH	4A	Dissolved Oxygen	2020	L	2.473
VAP-C04E_EST02B20 / East River, UT / Described in VDH-DSS condemnation 041-092C, 10/15/2020. Size reduced in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.013
VAP-C04E_EST03A06 / East River, UT / Described in VDH-DSS SFC 041-212M1, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.016
VAP-C04E_EST04A02 / East River, UT / Described in VDH-DSS Condemnation Notice 041-212S197, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.026
VAP-C04E_EST05A06 / East River, UT (aka Mill Creek) / Described in VDH-DSS SFC 041-212S198, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.026

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST06A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212G, 10/25/2005. MOBPH	4A	Dissolved Oxygen	2020	L	0.020
VAP-C04E_EST07A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212C, 9/30/2016. MOBPH	4A	Dissolved Oxygen	2020	L	0.014
VAP-C04E_EST08A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212S46, 9/24/2018. MOBPH	4A	Dissolved Oxygen	2020	L	0.004
VAP-C04E_EST09A22 / East River, UT / Described in VDH-DSS Condemnation 041-092S42, 10/15/2020 MOBPH	4A	Dissolved Oxygen	2020	L	0.015
VAP-C04E_GRE01A08 / Greenmansion Cove / Described in VDH-DSS condemnation notice 042-131M1, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.054
VAP-C04E_MIS01A04 / Miles Creek / Described in VDH Condemnation Notice 041-212B, 10/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.039
VAP-C04E_NOR01A02 / North River / Described in VDH-DSS condemnation notice 042-157A, 7/15/2020, excluding tidal Burke Mill Stream. Split in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.250
VAP-C04E_NOR01B08 / North River / Portion of condemnation notice 042-157S24, 7/15/2020 not included on the 6/3/1997 condemnation. Size expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.364
VAP-C04E_NOR01C22 / North River / Portion of VDH-DSS condemnation 042-057S24, 7/15/2020 closed in condemnation 157A, 6/3/1997. Split in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.067
VAP-C04E_NOR02A02 / North River / North River and tribs from SFC 157 to Mobjack Bay, except as otherwise segmented. MOBPH	4A	Dissolved Oxygen	2020	L	5.399
VAP-C04E_NOR03A20 / North River, UT / Described in VDH-DSS condemnation 042-157B, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.021
VAP-C04E_NOR04A22 / North River, UT / Described in VDH-DSS Condemnation 042-157S159, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.010

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_OAK01A08 / Oakland Creek / Described in VDH-DSS condemnation notice 042-131S160, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.030
VAP-C04E_PEP01A06 / Pepper Creek / As described in the condemnation notice 040-085B, 9/26/2006. MOBPH	4A	Dissolved Oxygen	2020	L	0.031
VAP-C04E_PUT01A98 / Put In Creek / Portion of VDH-DSS condemnation notice 041-005A, 10/15/2019 included in 5A, 6/5/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.077
VAP-C04E_PUT01C10 / Put In Creek / Portion of condemnation notice 5A, 6/5/1996 open in 041-005, 10/15/2019. Shortened in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.005
VAP-C04E_PUT01D16 / Put In Creek / Described in condemnation notice 041-005B, 10/15/2019. MOBPH	4A	Dissolved Oxygen	2020	L	0.005
VAP-C04E_PUT01E20 / Put In Creek / Described in VDH-DSS condemnation notice 041-005S44, 10/15/2019. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.044
VAP-C04E_PUT02A98 / Put In Creek / Described in the condemnation notice 5B, 6/5/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.021
VAP-C04E_RAN01A08 / Raines Creek / Described in VDH Shellfish Condemnation 041-212I, 10/25/2005. MOBPH	4A	Dissolved Oxygen	2020	L	0.039
VAP-C04E_RAY01A12 / Raymond Creek / Described in VDH-DSS condemnation 042-131B, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.026
VAP-C04E_SLO01A08 / Sloop Creek / Described in VDH-DSS Condemnation 040-085A, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.028
VAP-C04E_TAB01A08 / Tabbs Creek / Described in VDH Shellfish Condemnation 041-212S166, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.034
VAP-C04E_THO01A08 / Thomas Creek / Described in VDH Shellfish Condemnation 041-212B, 9/25/2014. MOBPH	4A	Dissolved Oxygen	2020	L	0.014

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_TOD01A20 / Toddsbury Creek / Described in VDH-DSS condemnation 042-157E, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.020
VAP-C04E_WON01A08 / Weston Creek / Described in VDH Shellfish Condemnation 041-212A, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.025
VAP-C04E_WOO01A10 / Woodas Creek / Described in VDH-DSS condemnation notice 041-092B, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.029
VAP-C04E_WOO02A20 / Woodas Creek / Described in VDH-DSS condemnation 041-09S45, 10/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.021
VAP-C04E_WTS01A08 / Whites Creek / Described in VDH Shellfish Condemnation 041-212E, 10/25/2005. MOBPH	4A	Dissolved Oxygen	2020	L	0.018
VAP-C04E_XFA03A14 / XFA - North River, UT / Described in VDH-DSS condemnation 042-131A, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.020
VAP-C04E_ZZZ03A06 / Unsegmented estuaries in C04 / Unsegmented portion within MOBPH	4A	Dissolved Oxygen	2020	L	0.428
VAP-C05E_FOX01A08 / Fox Mill Run / Described in VDH condemnation notice 96B, 8/12/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.085
VAP-C05E_OLD01A12 / Oldhouse Creek / Tidal limit to mouth at Ware River MOBPH	4A	Dissolved Oxygen	2020	L	0.102
VAP-C05E_WAR01A02 / Ware River / Described in the condemnation notice 096A, 8/12/1996. Tidal extent adjusted in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.270
VAP-C05E_WAR01B08 / Ware River / Portion of VDH condemnation notice 043-096A, 7/15/2020 not included in condemnation 96A and 96B, 8/12/1996. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.224
VAP-C05E_WAR02A02 / Ware River / Ware River downstream of SFC 096. MOBPH	4A	Dissolved Oxygen	2020	L	6.309
VAP-C05E_WAR02B18 / Ware River / Described in VDH-DSS condemnation 043-096CS188, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.010

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C05E_WAR02C20 / Ware River / Described in VDH-DSS condemnation 043-096S26, 7/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.316
VAP-C05E_WIL01A98 / Wilson Creek / Described in the condemnation notice 106, 8/12/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.033
VAP-C05E_WIL01B08 / Wilson Creek / Portion of VDH condemnation notice 043-096B, 7/15/2020 not included in condemnation notice 106, 8/12/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.142
VAP-C05E_WIL02A22 / Wilson Creek / Described in VDH-DSS Condemnation 043-096S25, 7/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.137
VAP-C05E_XDJ01A08 / XDJ - Wilson Creek, UT / Tidal limit to mouth at Wilson Creek. MOBPH	4A	Dissolved Oxygen	2020	L	0.010
VAP-C05E_ZZZ01A00 / Unsegmented estuaries in C05 / Unsegmented portion of the watershed. MOBPH	4A	Dissolved Oxygen	2020	L	0.116
VAP-C06E_BLV01A20 / Blevins Creek / Described in VDH-DSS condemnation 045-125A, 12/15/2020. Size reduced slightly in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.049
VAP-C06E_BRB01A08 / Browns Bay / Described in VDH Shellfish Condemnation 125B, 12/31/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.021
VAP-C06E_BRB01B12 / Browns Bay / Portion of VDH Shellfish Condemnation 045-125M1, 12/15/2020 not included in 125B, 12/31/1996. MOBPH	4A	Dissolved Oxygen	2020	L	0.024
VAP-C06E_FSC01A98 / Free School Creek / Described in VDH Shellfish Condemnation 044-093A, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.039
VAP-C06E_FSC01B12 / Free School Creek / Portion of TMDL study area open for harvest on 044-093, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.027
VAP-C06E_HEY01A98 / Heywood Creek / Described in the condemnation notice 044-054B, 6/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.106
VAP-C06E_HEY01B10 / Heywood Creek / Portion of condemnation notice 101, 4/1/1997 open in condemnation 044-054, 6/15/2020. Shortened in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.060

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VAP-C06E_MNC01A98 / Monday Creek / Portion of VDH-DSS condemnation notice 25A, 12/31/1996 open on 12/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.030
VAP-C06E_MNC01B18 / Monday Creek / Described in VDH-DSS condemnation notice 045-125A, 12/12/2017. Tidal limit corrected in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.064
VAP-C06E_ROW01A06 / Rowes Creek / Described in VDH-DSS Shellfish Condemnation 044-054M2, 6/15/2020. Shortened in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.041
VAP-C06E_SEN01A02 / Northwest Branch Severn River / Described in condemnation notice 044-093B, 6/15/2020, excluding tributary XEE. MOBPH	4A	Dissolved Oxygen	2020	L	0.127
VAP-C06E_SEN01B16 / Northwest Branch Severn River, UT / Described in VDH-DSS condemnation notice 044-093D, 5/30/2018. MOBPH	4A	Dissolved Oxygen	2020	L	0.034
VAP-C06E_SEN01C10 / Northwest Branch Severn River / Portion of condemnation notice 93A, 4/1/1997 open on 044-093, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.167
VAP-C06E_SEN02A06 / Northwest Branch Severn River / Northwest Branch Severn Creek not otherwise segmented Segment adjusted in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.427
VAP-C06E_SES01A00 / Southwest Branch Severn River / Mainstem MOBPH	4A	Dissolved Oxygen	2020	L	0.635
VAP-C06E_SEV02A00 / Severn River / End of NW Branch to mouth, unless otherwise segmented. MOBPH	4A	Dissolved Oxygen	2020	L	3.258
VAP-C06E_STR01A08 / Sterling Creek / Described in VDH Shellfish Condemnation 044-093E, 4/2/2014. MOBPH	4A	Dissolved Oxygen	2020	L	0.021
VAP-C06E_THC01A98 / Thorntons Creek / Described in the condemnation notice 044-054A, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.063
VAP-C06E_THC01B10 / Thorntons Creek / Portion of condemnation notice 054, 4/1/1997 open in condemnation 044-054, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2020	L	0.016

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C06E_VGH01A98 / Vaughans Creek / Described in the condemnation notice 93B, 4/1/1997. Merged in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.121
VAP-C06E_VGH02A22 / Vaughans Creek / Portion of VDH-DSS Condemnation 044-093C, 6/15/2020 not included in 93B, 4/4/1997 MOBPH	4A	Dissolved Oxygen	2020	L	0.015
VAP-C06E_WET01A06 / Willetts Creek / Described in VDH Shellfish Condemnation 044-054M1, 6/15/2020. MOBPH	4A	Dissolved Oxygen	2010	L	0.033
VAP-C06E_WET01B08 / Willetts Creek / Described in VDH Condemnation 044-054C, 2/15/2006. MOBPH	4A	Dissolved Oxygen	2020	L	0.128
VAP-C06E_WTT01A08 / Whitaker Creek / Described in VDH-DSS Condemnation 044-093D, 6/15/2020 Size reduced in the 2022 cycle. MOBPH	4A	Dissolved Oxygen	2020	L	0.037
VAP-C06E_XEE01A10 / XEE - Northwest Branch Severn River, UT / Tidal limit to mouth at NW Branch Severn River MOBPH	4A	Dissolved Oxygen	2020	L	0.003
VAP-C06E_ZZZ01A00 / Unsegmented estuaries in C06 / Unsegmented portion of the watershed. MOBPH	4A	Dissolved Oxygen	2020	L	1.358
VAT-C07E_BAK01A00 / Mainstem Back River / From junction of Northwest and Southwest Branches downstream to mouth of Back River. Portion of CBP Segment MOBPH. DSS Condemnation 054-215 OPEN (20181018) and 054-021 (20151102) shellfish condemnations.	4A	Dissolved Oxygen	2020	L	3.340
VAT-C07E_BAK01B08 / Mainstem Back River-South Shore at Mouth Wallace Cr. / Portion of mainstem along south shore between Windmill Pt. and Grunland Pt. CBP Segment MOBPH. DSS shellfish condemnation # 054-215 M1 (Seasonal)(effective 20201115).	4A	Dissolved Oxygen	2020	L	0.091
VAT-C07E_BAK02A14 / Back Creek - Inlet near Dandy Point [TMDL] / Tributary to south shore Back River (incl area in Back R), east of Harris R & adjacent to Inlet #2. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-215 B, 20181018.	4A	Dissolved Oxygen	2020	L	0.034

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BCK01A00 / Back Creek - Upper / Back Creek (S of York R mouth) tributary to the Thorofare and Chesapeake Bay. From end of tidal waters downstream to point upstream of Dandy (RM 1.6). CBP Segment MOBPH. DSS shellfish condemnation # 053-151 A &M1 (effective 20190515).	4A	Dissolved Oxygen	2020	L	0.281
VAT-C07E_BCK02A06 / Back Creek - Middle (DSS-marina area) / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. Area within DSS shellfish condemnation # 053-151 M1, around marina area (effective 20180425).	4A	Dissolved Oxygen	2020	L	0.078
VAT-C07E_BCK03A06 / Back Creek - Lower / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. From upstream of Dandy (RM 1.6) downstream to mouth (RM 0.0). DSS (OPEN) shellfish condemnation # 053-151 (effective 20190515).	4A	Dissolved Oxygen	2020	L	0.405
VAT-C07E_BEN01A06 / Bennett Creek - Upper (DSS_06-IR) / Bennett Creek upstream portion (S of Poquoson R mouth) tributary to Poquoson River. From end of tidal waters downstream 0.1 mi. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 053-222 E (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.039
VAT-C07E_BEN02A08 / Bennet Creek - Lower Middle / South shore tributary to Poquoson R, in area of Griffins Beach. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. DSS (OPEN, Seasonal, and Conditionally Approved) Shellfish condemnation # 053-222 M1 and S147 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.209
VAT-C07E_BEN03A16 / Bennett Creek-Mouth / Mouth of Bennett Creek. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	4A	Dissolved Oxygen	2020	L	0.366
VAT-C07E_BRK01A06 / Brick Kiln Creek / From 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 A (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.086
VAT-C07E_BTC01A08 / Bay Tree Creek / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS Shellfish condemnation # 053-221 B (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.076

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_BTC02A18 / Bay Tree Creek- Mouth / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS (OPEN) Shellfish condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.050
VAT-C07E_BTH01A08 / Boathouse Creek / Boathouse Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.042
VAT-C07E_BTH01B22 / Chisman Creek-Lower North Shore (Marina) / Downstream section of Boathouse Creek, from Anchor Drive to mouth. CBP Segment MOBPH. DSS Conditionally Approved S141 condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.030
VAT-C07E_CAB01A08 / Cabin Creek / Cabin Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS shellfish condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.082
VAT-C07E_CCR01A06 / Cedar & Topping Creeks / Located near City of Poquoson. Cedar & Topping Creeks are tribs to the north shore of the Northwest Branch of Back River. Portion of DSS condemnation # 054-021 A (less NW Br Back R./Brick Kiln Cr. portion) effective 20201115. CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.109
VAT-C07E_CHS01A06 / Chisman Creek-Upper / From end of tidal waters (upper 1/3 of creek), downstream to area of Evergreen Shores (approx. RM 0.9). CBP Segment MOBPH. DSS condemnation # 053-221A & seasonal M2 (effective 20180425).	4A	Dissolved Oxygen	2020	L	0.408
VAT-C07E_CHS02A06 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Spivey Road to mouth. CBP Segment MOBPH. DSS (OPEN) condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.520
VAT-C07E_CHS02B22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Seaford Shores to north side of water near Spivey Rd. CBP Segment MOBPH. DSS Seasonally Restricted and Conditionally Approved condemnation # 053-221 M1 & S140 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.005
VAT-C07E_CHS02C22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Goose Creek to Seaford Shores area. CBP Segment MOBPH. DSS Conditionally Approved condemnation # 053-221 S140 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.005

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_CHS03A20 / Chisman Creek - Lower / First inlet on the right coming into the mouth of the Chisman. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 & M1(effective 20180425).	4A	Dissolved Oxygen	2020	L	0.006
VAT-C07E_EAS01A06 / Easton Cove / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. DSS Conditionally approved shellfish condemnation # 053-222 S147 (effective 20200615). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.057
VAT-C07E_FLY01A06 / Floyds Bay- Upper / Upper Portion of Floyds Bay. Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20200615). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.042
VAT-C07E_FLY02A16 / Floyds Bay- mouth / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20180425). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.010
VAT-C07E_FRT01A06 / Front Cove - Upper / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish condemnation # 054-021 C (effective 20201115). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.042
VAT-C07E_FRT02A08 / Front Cove - Lower / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish Seasonal condemnation # 054-021 M1 (effective 20181018). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.036
VAT-C07E_GLD01A10 / Grunland Creek - Mouth / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.053
VAT-C07E_GLD02A18 / Grunland Creek - Back River / South shore trib. to mainstem Back R. Adjacent to Grunland Point. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.049
VAT-C07E_GOO01A14 / Goose Creek- Upper / From end of tidal waters to approx. River mile 0.27. DSS Shellfish condemnation # 053-221 C (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.065
VAT-C07E_GOO02A14 / Goose Creek- Lower / From Rivermile 0.27 to mouth. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_HAR01A06 / Harris River - Upper / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. DSS shellfish condemnation # 054-215 A (effective 20201115). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.198
VAT-C07E_HAR02A10 / Harris River - Mouth / South shore trib. to mainstem Back R. East shore area at mouth. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (OPEN) shellfish area # 054-215 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.160
VAT-C07E_HAR02B10 / Harris River - Lower Marina Area / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (Seasonal) shellfish condemnation # 054-215 M2 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.053
VAT-C07E_HOD01A08 / Hodges Creek - Upper / North shore trib to Poquoson R. @ Fish Neck. CBP Segment MOBPH. Portion of DSS shellfish Conditionally Approved -condemnation # 053-137 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.047
VAT-C07E_IN101A08 / DSS Inlet #1 - Unnamed Inlet at Mouth of SW Branch / South shore trib. to mainstem Back R. Located east of mouth of SW Branch. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-021 B (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.025
VAT-C07E_INB01A04 / DSS Inlet #2 - Unnamed Inlet S. Shore of SW Br. Back River / South shore trib. to Southwest Branch Back R. Located near mouth of SW Branch, west of unnamed DSS Inlet #1. DSS Restricted condemnation # 054-021 B (effective 20201115). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.008
VAT-C07E_LMC01A04 / Lambs Creek - Poquoson River / South shore tributary to Poquoson R, west of Poquoson Shores. On border of Poquoson/York boundary. Between Moores Cr. and Roberts Cr to east. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.135
VAT-C07E_LMC02A16 / Lambs Creek - Mouth / Mouth of Lambs Creek located on South shore tributary to Poquoson R, west of Poquoson Shores. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.028
VAT-C07E_LON01A06 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview natural Preserve area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.043

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_LON01B12 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish ADMIN harvesting condemnation # 054-215 C (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.055
VAT-C07E_LYO01A06 / Lyons Creek - Upper / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 B (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.070
VAT-C07E_LYO02A06 / Lyons Creek - Middle and Lower / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. Lower portion of Lyons Cr. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.050
VAT-C07E_NEW01A02 / Newmarket Creek - Upper / South of Blue Bird Gap Farm area. From end of tidal waters at Terrant ES (approx. RM 5.1) downstream to I-64 crossing (RM 3.68). CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.073
VAT-C07E_NEW02A02 / Newmarket Creek - Lower / South of Blue Bird Gap Farm area. From the I-64 crossing (RM 3.68) downstream to confluence with SW Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.079
VAT-C07E_NWB01A06 / Northwest Br. Back River - Upper [TMDL-CD] / CBP Segment MOBPH. Headwaters to confluence of Cedar Creek between Cedar Point and Marsh Point. Portion of DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115).	4A	Dissolved Oxygen	2020	L	0.220
VAT-C07E_NWB01B08 / Northwest Br. Back River - Upper [TMDL not CD] / Northwest Br. Back River upper portion from confluence of Cedar Creek downstream to confluence Tabbs Cr. Portion DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115). CBP Segment MOBPH.	4A	Dissolved Oxygen	2020	L	0.248
VAT-C07E_NWB02A06 / Northwest Br. Back River - Lower [DSS OPEN] / From area of confluence of Topping Creek (approx. RM 1.5) downstream to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS (OPEN) shellfish condemnation # 054-021 (effective 20181018).	4A	Dissolved Oxygen	2020	L	0.961

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_POQ01A06 / Poquoson River - Upper [TMDL-CD] / From Rt 17 crossing @ reservoir dam (RM 5.7) downstream to past confluence of Quarter March Cr (RM 2.7) @ Calthrop Neck. Including Moores & Quarter March Creeks. CBP Segment MOBPH. DSS shellfish condemn # 053-137 A (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.518
VAT-C07E_POQ02A06 / Poquoson River - Lower [DSS-OPEN] / From Calthrop Neck downstream to mouth of Hodges Cove. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-137 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.834
VAT-C07E_POQ03A08 / Poquoson River - Mouth / From Hunts Point a wedge NW across Poquoson River mouth to northern shore. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-999 (effective 20201002).	4A	Dissolved Oxygen	2008	L	1.492
VAT-C07E_PTC01A04 / Patricks Creek - Poquoson River / North shore trib to Poquoson River south of Dare area. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 B (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.119
VAT-C07E_ROB01A04 / Roberts Creek - Upper / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS ADMIN Shellfish condemnation # 053-222 A (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.104
VAT-C07E_ROB02A08 / Roberts Creek - Lower [DSS-OPEN] / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS OPEN Shellfish condemnation # 053-222 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.009
VAT-C07E_SWB01A08 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.706
VAT-C07E_SWB02A08 / Southwest Br. Back River - Mouth [DSS OPEN -No TMDL] / Lower portion to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS shellfish (OPEN) condemnation # 054-021 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.568
VAT-C07E_SWB03A20 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation seasonally restricted and conditionally condemned areas # 054-021 B (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.413

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_TBC01A04 / Tabbs Creek - NW Br Back River / Tributary to Northwest Branch Back River, entirety of creek. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 E (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.073
VAT-C07E_TBC02A10 / Tabbs Creek Mouth - NW Br Back River / Tributary to Northwest Branch Back River, mouth of creek. CBP segment MOBPH. Portion of DSS Conditionally Approved shellfish condemnation # 054-021 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.034
VAT-C07E_THR01A10 / Sandbox Area NW Thorofare / Sandbox Area NW Thorofare Inlet near Goodwin Neck. CBP Segment MOBPH. DSS OPEN condemnation 053-051 (effective 20190515).	4A	Dissolved Oxygen	2020	L	0.012
VAT-C07E_WAL01A06 / Wallace Creek - Upper (Back River) / Tributary to south shore Back River, east of Harris R & adjacent to Inlet #2. Most upstream tip of creek. CBP segment MOBPH. DSS (PROHIBITED - ADMIN COND) shellfish condemnation # 054-215 B& D (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.036
VAT-C07E_WAT01A06 / Watts Creek - (NW Br. Back River) / Located southwest of Poquoson. Watts Cr. trib to Northwest Br. of Back R. CBP segment MOBPH. Portion of DSS condemnation # 054-021 (effective 20201115).	4A	Dissolved Oxygen	2020	L	0.058
VAT-C07E_WHH01A06 / White House Cove - Bennet Cr. Area / Located in York Haven Anchorage area, south of mouth of Poquoson R, CBP segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 C and seasonal M1 (effective 20200615).	4A	Dissolved Oxygen	2020	L	0.145
VAT-C07E_ZZZ01A00 / Unsegmented estuaries in Back River / Non segmented areas of C07E. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	4A	Dissolved Oxygen	2020	L	1.040
VAT-C07E_ZZZ01B12 / Unsegmented estuaries in Back River - DSS / Non segmented areas of C07E. CBP Segment MOBPH. DSS Condemnation # 054-021 B (effective date 20201115).	4A	Dissolved Oxygen	2020	L	0.097

Chesapeake Bay segment MOBPH

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
133.394		

Chesapeake Bay segment MOBPH

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
133.394		

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Sources: Agriculture; Atmospheric Deposition; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **MOBPH-SAV-BAY** Chesapeake Bay segment MOBPH (Mobjack Bay)

Cause Location: This cause encompasses the complete CBP segment MOBPH.

Cause City/County: Gloucester County; Hampton; Mathews County; Poquoson City; York County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The acres of submerged aquatic vegetation (SAV) mapped through aerial surveys do not meet the criteria. Submerged Aquatic Vegetation acres goal is 15,908 acres. Aerial analysis of SAV over the three most recent years of data indicate segment has attained 48% of this goal. Only 58% of water clarity goal met according to 2012 Dataflow surveys.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-R01E-MOB / Chesapeake Bay - CBP Segment MOBPH / This assessment unit is the mainstem Chesapeake Bay and Mobjack Bay portions of Chesapeake Bay Program segment MOBPH, located off the mouth of the York River including Mobjack Bay. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	92.951
VAP-C04E_BEV01A08 / Belleville Creek / Described in VDH Shellfish Condemnation 042-157S162, 7/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAP-C04E_BKA01A98 / Back Creek / Described in VDH condemnation notice 042-157C, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.056
VAP-C04E_BKA01C20 / Back Creek / Portion of VDH condemnation notice 157C, 6/3/1997 not condemned on 7/15/2020 (seasonally condemned). Merged in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C04E_BLW01A98 / Blackwater Creek / Described in the condemnation notice 042-131A, 6/3/1997. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.101
VAP-C04E_BLW02A22 / Blackwater Creek / Portion of VDH-DSS Condemnation 042-131S161, 7/15/2020 not included in 131A, 6/3/1997. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAP-C04E_BUR01A00 / Burke Mill Stream / From extent of tide to North River MOBPH	4A	Aquatic Plants (Macrophytes)	2010	L	0.025
VAP-C04E_DAV01A98 / Davis Creek / Described in VDH-DSS condemnation notice 042-131S22, 7/15/2020. Merged and expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.072

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VAP-C04E_DVS01A98 / Davis Creek / Described in VDH-DSS condemnation notice 85, 9/22/1997. Merged in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C04E_DVS01B08 / Davis Creek / Described in the condemnation notice 040-085M2, 9/21/2010. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C04E_DVS03A12 / Davis Creek / Described in VDH-DSS condemnation 040-085A, 9/24/2018. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C04E_ELM01A98 / Elmington Creek / Described in the condemnation notice 157B, 6/3/1997. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C04E_ELM01B08 / Elmington Creek / Portion of VDH condemnation notice 042-157D, 7/15/2020 not included in 157B, 6/3/1997. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-C04E_EST01A98 / East River / Described in the condemnation notice 92, 1/3/1995. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.198
VAP-C04E_EST01B10 / East River / Portion of condemnation notice 041-092A, 10/15/2020 open in 92, 1/3/1995. Size increased in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.072
VAP-C04E_EST01D10 / East River, UT / Described in the condemnation notice 041-092S43, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C04E_EST02A00 / East River / East River from SFC 92 to mouth, not otherwise segmented. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	2.473
VAP-C04E_EST02B20 / East River, UT / Described in VDH-DSS condemnation 041-092C, 10/15/2020. Size reduced in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C04E_EST03A06 / East River, UT / Described in VDH-DSS SFC 041-212M1, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C04E_EST04A02 / East River, UT / Described in VDH-DSS Condemnation Notice 041-212S197, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAP-C04E_EST05A06 / East River, UT (aka Mill Creek) / Described in VDH-DSS SFC 041-212S198, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EST06A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212G, 10/25/2005. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C04E_EST07A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212C, 9/30/2016. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-C04E_EST08A08 / East River, UT / Described in VDH Shellfish Condemnation 041-212S46, 9/24/2018. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.004
VAP-C04E_EST09A22 / East River, UT / Described in VDH-DSS Condemnation 041-092S42, 10/15/2020 MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C04E_GRE01A08 / Greenmansion Cove / Described in VDH-DSS condemnation notice 042-131M1, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.054
VAP-C04E_MIS01A04 / Miles Creek / Described in VDH Condemnation Notice 041-212B, 10/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-C04E_NOR01A02 / North River / Described in VDH-DSS condemnation notice 042-157A, 7/15/2020, excluding tidal Burke Mill Stream. Split in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.250
VAP-C04E_NOR01B08 / North River / Portion of condemnation notice 042-157S24, 7/15/2020 not included on the 6/3/1997 condemnation. Size expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.364
VAP-C04E_NOR01C22 / North River / Portion of VDH-DSS condemnation 042-057S24, 7/15/2020 closed in condemnation 157A, 6/3/1997. Split in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.067
VAP-C04E_NOR02A02 / North River / North River and tribs from SFC 157 to Mobjack Bay, except as otherwise segmented. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	5.399
VAP-C04E_NOR03A20 / North River, UT / Described in VDH-DSS condemnation 042-157B, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C04E_NOR04A22 / North River, UT / Described in VDH-DSS Condemnation 042-157S159, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010

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VAP-C04E_OAK01A08 / Oakland Creek / Described in VDH-DSS condemnation notice 042-131S160, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-C04E_PEP01A06 / Pepper Creek / As described in the condemnation notice 040-085B, 9/26/2006. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAP-C04E_PUT01A98 / Put In Creek / Portion of VDH-DSS condemnation notice 041-005A, 10/15/2019 included in 5A, 6/5/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.077
VAP-C04E_PUT01C10 / Put In Creek / Portion of condemnation notice 5A, 6/5/1996 open in 041-005, 10/15/2019. Shortened in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAP-C04E_PUT01D16 / Put In Creek / Described in condemnation notice 041-005B, 10/15/2019. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAP-C04E_PUT01E20 / Put In Creek / Described in VDH-DSS condemnation notice 041-005S44, 10/15/2019. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAP-C04E_PUT02A98 / Put In Creek / Described in the condemnation notice 5B, 6/5/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C04E_RAN01A08 / Raines Creek / Described in VDH Shellfish Condemnation 041-212I, 10/25/2005. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-C04E_RAY01A12 / Raymond Creek / Described in VDH-DSS condemnation 042-131B, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAP-C04E_SLO01A08 / Sloop Creek / Described in VDH-DSS Condemnation 040-085A, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAP-C04E_TAB01A08 / Tabbs Creek / Described in VDH Shellfish Condemnation 041-212S166, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-C04E_THO01A08 / Thomas Creek / Described in VDH Shellfish Condemnation 041-212B, 9/25/2014. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014

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VAP-C04E_TOD01A20 / Toddsbury Creek / Described in VDH-DSS condemnation 042-157E, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C04E_WON01A08 / Weston Creek / Described in VDH Shellfish Condemnation 041-212A, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-C04E_WOO01A10 / Woodas Creek / Described in VDH-DSS condemnation notice 041-092B, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C04E_WOO02A20 / Woodas Creek / Described in VDH-DSS condemnation 041-09S45, 10/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C04E_WTS01A08 / Whites Creek / Described in VDH Shellfish Condemnation 041-212E, 10/25/2005. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C04E_XFA03A14 / XFA - North River, UT / Described in VDH-DSS condemnation 042-131A, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C04E_ZZZ03A06 / Unsegmented estuaries in C04 / Unsegmented portion within MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.428
VAP-C05E_FOX01A08 / Fox Mill Run / Described in VDH condemnation notice 96B, 8/12/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.085
VAP-C05E_OLD01A12 / Oldhouse Creek / Tidal limit to mouth at Ware River MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.102
VAP-C05E_WAR01A02 / Ware River / Described in the condemnation notice 096A, 8/12/1996. Tidal extent adjusted in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.270
VAP-C05E_WAR01B08 / Ware River / Portion of VDH condemnation notice 043-096A, 7/15/2020 not included in condemnation 96A and 96B, 8/12/1996. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.224
VAP-C05E_WAR02A02 / Ware River / Ware River downstream of SFC 096. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	6.309
VAP-C05E_WAR02B18 / Ware River / Described in VDH-DSS condemnation 043-096CS188, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010

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VAP-C05E_WAR02C20 / Ware River / Described in VDH-DSS condemnation 043-096S26, 7/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.316
VAP-C05E_WIL01A98 / Wilson Creek / Described in the condemnation notice 106, 8/12/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAP-C05E_WIL01B08 / Wilson Creek / Portion of VDH condemnation notice 043-096B, 7/15/2020 not included in condemnation notice 106, 8/12/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.142
VAP-C05E_WIL02A22 / Wilson Creek / Described in VDH-DSS Condemnation 043-096S25, 7/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.137
VAP-C05E_XDJ01A08 / XDJ - Wilson Creek, UT / Tidal limit to mouth at Wilson Creek. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-C05E_ZZZ01A00 / Unsegmented estuaries in C05 / Unsegmented portion of the watershed. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.116
VAP-C06E_BLV01A20 / Blevins Creek / Described in VDH-DSS condemnation 045-125A, 12/15/2020. Size reduced slightly in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAP-C06E_BRB01A08 / Browns Bay / Described in VDH Shellfish Condemnation 125B, 12/31/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C06E_BRB01B12 / Browns Bay / Portion of VDH Shellfish Condemnation 045-125M1, 12/15/2020 not included in 125B, 12/31/1996. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAP-C06E_FSC01A98 / Free School Creek / Described in VDH Shellfish Condemnation 044-093A, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAP-C06E_FSC01B12 / Free School Creek / Portion of TMDL study area open for harvest on 044-093, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027
VAP-C06E_HEY01A98 / Heywood Creek / Described in the condemnation notice 044-054B, 6/15/2020. Expanded in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.106
VAP-C06E_HEY01B10 / Heywood Creek / Portion of condemnation notice 101, 4/1/1997 open in condemnation 044-054, 6/15/2020. Shortened in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.060

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VAP-C06E_MNC01A98 / Monday Creek / Portion of VDH-DSS condemnation notice 25A, 12/31/1996 open on 12/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-C06E_MNC01B18 / Monday Creek / Described in VDH-DSS condemnation notice 045-125A, 12/12/2017. Tidal limit corrected in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.064
VAP-C06E_ROW01A06 / Rowes Creek / Described in VDH-DSS Shellfish Condemnation 044-054M2, 6/15/2020. Shortened in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAP-C06E_SEN01A02 / Northwest Branch Severn River / Described in condemnation notice 044-093B, 6/15/2020, excluding tributary XEE. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.127
VAP-C06E_SEN01B16 / Northwest Branch Severn River, UT / Described in VDH-DSS condemnation notice 044-093D, 5/30/2018. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-C06E_SEN01C10 / Northwest Branch Severn River / Portion of condemnation notice 93A, 4/1/1997 open on 044-093, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.167
VAP-C06E_SEN02A06 / Northwest Branch Severn River / Northwest Branch Severn Creek not otherwise segmented Segment adjusted in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.427
VAP-C06E_SES01A00 / Southwest Branch Severn River / Mainstem MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.635
VAP-C06E_SEV02A00 / Severn River / End of NW Branch to mouth, unless otherwise segmented. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	3.258
VAP-C06E_STR01A08 / Sterling Creek / Described in VDH Shellfish Condemnation 044-093E, 4/2/2014. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C06E_THC01A98 / Thorntons Creek / Described in the condemnation notice 044-054A, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.063
VAP-C06E_THC01B10 / Thorntons Creek / Portion of condemnation notice 054, 4/1/1997 open in condemnation 044-054, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016

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VAP-C06E_VGH01A98 / Vaughans Creek / Described in the condemnation notice 93B, 4/1/1997. Merged in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.121
VAP-C06E_VGH02A22 / Vaughans Creek / Portion of VDH-DSS Condemnation 044-093C, 6/15/2020 not included in 93B, 4/4/1997 MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C06E_WET01A06 / Willetts Creek / Described in VDH Shellfish Condemnation 044-054M1, 6/15/2020. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.033
VAP-C06E_WET01B08 / Willetts Creek / Described in VDH Condemnation 044-054C, 2/15/2006. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.128
VAP-C06E_WTT01A08 / Whitaker Creek / Described in VDH-DSS Condemnation 044-093D, 6/15/2020 Size reduced in the 2022 cycle. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	0.037
VAP-C06E_XEE01A10 / XEE - Northwest Branch Severn River, UT / Tidal limit to mouth at NW Branch Severn River MOBPH	4A	Aquatic Plants (Macrophytes)	2012	L	0.003
VAP-C06E_ZZZ01A00 / Unsegmented estuaries in C06 / Unsegmented portion of the watershed. MOBPH	4A	Aquatic Plants (Macrophytes)	2006	L	1.358
VAT-C07E_BAK01A00 / Mainstem Back River / From junction of Northwest and Southwest Branches downstream to mouth of Back River. Portion of CBP Segment MOBPH. DSS Condemnation 054-215 OPEN (20181018) and 054-021 (20151102) shellfish condemnations.	4A	Aquatic Plants (Macrophytes)	2006	L	3.340
VAT-C07E_BAK01B08 / Mainstem Back River-South Shore at Mouth Wallace Cr. / Portion of mainstem along south shore between Windmill Pt. and Grunland Pt. CBP Segment MOBPH. DSS shellfish condemnation # 054-215 M1 (Seasonal)(effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.091
VAT-C07E_BAK02A14 / Back Creek - Inlet near Dandy Point [TMDL] / Tributary to south shore Back River (incl area in Back R), east of Harris R & adjacent to Inlet #2. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-215 B, 20181018.	4A	Aquatic Plants (Macrophytes)	2006	L	0.034

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VAT-C07E_BCK01A00 / Back Creek - Upper / Back Creek (S of York R mouth) tributary to the Thorofare and Chesapeake Bay. From end of tidal waters downstream to point upstream of Dandy (RM 1.6). CBP Segment MOBPH. DSS shellfish condemnation # 053-151 A &M1 (effective 20190515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.281
VAT-C07E_BCK02A06 / Back Creek - Middle (DSS-marina area) / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. Area within DSS shellfish condemnation # 053-151 M1, around marina area (effective 20180425).	4A	Aquatic Plants (Macrophytes)	2006	L	0.078
VAT-C07E_BCK03A06 / Back Creek - Lower / Back Creek (S of York R mouth) is a tributary to The Thorofare and Chesapeake Bay. CBP Segment MOBPH. From upstream of Dandy (RM 1.6) downstream to mouth (RM 0.0). DSS (OPEN) shellfish condemnation # 053-151 (effective 20190515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.405
VAT-C07E_BEN01A06 / Bennett Creek - Upper (DSS_06-IR) / Bennett Creek upstream portion (S of Poquoson R mouth) tributary to Poquoson River. From end of tidal waters downstream 0.1 mi. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 053-222 E (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAT-C07E_BEN02A08 / Bennet Creek - Lower Middle / South shore tributary to Poquoson R, in area of Griffins Beach. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. DSS (OPEN, Seasonal, and Conditionally Approved) Shellfish condemnation # 053-222 M1 and S147 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.209
VAT-C07E_BEN03A16 / Bennett Creek-Mouth / Mouth of Bennett Creek. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.366
VAT-C07E_BRK01A06 / Brick Kiln Creek / From 0.3 mi. downstream of Big Bethel Res. dam (approx. RM 5.0, end of tidal waters north of Ebenezer Church) downstream to confluence with Northwest Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 A (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.086
VAT-C07E_BTC01A08 / Bay Tree Creek / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS Shellfish condemnation # 053-221 B (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.076

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VAT-C07E_BTC02A18 / Bay Tree Creek- Mouth / Trib to Bay, S of The Thorofare & N of mouth of Poquoson R. @ Bay Tree Point. CBP Segment MOBPH. DSS (OPEN) Shellfish condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAT-C07E_BTH01A08 / Boathouse Creek / Boathouse Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-C07E_BTH01B22 / Chisman Creek-Lower North Shore (Marina) / Downstream section of Boathouse Creek, from Anchor Drive to mouth. CBP Segment MOBPH. DSS Conditionally Approved S141 condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAT-C07E_CAB01A08 / Cabin Creek / Cabin Creek (N of Poquoson R mouth) tributary to Chisman Creek. CBP Segment MOBPH. DSS shellfish condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.082
VAT-C07E_CCR01A06 / Cedar & Topping Creeks / Located near City of Poquoson. Cedar & Topping Creeks are tribs to the north shore of the Northwest Branch of Back River. Portion of DSS condemnation # 054-021 A (less NW Br Back R./Brick Kiln Cr. portion) effective 20201115. CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.109
VAT-C07E_CHS01A06 / Chisman Creek-Upper / From end of tidal waters (upper 1/3 of creek), downstream to area of Evergreen Shores (approx. RM 0.9). CBP Segment MOBPH. DSS condemnation # 053-221A & seasonal M2 (effective 20180425).	4A	Aquatic Plants (Macrophytes)	2006	L	0.408
VAT-C07E_CHS02A06 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Spivey Road to mouth. CBP Segment MOBPH. DSS (OPEN) condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.520
VAT-C07E_CHS02B22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Seaford Shores to north side of water near Spivey Rd. CBP Segment MOBPH. DSS Seasonally Restricted and Conditionally Approved condemnation # 053-221 M1 & S140 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.005
VAT-C07E_CHS02C22 / Chisman Creek-Lower North Shore (Marina) / Lower 2/3 of creek, downstream from area of Goose Creek to Seaford Shores area. CBP Segment MOBPH. DSS Conditionally Approved condemnation # 053-221 S140 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.005

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_CHS03A20 / Chisman Creek - Lower / First inlet on the right coming into the mouth of the Chisman. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 & M1(effective 20180425).	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAT-C07E_EAS01A06 / Easton Cove / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. DSS Conditionally approved shellfish condemnation # 053-222 S147 (effective 20200615). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.057
VAT-C07E_FLY01A06 / Floyds Bay- Upper / Upper Portion of Floyds Bay. Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20200615). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-C07E_FLY02A16 / Floyds Bay- mouth / Located in southeast corner of Bennett Cr, trib to Poquoson River. Area of York Haven Anchorage. Portion of DSS shellfish condemnation # 053-222 D (effective 20180425). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAT-C07E_FRT01A06 / Front Cove - Upper / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish condemnation # 054-021 C (effective 20201115). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-C07E_FRT02A08 / Front Cove - Lower / North shore trib. to mainstem Back R. Adjacent to Messick Point. DSS shellfish Seasonal condemnation # 054-021 M1 (effective 20181018). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.036
VAT-C07E_GLD01A10 / Grunland Creek - Mouth / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAT-C07E_GLD02A18 / Grunland Creek - Back River / South shore trib. to mainstem Back R. Adjacent to Grunland Point. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAT-C07E_GOO01A14 / Goose Creek- Upper / From end of tidal waters to approx. River mile 0.27. DSS Shellfish condemnation # 053-221 C (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.065
VAT-C07E_GOO02A14 / Goose Creek- Lower / From Rivermile 0.27 to mouth. CBP Segment MOBPH. DSS Restricted-condemnation # 053-221 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.036

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_HAR01A06 / Harris River - Upper / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. DSS shellfish condemnation # 054-215 A (effective 20201115). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.198
VAT-C07E_HAR02A10 / Harris River - Mouth / South shore trib. to mainstem Back R. East shore area at mouth. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (OPEN) shellfish area # 054-215 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.160
VAT-C07E_HAR02B10 / Harris River - Lower Marina Area / South shore trib. to mainstem Back R. Adjacent to Fox Hill area. CBP Segment MOBPH. DSS (Seasonal) shellfish condemnation # 054-215 M2 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.053
VAT-C07E_HOD01A08 / Hodges Creek - Upper / North shore trib to Poquoson R. @ Fish Neck. CBP Segment MOBPH. Portion of DSS shellfish Conditionally Approved -condemnation # 053-137 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.047
VAT-C07E_IN101A08 / DSS Inlet #1 - Unnamed Inlet at Mouth of SW Branch / South shore trib. to mainstem Back R. Located east of mouth of SW Branch. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-021 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAT-C07E_INB01A04 / DSS Inlet #2 - Unnamed Inlet S. Shore of SW Br. Back River / South shore trib. to Southwest Branch Back R. Located near mouth of SW Branch, west of unnamed DSS Inlet #1. DSS Restricted condemnation # 054-021 B (effective 20201115). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAT-C07E_LMC01A04 / Lambs Creek - Poquoson River / South shore tributary to Poquoson R, west of Poquoson Shores. On border of Poquoson/York boundary. Between Moores Cr. and Roberts Cr to east. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.135
VAT-C07E_LMC02A16 / Lambs Creek - Mouth / Mouth of Lambs Creek located on South shore tributary to Poquoson R, west of Poquoson Shores. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 C (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.028
VAT-C07E_LON01A06 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview natural Preserve area. CBP Segment MOBPH. DSS shellfish harvesting condemnation # 054-215 C (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.043

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_LON01B12 / Long & Grunland Creeks - Back River / South shore trib. to mainstem Back R. Adjacent to Grandview area. CBP Segment MOBPH. DSS shellfish ADMIN harvesting condemnation # 054-215 C (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.055
VAT-C07E_LYO01A06 / Lyons Creek - Upper / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 B (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.070
VAT-C07E_LYO02A06 / Lyons Creek - Middle and Lower / South shore tributary to Poquoson R, in area of York Haven Anchorage. East of Roberts Cr. and north of White House Cove. Lower portion of Lyons Cr. CBP Segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAT-C07E_NEW01A02 / Newmarket Creek - Upper / South of Blue Bird Gap Farm area. From end of tidal waters at Terrant ES (approx. RM 5.1) downstream to I-64 crossing (RM 3.68). CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.073
VAT-C07E_NEW02A02 / Newmarket Creek - Lower / South of Blue Bird Gap Farm area. From the I-64 crossing (RM 3.68) downstream to confluence with SW Br. Back R. CBP Segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.079
VAT-C07E_NWB01A06 / Northwest Br. Back River - Upper [TMDL-CD] / CBP Segment MOBPH. Headwaters to confluence of Cedar Creek between Cedar Point and Marsh Point. Portion of DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.220
VAT-C07E_NWB01B08 / Northwest Br. Back River - Upper [TMDL not CD] / Northwest Br. Back River upper portion from confluence of Cedar Creek downstream to confluence Tabbs Cr. Portion DSS shellfish condemnation # 054-021 A (less Cedar/Topping & Brick Kiln Creeks, effective 20201115). CBP Segment MOBPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.248
VAT-C07E_NWB02A06 / Northwest Br. Back River - Lower [DSS OPEN] / From area of confluence of Topping Creek (approx. RM 1.5) downstream to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS (OPEN) shellfish condemnation # 054-021 (effective 20181018).	4A	Aquatic Plants (Macrophytes)	2006	L	0.961

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_POQ01A06 / Poquoson River - Upper [TMDL-CD] / From Rt 17 crossing @ reservoir dam (RM 5.7) downstream to past confluence of Quarter March Cr (RM 2.7) @ Calthrop Neck. Including Moores & Quarter March Creeks. CBP Segment MOBPH. DSS shellfish condemn # 053-137 A (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.518
VAT-C07E_POQ02A06 / Poquoson River - Lower [DSS-OPEN] / From Calthrop Neck downstream to mouth of Hodges Cove. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-137 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.834
VAT-C07E_POQ03A08 / Poquoson River - Mouth / From Hunts Point a wedge NW across Poquoson River mouth to northern shore. CBP Segment MOBPH. DSS (OPEN) shellfish harvesting condemnation # 053-999 (effective 20201002).	4A	Aquatic Plants (Macrophytes)	2006	L	1.492
VAT-C07E_PTC01A04 / Patricks Creek - Poquoson River / North shore trib to Poquoson River south of Dare area. CBP Segment MOBPH. DSS Shellfish condemnation # 053-137 B (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.119
VAT-C07E_ROB01A04 / Roberts Creek - Upper / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS ADMIN Shellfish condemnation # 053-222 A (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.104
VAT-C07E_ROB02A08 / Roberts Creek - Lower [DSS-OPEN] / South of mouth of Poquoson River between Hunts Pt. and Griffins Beach areas. CBP Segment MOBPH. DSS OPEN Shellfish condemnation # 053-222 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAT-C07E_SWB01A08 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.706
VAT-C07E_SWB02A08 / Southwest Br. Back River - Mouth [DSS OPEN -No TMDL] / Lower portion to confluence with mainstem Back R. CBP Segment MOBPH. Portion of DSS shellfish (OPEN) condemnation # 054-021 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.568
VAT-C07E_SWB03A20 / SW Br Back River - Incl Tides Mill Cr [TMDL area] / Headwaters of Southwest Branch (incl tidal Tides Mill Cr) downstream to Langley View. CBP segment MOBPH. Portion of DSS shellfish condemnation seasonally restricted and conditionally condemned areas # 054-021 B (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.413

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C07E_TBC01A04 / Tabbs Creek - NW Br Back River / Tributary to Northwest Branch Back River, entirety of creek. CBP segment MOBPH. Portion of DSS shellfish condemnation # 054-021 E (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.073
VAT-C07E_TBC02A10 / Tabbs Creek Mouth - NW Br Back River / Tributary to Northwest Branch Back River, mouth of creek. CBP segment MOBPH. Portion of DSS Conditionally Approved shellfish condemnation # 054-021 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAT-C07E_THR01A10 / Sandbox Area NW Thorofare / Sandbox Area NW Thorofare Inlet near Goodwin Neck. CBP Segment MOBPH. DSS OPEN condemnation 053-051 (effective 20190515).	4A	Aquatic Plants (Macrophytes)	2006	L	0.012
VAT-C07E_WAL01A06 / Wallace Creek - Upper (Back River) / Tributary to south shore Back River, east of Harris R & adjacent to Inlet #2. Most upstream tip of creek. CBP segment MOBPH. DSS (PROHIBITED - ADMIN COND) shellfish condemnation # 054-215 B& D (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.036
VAT-C07E_WAT01A06 / Watts Creek - (NW Br. Back River) / Located southwest of Poquoson. Watts Cr. trib to Northwest Br. of Back R. CBP segment MOBPH. Portion of DSS condemnation # 054-021 (effective 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.058
VAT-C07E_WHH01A06 / White House Cove - Bennet Cr. Area / Located in York Haven Anchorage area, south of mouth of Poquoson R, CBP segment MOBPH. Portion of DSS Shellfish condemnation # 053-222 C and seasonal M1 (effective 20200615).	4A	Aquatic Plants (Macrophytes)	2006	L	0.145
VAT-C07E_ZZZ01A00 / Unsegmented estuaries in Back River / Non segmented areas of C07E. CBP Segment MOBPH. No DSS direct shellfish harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	1.040
VAT-C07E_ZZZ01B12 / Unsegmented estuaries in Back River - DSS / Non segmented areas of C07E. CBP Segment MOBPH. DSS Condemnation # 054-021 B (effective date 20201115).	4A	Aquatic Plants (Macrophytes)	2006	L	0.097

Chesapeake Bay segment MOBPH (Mobjack Bay)

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
133.394		

Chesapeake Bay segment MOBPH (Mobjack Bay)

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
133.394		

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Sources: Agriculture; Atmospheric Deposition; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **PIAMH-SAV-BAY** Piankatank Mesohaline Estuary

Cause Location: The Piankatank Mesohaline estuary.

Cause City/County: Gloucester County; Mathews County; Middlesex County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: During the 2006 cycle, the Chesapeake Bay Water Quality Standards were adopted. The Piankatank Mesohaline segment (PIAMH) fails the Submerged Aquatic Vegetation acreage requirements. There is insufficient data to assess the Water Clarity Acreage criteria.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010; therefore, the segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C02E_DRN01A02 / Dragon Swamp / The tidal portion of Dragon Swamp to its mouth at the Piankatank River. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.823
VAP-C03E_COB02B20 / Cobbs Creek / Described in VDH-DSS condemnation 034-126S70, 12/15/2020. Expanded slightly in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.043
VAP-C03E_COB02C10 / Cobbs Creek / Described in VDH-DSS condemnation 034-126B, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.049
VAP-C03E_COR01A08 / Cores Creek / Described in VDH-DSS condemnation 034-208D, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C03E_DAN01A08 / Dancing Creek / Described in VDH condemnation 025-076C, 2/15/2020 PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-C03E_FER01A98 / Ferry Creek / Described in VDH-DSS condemnation notice 035-076B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-C03E_FER01B20 / Ferry Creek / Portion of Ferry Creek that is not closed for oyster harvest. Expanded in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.115
VAP-C03E_FRE01A02 / Frenchs Creek / As described in the condemnation notice 035-076D, 2/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.010
VAP-C03E_HEA01A02 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208A, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.047

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_HEA01B20 / Healy Creek / Described in VDH-DSS Shellfish Condemnation Notice 034-208S67, 12/15/2020 PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAP-C03E_HRP01A98 / Harper Creek / Described in the condemnation notice 076B, 6/10/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.062
VAP-C03E_JCK01A98 / Jackson Creek / Described in VDH-DSS condemnation notice 84A, 11/1/1996. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.019
VAP-C03E_JCK01B08 / Jackson Creek / Described in VDH-DSS condemnation notice 084B, 11/1/1996. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAP-C03E_JCK01C08 / Jackson Creek / Mainstem portion of condemnation notice 033-084A, 12/11/2018 not included in 84A, 11/1/1996. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-C03E_JCK01C14 / Jackson Creek, UT / Described in VDH-DSS condemnation notice 033-084B, 2/15/2020. Shrank in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.014
VAP-C03E_JCK02A20 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084D, 12/11/2018 not included in 084B, 11/1/1996. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.032
VAP-C03E_JCK02B16 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084E, 11/12/2014. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C03E_JCK02C10 / Jackson Creek / Portion of VDH-DSS condemnation notice 033-084M1, 2/15/2020 not included in 033-084A, -B, or -D, 12/11/2018. Segment expanded in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.171
VAP-C03E_JCK03C10 / Jackson Creek / Described in VDH-DSS condemnation notice 033-084B, 12/11/2018. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAP-C03E_MRE01A02 / Moore Creek / As described in the condemnation notice 034-208C, 12/15/2020. Split in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAP-C03E_MRE01B22 / Moore Creek / As described in the condemnation notice 034-208S69, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.035

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK01A02 / Piankatank River / Downstream limit of VDH-DSS condemnation SFC 035-076A, 6/10/1997 to Deep Point Boat Landing. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.558
VAP-C03E_PNK01A98 / Piankatank River / Watershed limit (start of Piankatank River) downstream to limit of SFC 035-076A, 6/10/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.280
VAP-C03E_PNK02A00 / Piankatank River / Mainstem Piankatank from end of 035-076S65, 2/15/2020 downstream to PNK03A00, excluding the Berkley Island area. Size reduced in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	3.355
VAP-C03E_PNK02B08 / Piankatank River / Bend around Berkley Island PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.785
VAP-C03E_PNK02C20 / Piankatank River / Mainstem Piankatank from Deep Point Landing downstream to the boundary of 035-076S65, 2/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.210
VAP-C03E_PNK03A00 / Piankatank River / One-half mile radius around monitoring station 7-PNK005.36 on the Piankatank River between Pond Point and Iron Point. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.167
VAP-C03E_PNK04A00 / Piankatank River / Mainstem Piankatank River from PNK03A00 downstream to the point at Fishing Bay. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	3.528
VAP-C03E_PNK04B06 / Piankatank River / As described in VDH-DSS SFC 034-208M1, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.040
VAP-C03E_PNK04C06 / Piankatank River - Fishing Bay / As described in VDH-DSS SFC 034-208 M2, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.085
VAP-C03E_PNK04D08 / Porpoise Cove / As described in VDH-DSS SFC 034-208B, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C03E_PNK05A02 / Piankatank River / Piankatank River downstream of Fishing Bay at Stove Point to mouth at Chesapeake Bay PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	4.949
VAP-C03E_PNK07B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S71, 12/28/2018. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.007

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C03E_PNK08B08 / Piankatank River, UT / Described in VDH-DSS SFC 034-126S72, 12/28/2018 PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.003
VAP-C03E_WLT01A98 / Wilton Creek / Described in the condemnation notice 034-126A, 12/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.111
VAP-C03E_WLT01B20 / Wilton Creek / Portion of VDH-DSS condemnation 126, 3/2/1993 that is not condemned. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C03E_ZZZ01B14 / Unsegmented estuaries in C03 / Unsegmented portion of watershed CB11. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.146
VAP-C04E_BLL01A16 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-C04E_BLL01A98 / Billups Creek / Portion of VDH-DSS condemnation notice 204, 4/4/1997 closed on 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.044
VAP-C04E_BLL02A16 / Billups Creek / Billups Creek not otherwise segmented. Size reduced in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.185
VAP-C04E_BLL02B20 / Billups Creek / Portion of VDH-DSS condemnation 037-061B, 4/15/2020 open on 4/4/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAP-C04E_BLL02C12 / Billups Creek / Portion of VDH-DSS condemnation 037-061S129, 4/15/2020 open in 204, 4/4/1997. Size increased in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.137
VAP-C04E_BRN01A04 / Barn Creek / Described in VDH-DSS condemnation notice 036-197C, 3/15/2019. Split in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAP-C04E_BRN02A22 / Barn Creek / Described in VDH-DSS condemnation notice 036-197S126, 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAP-C04E_EDW01B18 / Edwards Creek / Described in VDH condemnation notice 197A, 1/21/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.027

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_EDW02A98 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197B, 1/21/1997 open 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAP-C04E_EDW02B20 / Edwards Creek / Portion of VDH-DSS condemnation notice 036-197D, 3/15/2019 not included in 197B, 1/21/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAP-C04E_HKC01A08 / Hickorynut Cove / Tidal limit to mouth at Milford Haven PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAP-C04E_HUD01A08 / Hudgins Creek / Described in VDH-DSS Condemnation 037-061D, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C04E_LAN01A02 / Lanes Creek / As described in VDH-DSS condemnation notice 037-099C, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.020
VAP-C04E_LAN01B08 / Lanes Creek, UT / Described in VDH Shellfish Condemnation 037-099E, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.002
VAP-C04E_LAN02A22 / Lanes Creek / Described in VDH-DSS Condemnation 037-099S127, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.054
VAP-C04E_MID01A02 / Winder Creek / As described in the condemnation notice 037-099B, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAP-C04E_MLF01A98 / Milford Haven / Described in the condemnation notice 036-197A, 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAP-C04E_MLF02A98 / Milford Haven / Described in the condemnation notice 036-197E, 3/15/2019 PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAP-C04E_MLF03A00 / Milford Haven / Downstream of SFC 036-197, 3/15/2019 except as otherwise segmented. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.411
VAP-C04E_MLF04A06 / Milford Haven / Hills Bay PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	2.283
VAP-C04E_MLF05A06 / Milford Haven / Described in VDH-DSS condemnation 036-197M1, 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAP-C04E_MRC01A98 / Morris Creek / Described in VDH-DSS condemnation notice 61B, 4/4/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.034

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_QUE01A98 / Queens Creek / Portion of VDH-DSS condemnation 99A, 4/9/1977 within 037-099A and -D, 4/15/2020. Split in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.094
VAP-C04E_QUE01B10 / Queens Creek / Described in VDH-DSS condemnation notice 037-099M1, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAP-C04E_QUE01C10 / Queens Creek / Below condemnation notice 99A, 4/7/1997, unless otherwise segmented. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.068
VAP-C04E_QUE01D22 / Queens Creek / Portion of VDH-DSS condemnation notice 99A, 4/9/1997 within 037-099S132, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.068
VAP-C04E_QUE02A12 / Queens Creek, UT / Described in VDH-DSS condemnation 037-099S169, 4/15/2020. Size reduced in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAP-C04E_STO01A08 / Stoakes Creek / Described in VDH Shellfish Condemnation 037-061M1, 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.006
VAP-C04E_STO01B14 / Stoakes Creek / Tidal limit to mouth unless otherwise segmented. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.292
VAP-C04E_STT01A98 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061A, 4/15/2020. Split in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.074
VAP-C04E_STT01B06 / Stutts Creek, UT (Hole in the Wall) / Described in VDH-DSS condemnation 037-061S130, 4/15/2020. Expanded in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAP-C04E_STT01B10 / Stutts Creek/Morris Creek / Portion of VDH condemnation notice 037-061C, 4/15/2020 not condemned on 4/4/1997. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.045
VAP-C04E_STT01C14 / Stutts Creek / Described in VDH-DSS condemnation notice 037-061S128, 4/15/2020 excluding areas in 037-061D, 2/21/2017 and 61A, 4/4/1997. Merged and expanded in the 2022 cycle. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.109

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-C04E_STT01D22 / Stutts Creek / Portion of VDH-DSS condemnation 061A, 4/4/1997 seasonally condemned on 4/15/2020. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C04E_STT02A00 / Stutts Creek / Downstream limit of condemnation to Fanneys Point, except as otherwise segmented. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.229
VAP-C04E_STT02B20 / Stutts Creek, UT / Described in VDH-DSS condemnation 037-061D, 2/21/2017. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.009
VAP-C04E_STT05A10 / Stutts Creek (Hole in the Wall) / From Point Breeze downstream to its mouth at the Chesapeake Bay. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	1.037
VAP-C04E_WHA01A06 / Wharf Creek / Described in VDH-DSS SFC 036-197M2, 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAP-C04E_WHI01A08 / Whites Creek / Whites Creek around Festival Beach PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.074
VAP-C04E_WHI01B12 / Whites Creek / Stutts Creek to Festival Beach PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.243
VAP-C04E_XFE01A16 / XFE - Piankatank River, UT (aka Kibble Pond) / Described in VDH-DSS condemnation 036-197B, 3/15/2019. PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAP-C04E_ZZZ01A00 / Unsegmented estuaries in C04 / Unsegmented portion of the watershed within PIAMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.664

Piankatank Mesohaline Estuary

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
26.467		

Piankatank Mesohaline Estuary

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
26.467		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Changes in Ordinary Stratification and Bottom Water Hypoxia/Anoxia; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **POCMH-SAV-BAY** Chesapeake Bay segment POCMH (Pocomoke Sound)

Cause Location: This cause encompasses the complete CBP segment POCMH.

Cause City/County: Accomack County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: Submerged aquatic vegetation goal is 4067 acres and only 86% of this goal was attained in the most recent 3 years. The acres of submerged aquatic vegetation (SAV) mapped through aerial surveys do not meet the criteria. Only 70% of water clarity goal met according to 2014 and 2015 Dataflow surveys.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-C10E-POC / Chesapeake Bay - VA portion of CBP segment POCMH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment POCMH, located in the mesohaline area of Pocomoke sound. HUC: 02080101.	4A	Aquatic Plants (Macrophytes)	2006	L	41.048
VACB-C10E_POC01B18 / Pocomoke Sound / Pocomoke Sound - VDH DSS condemnation #075-033 (Restricted)	4A	Aquatic Plants (Macrophytes)	2006	L	2.480
VACB-C10E_POC01C20 / Pocomoke Sound / Pocomoke Sound - VDH DSS #075-033 (Open)	4A	Aquatic Plants (Macrophytes)	2006	L	3.347
VAT-C10E_BAG01A00 / Bagwell Creek / Northwest of Town of Justisville. Entirety of creek. Portion of CBP segment POCMH. DSS shellfish direct harvesting condemnation # 077-138 A (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.115
VAT-C10E_BAG02A10 / Bagwell Creek - Lower / Northwest of Town of Justisville. Lower DSS OPEN portion of Cr. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting area # 077-138 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.101
VAT-C10E_DIX01A08 / Dix Cove / Northwest of Town of Parksley. Adjacent to Bagwell & Hunting Creeks. Within CBP segment POCMH. Portion of DSS (OPEN) shellfish direct harvesting area # 077-138 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.041
VAT-C10E_DOE01A22 / Doe Cr-Lower / Tributary of Chesapeake Bay off of Web Island in C10E-POCMH. DSS (OPEN) shellfish direct harvesting condemnation area # 077-138 (20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.225
VAT-C10E_DOE01B22 / Doe Cr-Upper / Tributary of Chesapeake Bay off of Web Island in C10E-POCMH. DSS (Restricted) shellfish direct harvesting condemnation area # 077-138 D (20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.140

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_GLF01A06 / Guilford Creek - Upper [TMDL] / Northeast of Town of Guilford. Upper portion of creek, from end of tidal waters downstream to end of DSS condemnation portion. Portion of CBP segment POCMH. DSS shellfish condemnation # 076-176 A (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.152
VAT-C10E_GLF02A06 / Guilford Creek - Lower / Northeast of Town of Guilford. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. DSS shellfish Restricted-condemnation direct harvesting condemnation # 076-176 A (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.106
VAT-C10E_GLF03A08 / Guilford Creek - Lower [No DSS] / Northeast of Town of Guilford. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation identified.	4A	Aquatic Plants (Macrophytes)	2006	L	0.460
VAT-C10E_GSH01A06 / Guard Shore Beach / In Old Cove (Beasley Bay). Located at Bailey Ridge, west of Bloxom. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAT-C10E_HUN01A00 / Hunting Creek - Upper / W of Hopkins. Upper portion, from end of tidal waters downstream to end of DSS condemnation (downstream of Town of Hopkins). CBP segment POCMH. DSS shellfish direct harvesting condemnation # 077-138 B (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.194
VAT-C10E_HUN02A06 / Hunting Creek - Lower / West of Town of Hopkins. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting condemnation # 077-138 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.648
VAT-C10E_MES01A06 / Messongo Creek - Upper / Located southeast of Marsh Market & start of Rec TMDL (213) . Running parallel with Rt 692 upstream to the end of tidal waters. POCMH. Upstream portion of DSS shellfish condemnation # 076-167 A (effective 20180725).	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-C10E_MES02A06 / Messongo Creek - Middle [TMDL-06] / South of Town of Belinda. Portion of CBP segment POCMH. TMDL P# 732- SF. DSS Condemnation # 076-167 (effective 20180725).	4A	Aquatic Plants (Macrophytes)	2006	L	0.156
VAT-C10E_MES02B08 / Messongo Creek - Middle [No TMDL] / Located south of Saxis and Belinda Rd intersection. Portion of CBP segment POCMH. DSS Restricted condemnation # 076-167 (effective 20180725).	4A	Aquatic Plants (Macrophytes)	2006	L	0.341

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_MES03A06 / Messongo Creek - Lower / Located south of Saxis and Belinda Rd intersection downstream to the mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.858
VAT-C10E_MUD01A04 / Muddy Creek - Upper / Located southeast of Byrds Marsh and northeast of Town of Bloxom. From end of tidal waters downstream to Poulson Pt. Portion of CBP segment POCMH. DSS shellfish condemnation # 076-176 B (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.301
VAT-C10E_MUD02A06 / Muddy Creek - Lower / Located southeast of Byrds Marsh and northeast of Town of Bloxom. Lower portion of creek, Pettigrew Bend to end of DSS Open condemnation. Portion of CBP segment POCMH. DSS shellfish Restricted condemnation # 076-176 B (effective 2019081815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.048
VAT-C10E_MUD03A08 / Muddy Creek - Lower [No DSS] / Located southeast of Byrds Marsh and northeast of Town of Bloxom. Lower portion of creek, from end of DSS condemnation downstream to mouth. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.060
VAT-C10E_STR01A08 / Starling Creek / Located on Saxis Island, southwest of Pocomoke Sound. Embayment at town of Saxis. From end of tidal waters downstream to end of DSS condemnation. Portion of CBP segment POCMH. DSS shellfish direct harvesting condemnation # 075-118 M1 (effective 20180725).	4A	Aquatic Plants (Macrophytes)	2006	L	0.091
VAT-C10E_YOU01A06 / Young Creek / Northeast of Town of Guilford and south of Jobs Island. Portion of CBP segment POCMH. DSS (OPEN) shellfish direct harvesting condemnation # 076-176 C (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.072
VAT-C10E_YOU02A20 / Lower - Young Creek / Northeast of Town of Guilford and south of Jobs Island. Portion of CBP segment POCMH. DSS Restricted-condemnation shellfish direct harvesting condemnation # 076-176 (effective 20190815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.172
VAT-C10E_ZZZ02A06 / Unsegmented estuaries in C10E-POCMH [No DSS] / Evaluated non-segmented portions of C10E not contained within VACB-R01E-CB7S. Portion of CBP segment POCMH. No DSS shellfish direct harvesting condemnation area identified.	4A	Aquatic Plants (Macrophytes)	2006	L	2.865

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C10E_ZZZ03A22 / Unsegmented estuaries in C10E-POCMH [Restricted DSS] / Evaluated non-segmented portions of C10E not contained within VACB-R01E-CB7S. Portion of CBP segment POCHM. DSS shellfish Restricted direct harvesting condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.110

Chesapeake Bay segment POCHM (Pocomoke Sound)

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	54.196		

Chesapeake Bay segment POCHM (Pocomoke Sound)

Shallow-Water Submerged Aquatic Vegetation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	54.196		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **POCOH-DO-BAY** Pocomoke River System CBP segment POCOH
(Pocomoke River)

Cause Location: This cause encompasses the entirety of the Pocomoke River System CBP segment POCOH. Virginia portion of CBP segment POCOH.

Cause City/County: Accomack County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: The Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer.

The Open Water - Summer Dissolved Oxygen impairment for all the Pocomoke oligohaline segments (POCOH) (to include all tribs/creeks) will be assessed as Category 4C based on the conclusions from the Natural Conditions Assessment for the Pocomoke Sound completed in October 2010 (EPA approval email 11/3/2010). This Assessment Report concluded that the Pocomoke oligohaline segment's low dissolved oxygen conditions during the summer months are strongly influenced by natural conditions and the downstream estuarine condition.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C09E_BLB01A06 / Bulbeggan Creek / Located southeast of Pitts Neck area. From estuarine/riverine transition (end of tidal waters) downstream to mouth (confluence with Pocomoke Sound). Portion of CBP segment POCOH. No DSS condemnation or notice.	4C	Dissolved Oxygen	NA	NA	0.134
VAT-C09E_POC01A06 / Pocomoke River / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line downstream to mouth (confluence with Pocomoke Sound) within VA. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.240
VAT-C09E_POC02A08 / Pocomoke Sound [C09 portion] / Pocomoke Sound downstream of the Pocomoke River (VA portion). Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.726
VAT-C09E_PTT01A06 / Pitts Creek / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line downstream to mouth (confluence with Pocomoke River) within VA. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.127
VAT-C09E_PTT01B10 / Pitts Creek - Upper [Admin Cond] / Located northeast of Pitts Neck area, along VA/MD border. From VA/MD state line upstream to headwaters within VA at Dunns Swamp Road. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.069

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-C09E_ZZZ01A06 / Unsegmented tidal tributaries in C09E-POCOH / Evaluated non segmented portions of C09E. Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.006
VAT-C10E_HLD01A06 / Holdens Creek - Upper / Located southeast of Joeys Neck area. From confluence Sandy Bottom Br downstream to 0.5 mi of station @ 7-HLD002.67. Portion of CBP segment POCOH. Portion of DSS condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.034
VAT-C10E_HLD02A06 / Holdens Creek - Lower / Located southeast of Joeys Neck area. From 0.5 mi downstream of station @ 7-HLD002.67 downstream to mouth. Portion of CBP segment POCOH. Portion of DSS shellfish condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	0.050
VAT-C10E_POC01A08 / Pocomoke Sound - Lower [C10 portion] / Pocomoke Sound downstream of the Pocomoke River (VA portion). Area adjacent to Holdens Creek. Portion of CBP segment POCOH. Portion of DSS shellfish direct harvesting condemnation # 075-033 A (effective 20180725).	4C	Dissolved Oxygen	NA	NA	1.452

Pocomoke River System CBP segment POCOH (Pocomoke River)

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.839		

Pocomoke River System CBP segment POCOH (Pocomoke River)

Open-Water Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	2.839		

Sources: Natural Sources

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **TANMH-DO-BAY** Chesapeake Bay segment TANMH (Tangier Sound)

Cause Location: This cause encompasses the complete CBP segment TANMH.

Cause City/County: Accomack County

Use(s): Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The 30-day dissolved oxygen criteria for open water use is not meeting for the 2022 assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-C10E-TAN / Chesapeake Bay - VA portion of CBP Segment TANMH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment TANMH, located in the northern part of the Virginia mainstem Bay around Tangier Sound. HUC: 02080101	4A	Dissolved Oxygen	2006	L	118.980
VACB-C10E_TNN01A06 / Tangier North Channel and Adjacent Waters, DSS Area A and B. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section A effective 11/6/2013	4A	Dissolved Oxygen	2006	L	1.366
VACB-C10E_TNN01B06 / Tangier North Channel and Adjacent Waters, DSS Area C. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section B effective 11/6/2013	4A	Dissolved Oxygen	2006	L	0.039
VACB-C10E_TNN01C16 / Tangier North Channel and Adjacent Waters, Open waters / Waters surrounding Tangier Island. Portion of CBP segment TANMH. Open waters of the DSS cond # 078-86 eff 11/06/2013. Split from VACB-C10E_TNN01A06 (2016).	4A	Dissolved Oxygen	2006	L	0.196
VACB-C10E_TNN01D18 / Tyler Creek, Shanks Creek, Tangier Sound / Tyler Creek, Shanks Creek, Tangier Sound - Portion of CBP segment TANMH. Restricted waters of the DSS cond # 074-226 eff 2/26/2015. Split from VACB-C10E-TAN.	4A	Dissolved Oxygen	2006	L	2.169

Chesapeake Bay segment TANMH (Tangier Sound)

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
122.75		

Chesapeake Bay segment TANMH (Tangier Sound)

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
122.75		

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Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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Chesapeake Bay/Atlantic/Small Coastal Basins

Cause Group Code: **TANMH-SAV-BAY** Chesapeake Bay segment TANMH (Tangier Sound)

Cause Location: This cause encompasses the complete CBP segment TANMH.

Cause City/County: Accomack County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The acres of submerged aquatic vegetation (SAV) mapped through aerial surveys do not meet the criteria. Submerged Aquatic Vegetation acres goal is 13,585 acres but only 70% of this goal was achieved in the most recent 3 years. There is insufficient data to assess the water clarity criteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VACB-C10E-TAN / Chesapeake Bay - VA portion of CBP Segment TANMH / This assessment unit is the mainstem Chesapeake Bay portion of Chesapeake Bay Program segment TANMH, located in the northern part of the Virginia mainstem Bay around Tangier Sound. HUC: 02080101	4A	Aquatic Plants (Macrophytes)	2006	L	118.980
VACB-C10E_TNN01A06 / Tangier North Channel and Adjacent Waters, DSS Area A and B. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section A effective 11/6/2013	4A	Aquatic Plants (Macrophytes)	2006	L	1.366
VACB-C10E_TNN01B06 / Tangier North Channel and Adjacent Waters, DSS Area C. / Waters surrounding Tangier Island. Portion of CBP segment TANMH. DSS (ADMINISTRATIVE) shellfish condemnation # 078-086, section B effective 11/6/2013	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VACB-C10E_TNN01C16 / Tangier North Channel and Adjacent Waters, Open waters / Waters surrounding Tangier Island. Portion of CBP segment TANMH. Open waters of the DSS cond # 078-86 eff 11/06/2013. Split from VACB-C10E_TNN01A06 (2016).	4A	Aquatic Plants (Macrophytes)	2006	L	0.196
VACB-C10E_TNN01D18 / Tyler Creek, Shanks Creek, Tangier Sound / Tyler Creek, Shanks Creek, Tangier Sound - Portion of CBP segment TANMH. Restricted waters of the DSS cond # 074-226 eff 2/26/2015. Split from VACB-C10E-TAN.	4A	Aquatic Plants (Macrophytes)	2006	L	2.169

Chesapeake Bay segment TANMH (Tangier Sound)

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
122.75		

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Chesapeake Bay segment TANMH (Tangier Sound)

Shallow-Water Submerged Aquatic Vegetation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	122.75		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Non-Point Source; Sediment Resuspension (Clean Sediment); Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **F01L-01-HG** **Lake Gordonsville**

Cause Location: Includes the entirety of Lake Gordonsville, also known as Bowlers Mill Lake.

Cause City/County: Louisa County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health mercury fish consumption advisory. The advisory, dated 09/30/04, limits largemouth bass consumption to no more than two meals per month.

Additionally, exceedances of the water quality criterion based fish tissue value (TV) of 300 ppb for mercury (HG) were recorded in one species of fish (largemouth bass) in one sample collected in 2003 and in one species of fish (largemouth bass) in four samples collected in 2017 at DEQ fish tissue monitoring station 8-DOV001.20, near the dam.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01L_DOV01A06 / Lake Gordonsville / Segment includes all of Lake Gordonsville.	5A	Mercury in Fish Tissue	2006	L	77.31

Lake Gordonsville

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	77.31	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F01R-01-BAC** **South Anna River**

Cause Location: Begins at the headwaters of the South Anna River and continues downstream until the confluence with Dove Fork. Begins again at the start of waterbody F02R, where Wheeler Creek intersects the South Anna River, and continues downstream until the confluence with Rock Creek.

Cause City/County: Louisa County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-SAR089.35 at Route 613 (Poindexter Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 8-SAR099.81 at Route 860 (Kloeckner Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 8-SAR097.82 at Route 603 (2020 Assessment): E. coli bacteria criterion excursions (3 of 14 samples - 21.4%) DEQ station 8-SAR101.03 at Route 231 (Gordonsville Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Pamunkey River and Tributaries modified bacteria TMDL for the South Anna River (F01R-01) watershed (Eq ID POL0337) was approved by the EPA on 4/27/2015 (Fed ID 64651). The SWCB approved the modified TMDL on 12/11/2014. This impairment was originally addressed in the Pamunkey River Basin bacteria TMDL (Fed ID 24423, 8/2/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_SAR02A02 / South Anna River / Segment begins at the upstream boundary of the Section 3C WQS designation and continues downstream until the confluence with Dove Fork.	4A	Escherichia coli (E. coli)	2002	L	1.90
VAN-F01R_SAR02B22 / South Anna River / Segment begins at the confluence with an unnamed tributary, approximately 0.25 mile downstream of the Route 231 bridge, and continues downstream until the boundary of the Section 3C WQS designation.	4A	Escherichia coli (E. coli)	2002	L	2.00
VAN-F01R_SAR02C10 / South Anna River / Segment begins at the headwaters of the South Anna River and continues downstream until the confluence with an unnamed tributary, approximately 0.25 mile downstream of the Route 231 bridge.	4A	Escherichia coli (E. coli)	2002	L	3.20
VAN-F02R_SAR02A00 / South Anna River / Segment begins at the start of waterbody F02R, where Wheeler Creek intersects the South Anna River, and continues downstream until the confluence with Rock Creek.	4A	Escherichia coli (E. coli)	2006	L	3.98

South Anna River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			11.08

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: F01R-02-BAC Wheeler Creek

Cause Location: Begins at the headwaters of Wheeler Creek and continues downstream until the confluence with Hudson Creek.

Cause City/County: Albemarle County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (8 of 11 samples - 72.7%) at DEQ station 8-WLR000.31 upstream of the confluence with Camp Creek. 2014 Assessment: E. coli bacteria criterion excursions (3 of 6 samples - 50.0%) at DEQ station 8-WLR000.26 at Route 640.

The Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F02R-01) watershed was approved by the EPA on 8/2/2006 (Fed ID 24424); the EPA approved a modification on 4/27/2015 (Fed ID 64664). The SWCB approved the modified TMDL on 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_WLR01A04 / Wheeler Creek / Segment begins at the confluence with Camp Creek and continues downstream until the confluence with Hudson Creek.	4A	Escherichia coli (E. coli)	2010	L	0.24
VAN-F01R_WLR01B10 / Wheeler Creek / Segment begins at the headwaters of Wheeler Creek and continues downstream until the confluence with Camp Creek.	4A	Escherichia coli (E. coli)	2012	L	6.01

Wheeler Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.25

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F01R-02-BEN** **Wheeler Creek**

Cause Location: Begins at the headwaters of Wheeler Creek and continues downstream until the confluence with Camp Creek.

Cause City/County: Albemarle County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Three biological monitoring events in 2009 and 2010 at station 8-WLR000.31 (upstream from the confluence with Camp Creek) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_WLR01B10 / Wheeler Creek / Segment begins at the headwaters of Wheeler Creek and continues downstream until the confluence with Camp Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.01

Wheeler Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.01

Sources: Source Unknown

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York River Basin

Cause Group Code: **F01R-03-BAC** **Hudson Creek**

Cause Location: Begins at the confluence of Bunch Creek and Fielding Creek and continues downstream until the confluence with Wheeler Creek.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ ambient station 8-HUD001.80 at Route 695.

The Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F02R-01) watershed (Eq. ID POL0335) was approved by the EPA on 8/2/2006 (Fed ID 24424); the EPA approved a modification on 4/27/2015 (Fed ID 64664). The SWCB approved the modified TMDL on 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_HUD01A04 / Hudson Creek / Segment begins at the confluence of Bunch Creek and Fielding Creek and continues downstream until the confluence with Wheeler Creek.	4A	Escherichia coli (E. coli)	2012	L	3.62

Hudson Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.62

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F01R-03-BEN** **Camp Creek**

Cause Location: Begins at the confluence with Central Branch and continues downstream to the confluence with Wheeler Creek.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: A total of three biological monitoring events in 2009 and 2010 at DEQ station 8-CMP000.28 at Route 717 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_CMP01A12 / Camp Creek / Segment begins at the confluence with Central Branch and continues downstream to the confluence with Wheeler Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.02

Camp Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.02

Sources: Source Unknown

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York River Basin

Cause Group Code: **F01R-04-BAC** **Camp Creek**

Cause Location: Begins at the confluence with Central Branch and continues downstream to the confluence with Wheeler Creek.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (6 of 11 samples - 54.5%) at DEQ ambient station 8-CMP000.28 at Route 717.

The Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F02R-01) watershed (Eq. ID POL0335) was approved by the EPA on 8/2/2006 (Fed ID 24424); the EPA approved a modification on 4/27/2015 (Fed ID 64664). The SWCB approved the modified TMDL on 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_CMP01A12 / Camp Creek / Segment begins at the confluence with Central Branch and continues downstream to the confluence with Wheeler Creek.	4A	Escherichia coli (E. coli)	2012	L	2.02

Camp Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.02

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F01R-04-BEN** **South Anna River**

Cause Location: Begins at the headwaters of the South Anna River and continues downstream until the confluence with an unnamed tributary, approximately 0.25 mile downstream of the Route 231 bridge. Begins again at the confluence with Mill Creek and continues downstream until the mouth of watershed F01, at the confluence with Wheeler Creek.

Cause City/County: Louisa County; Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four biological monitoring events in 2016 and 2017 at DEQ station 8-SAR101.03 at Route 231 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community. Four biological monitoring events in 2016 and 2017 at DEQ station 8-SAR091.64 at Route 695 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F01R_SAR01A02 / South Anna River / Segment begins at the confluence with Mill Creek and continues downstream until the mouth of watershed F01, at the confluence of Wheeler Creek to the South Anna River.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	4.95
VAN-F01R_SAR02C10 / South Anna River / Segment begins at the headwaters of the South Anna River and continues downstream until the confluence with an unnamed tributary, approximately 0.25 mile downstream of the Route 231 bridge.	5A	Benthic Macroinvertebrates Bioassessments	2020	L	3.20

South Anna River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.15

Sources: Source Unknown

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York River Basin

Cause Group Code: **F02L-01-DO** **Northeast Creek Reservoir**

Cause Location: Includes the entire reservoir, located northeast of the intersection of Route 33 and Route 522.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion (7 of 42 samples - 16.7%) at lake station 8-NTH003.92 (100 feet from the spillway).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02L_NTH01A06 / Northeast Creek Reservoir / Includes the entire reservoir, located northeast of the intersection of Route 33 and Route 522.	5A	Dissolved Oxygen	2022	L	183.79

Northeast Creek Reservoir

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		183.79	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F02R-01-BAC** **South Anna River**

Cause Location: Begins at the confluence with Rock Creek and continues downstream until the confluence with Beaver Creek.

Cause City/County: Fluvanna County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-SAR070.96 at Route 646 (2014 assessment): E. coli bacteria criterion excursions (2 of 6 samples - 33.3%). DEQ station 8-SAR083.25 at Route 649: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Pamunkey River and Tributaries modified bacteria TMDL for the South Anna River (F02R-01) watershed (Eq ID POL0335) was approved by the EPA on 04/27/2015 (Fed ID 64664). The SWCB approved the modified TMDL on 12/11/2014. This impairment was originally addressed in the Pamunkey River Basin bacteria TMDL (Fed ID 24424, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_SAR01A00 / South Anna River / Segment begins at the confluence with Harris Creek and continues downstream until the confluence with Beaver Creek.	4A	Escherichia coli (E. coli)	2004	L	4.98
VAN-F02R_SAR01B20 / South Anna River / Segment begins at the confluence with Roundabout Creek and continues downstream until the confluence with Harris Creek.	4A	Escherichia coli (E. coli)	2004	L	1.01
VAN-F02R_SAR01C18 / South Anna River / Segment begins at the confluence with Rock Creek and continues downstream to the confluence with Roundabout Creek.	4A	Escherichia coli (E. coli)	2018	L	8.19

South Anna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			14.18

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F02R-01-BEN** **Fosters Creek**

Cause Location: Begins at the headwaters of Fosters Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four biological monitoring events in 2015 and 2016 at DEQ station 8-FOS000.84 at Route 640 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_FOS01A06 / Fosters Creek / Segment begins at the headwaters of Fosters Creek and continues downstream until the confluence with the South Anna River.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.92

Fosters Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.92

Sources: Source Unknown

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York River Basin

Cause Group Code: **F02R-02-BAC** **Unnamed tributary to South Anna River**

Cause Location: Begins at the headwaters of an unnamed tributary to the South Anna River and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (1 of 2 samples - 50.0%) at DEQ station 8-XIE000.27 upstream of Route 697 and E. coli bacteria criterion excursions (1 of 2 samples - 50.0%) at DEQ station 8-XIE000.40 upstream of the Twin Oaks STP.

The Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F02R-01) watershed (Eq. ID POL0335) was approved by the EPA on 8/2/2006 (Fed ID 24424); the EPA approved a modification on 4/27/2015 (Fed ID 64664). The SWCB approved the modified TMDL on 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_XIE01A08 / Unnamed tributary to South Anna River / Segment begins at the headwaters of an unnamed tributary to the South Anna River and continues downstream until the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2008	L	1.35

Unnamed tributary to South Anna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.35

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F02R-03-BAC** **Fosters Creek**

Cause Location: Begins at the headwaters of Fosters Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 11 samples - 27.3%) at DEQ station 8-FOS000.84 at Route 640.

A new TMDL is not required for this impaired segment of Fosters Creek because the downstream Pamunkey River and Tributaries modified bacteria TMDL (Fed ID 64664, 04/27/2015) included modeling, source identification, and reductions that covered the entire South Anna River (F02R-01) watershed (Eq. ID POL0335). The SWCB approved the modified TMDL on 12/11/2014. This impairment was previously nested in the Pamunkey River Basin bacteria TMDL (24424, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_FOS01A06 / Fosters Creek / Segment begins at the headwaters of Fosters Creek and continues downstream until the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2014	L	4.92

Fosters Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.92

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F02R-04-BAC Roundabout Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Roundabout Creek, approximately 0.9 rivermile downstream from the Route 64 crossing, and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria excursions (6 of 11 samples - 54.5%) at DEQ station 8-RDB001.72 at Route 640.

A new TMDL is not required for this impaired segment of Roundabout Creek because the downstream Pamunkey River and Tributaries modified bacteria TMDL (Fed ID 64664, 04/27/2015) included modeling, source identification, and reductions that covered the entire South Anna River (F02R-01) watershed (Eq. ID POL0335). The SWCB approved the modified TMDL on 12/11/2014. This impairment was previously nested in the Pamunkey River Basin bacteria TMDL (24424, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_RDB01A04 / Roundabout Creek / Segment begins at the confluence with an unnamed tributary to Roundabout Creek, approximately 0.9 rivermile downstream from the Route 64 crossing, and continues downstream until the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2014	L	3.84

Roundabout Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.84

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F02R-05-BAC** **Harris Creek**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 6.97 and continues downstream to the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria excursions (2 of 12 samples - 16.7%) at DEQ station 8-HRS001.35 at Route 604.

A new TMDL is not required for this impaired segment of Harris Creek because the downstream Pamunkey River and Tributaries modified bacteria TMDL (Fed ID 64664, 04/27/2015) included modeling, source identification, and reductions that covered the entire South Anna River watershed (Eq ID POL0335). The SWCB approved the modified TMDL on 12/11/2014. This impairment was previously nested in the Pamunkey River Basin bacteria TMDL (Fed ID 24424, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_HRS01A16 / Harris Creek / Segment begins at confluence with an unnamed tributary at rivermile 6.97 and continues downstream to the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2016	L	6.97

Harris Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.97

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F02R-06-BAC** **Rock Creek**

Cause Location: Begins at the confluence with Little Rock Creek and continues downstream to the confluence with South Anna River.

Cause City/County: Fluvanna County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria excursions (2 of 12 samples - 16.7%) at DEQ station 8-RKC001.35 at Route 640.

A new TMDL is not required for this segment of Rock Creek because the downstream Pamunkey River and Tributaries modified bacteria TMDL (Fed ID 64664, 04/27/2015) included modeling, source identification, and reductions that covered the entire South Anna River (F02R-01) watershed (Eq. ID POL0335). The SWCB approved the modified TMDL on 12/11/2014. This impairment was previously nested in the Pamunkey River Basin bacteria TMDL (24424, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F02R_RKC01A16 / Rock Creek / Segment begins at the confluence with Little Rock Creek and continues downstream to the confluence with South Anna River.	4A	Escherichia coli (E. coli)	2016	L	2.73

Rock Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.73

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Urban Runoff/Storm Sewers; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F03R-01-BEN** **Cub Creek**

Cause Location: Begins at the confluence with Turners Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events in 2012 at station 8-CUB002.73 at Route 648 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_CUB01A08 / Cub Creek / Segment begins at the confluence with Turners Creek and continues downstream until the confluence with the South Anna River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.1

Cub Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.1

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-02-BAC** **Taylor's Creek**

Cause Location: Begins at the headwaters of Taylor's Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Hanover County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria excursions (4 of 24 samples - 16.7%) at DEQ station 8-TLR005.50 at Route 610 and E. coli bacteria excursions (2 of 12 samples - 16.7%) at DEQ station 8-TLR009.82 at Route 664.

The Pamunkey River and Tributaries modified bacteria TMDL for the Taylor's Creek watershed (Eq ID POL0336) was approved by EPA on 04/27/2015 (Fed ID 64655). The SWCB approved the modified TMDL on 12/11/2014. This impairment was originally addressed in the Pamunkey River Basin bacteria TMDL (Fed ID 24425, 08/02/2006).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_TLR01A00 / Taylor's Creek / Segment begins at the headwaters of Taylor's Creek and continues downstream until the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2008	L	16.54

Taylor's Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.54

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F03R-02-BEN** **Taylors Creek**

Cause Location: Begins at the headwaters of Taylors Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Hanover County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2015 at DEQ station 8-TLR014.44 (upstream of Route 602) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_TLR01A00 / Taylors Creek / Segment begins at the headwaters of Taylors Creek and continues downstream until the confluence with the South Anna River.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	16.54

Taylors Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		16.54

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-03-BEN** **Fork Creek**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 7.63 and continues downstream to the confluence with South Branch Fork Creek.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four biological monitoring events in 2015 and 2016 at DEQ station 8-FRK001.78 (upstream of South Branch Fork Creek) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_FRK02A16 / Fork Creek / Segment begins at the confluence with an unnamed tributary just upstream from Route 683 and continues downstream to the confluence with South Branch Fork Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.33

Fork Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			4.33

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-03-DO** Cub Creek

Cause Location: Begins at the confluence with Turners Creek and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: 2020 Assessment: Excursions less than the minimum dissolved oxygen criterion (4 of 12 samples - 33.3%) at station 8-CUB001.73 at Route 601.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_CUB01A08 / Cub Creek / Segment begins at the confluence with Turners Creek and continues downstream until the confluence with the South Anna River.	5A	Dissolved Oxygen	2008	L	3.1

Cub Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			3.1

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-04-BAC** **Fork Creek**

Cause Location: Begins at the perennial headwaters and continues downstream until the confluence with the South Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 23 samples - 13.0%) at DEQ station 8-FRK006.02 at Route 683. 2012 Assessment: E. coli bacteria criterion excursions (2 of 6 samples - 33.3%) at DEQ station 8-FRK001.66 at Route 640.

The modified Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F04R-01) watershed was approved by the EPA on 4/27/2015 (Fed ID 64653). A new TMDL is not required for this impaired segment of Fork Creek because the original and modified bacteria TMDLs included modeling, source identification, and reductions that covered the entire South Anna River (F04R-01) watershed (Eq ID POL0341).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_FRK01A08 / Fork Creek / Segment begins at the confluence with South Branch Fork Creek and continues downstream until the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2008	L	1.80
VAN-F03R_FRK02A16 / Fork Creek / Segment begins at the confluence with an unnamed tributary just upstream from Route 683 and continues downstream to the confluence with South Branch Fork Creek.	4A	Escherichia coli (E. coli)	2016	L	4.33
VAN-F03R_FRK02B20 / Fork Creek / Segment begins at the perennial headwaters and continues downstream to the confluence with an unnamed tributary just upstream from Route 683.	4A	Escherichia coli (E. coli)	2016	L	1.51

Fork Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.64

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F03R-04-BEN** **South Branch Fork Creek**

Cause Location: Begins at Windsor Lake Drive and continues downstream to the confluence with Fork Creek.

Cause City/County: Goochland County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Four biological monitoring events in 2015 and 2016 at station 8-SBK000.03 above the confluence with Fork Creek resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_SBK01A18 / South Branch Fork Creek / Segment begins at Windsor Lake Drive and continues downstream to the confluence with Fork Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.06

South Branch Fork Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			3.06

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-05-BEN** **Unnamed tributary to Taylors Creek**

Cause Location: Begins at the headwaters of the unnamed tributary to Taylors Creek and continues downstream to the confluence with Taylors Creek.

Cause City/County: Hanover County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2015 at DEQ station 8-XKA000.91 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_XKA01A18 / Unnamed tributary to Taylors Creek / Segment begins at the headwaters of the unnamed tributary to Taylors Creek and continues downstream to the confluence with Taylors Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	1.43

Unnamed tributary to Taylors Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.43

Sources: Source Unknown

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York River Basin

Cause Group Code: **F03R-07-BAC** **South Anna River**

Cause Location: Begins at the confluence with Northeast Creek and continues downstream until the confluence with an unnamed tributary to the South Anna River, approximately rivermile 66.97.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-SAR068.57 at Route 605 (Shannon Hill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

This impairment was originally nested in the Pamunkey River Basin bacteria TMDL for the South Anna River (F04R-01) watershed (Federal ID 24444, 8/2/2006). The modified Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F04R-01) watershed was approved by the EPA on 4/27/2015. A new TMDL is not required for this impaired segment of the South Anna River because the original and modified bacteria TMDLs included modeling, source identification, and reductions that covered the entire South Anna River (F04R-01) watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_SAR03A06 / South Anna River / Segment begins at the confluence with Northeast Creek and continues downstream until the confluence with an unnamed tributary to the South Anna River, approximately rivermile 66.97.	4A	Escherichia coli (E. coli)	2006	L	1.77

South Anna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.77

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F03R-08-BAC** **Deep Creek**

Cause Location: Begins at the headwaters of Deep Creek and continues downstream to the confluence with the South Anna River.

Cause City/County: Goochland County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2016 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 8-DEP000.37 at Route 640.

This impairment was originally nested in the Pamunkey River Basin bacteria TMDL for the South Anna River (F04R-01) watershed (Fed ID 24444, 8/2/2006). The modified Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F04R-01) watershed was approved by the EPA on 4/27/2015 (Fed ID 64653). A new TMDL is not required for this impaired segment of Deep Creek because the original and modified bacteria TMDLs included modeling, source identification, and reductions that covered the entire South Anna River (F04R-01) watershed (Eq ID POL0341).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_DEP01A12 / Deep Creek / Segment begins at the headwaters of Deep Creek and continues downstream to the confluence with the South Anna River.	4A	Escherichia coli (E. coli)	2012	L	5.79

Deep Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.79

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F03R-09-BAC** **South Anna River**

Cause Location: Begins at the confluence with Jones Creek and continues downstream until the confluence with an unnamed tributary at rivermile 31.5.

Cause City/County: Hanover County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-SAR035.05 at Route 617 (Spring Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

This impairment was originally nested in the Pamunkey River Basin bacteria TMDL for the South Anna River (F04R-01) watershed (Federal ID 24444, 8/2/2006). The modified Pamunkey River and Tributaries bacteria TMDL for the South Anna River (F04R-01) watershed was approved by the EPA on 4/27/2015. A new TMDL is not required for this impaired segment of the South Anna River because the original and modified bacteria TMDLs included modeling, source identification, and reductions that covered the entire South Anna River (F04R-01) watershed (Eq ID POL0341).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F03R_SAR01C06 / South Anna River / Segment begins at the confluence with Jones Creek and continues downstream until the confluence with an unnamed tributary at rivermile 31.5.	4A	Escherichia coli (E. coli)	2012	L	4.63

South Anna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.63

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F04R-01-BAC** **South Anna River**

Cause Location: The South Anna River from the confluence with Taylors Creek downstream to the Ashland Municipal STP discharge near the confluence with Falling Creek.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The South Anna River from Route 33 to the Ashland Municipal STP was assessed as fully supporting but threatened during the 1998 cycle. In 2002, the segment was extended upstream to Taylors Creek and downgraded to impaired.

During the 2006 cycle, E. coli monitoring was conducted at the Route 33 bridge (8-SAR021.22), as well as at new stations 8-SAR014.47 and 8-SAR012.42. Exceedance rates were acceptable at the upstream stations (1/12 at 8-SAR021.22 and 0/9 at 8-SAR014.47), however there were 3 exceedances out of 12 samples at 8-SAR012.42. Because of the fully supporting status of the upstream portion, the impaired segment was shortened from the UT above Horseshoe Bridge Road downstream to the Ashland Municipal STP.

The Pamunkey River Basin Bacteria TMDL was completed during the 2008 cycle and was approved by the EPA on 8/2/2006; the TMDL included the entire previously listed length.

Additional monitoring occurred during the 2014 cycle. Due to E. coli exceedances at 8-SAR021.22 (6/12), the segment was returned to its original length (Taylors Creek to the Ashland Municipal STP).

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F04R_SAR01A98 / South Anna River / From Taylors Creek to 5 mi upstream of the Ashland PWS intake.	4A	Escherichia coli (E. coli)	2014	L	2.78
VAP-F04R_SAR02A98 / South Anna River / From 5 mi upstream of the Ashland PWS intake to the PWS intake.	4A	Escherichia coli (E. coli)	2014	L	5.05
VAP-F04R_SAR03A02 / South Anna River / From the Ashland PWS intake to the UT above Horseshoe Bridge Road.	4A	Escherichia coli (E. coli)	2014	L	0.54
VAP-F04R_SAR03B06 / South Anna River / From the UT above Horseshoe Bridge Road to the Ashland Municipal STP discharge.	4A	Escherichia coli (E. coli)	2008	L	8.91

South Anna River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.28

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F04R-02-BAC** **South Anna River**

Cause Location: The South Anna River from the Ashland Municipal STP discharge near the confluence with Falling Creek downstream to its mouth.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The segment VAP-F04R-02 (00249) was initially listed as impaired of the Recreation Use during the 1998 cycle. During the 2006 cycle, E. coli monitoring at the Route 738 bridge (8-SAR001.11) was fully supporting (1/21); therefore, the segment was delisted.

However, during the 2008 cycle, the Pamunkey River Basin Bacteria TMDL was completed and was approved by the EPA on 8/2/2006. The TMDL addressed the original TMDL listing and assigned WLAs and LAs. The E. coli violation rate at station 8-SAR001.11 remained acceptable during the 2008 and 2010 cycles; therefore, the water was considered a Category 2C water.

During the 2012 cycle, the segment became impaired for E. coli again. It is considered Category 4A.

The exceedance rate was 7/36 during the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F04R_SAR03A98 / South Anna River / From the Ashland Municipal STP discharge to its mouth at the Pamunkey River.	4A	Escherichia coli (E. coli)	2012	L	4.77

South Anna River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.77

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F04R-03-BAC** **Stagg Creek**

Cause Location: Headwaters to mouth at South Anna River

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2006 cycle, Stagg Creek was assessed as not supporting the Recreation Use due to E. coli exceedances at 8-STG005.46 (Route 657) and at 8-STG001.00 (Route 686).

No additional data has been collected at 8-STG005.46.

The segment was determined to be nested within the completed TMDL for the South Anna River bacterial impairment F04R-01-BAC; therefore, it will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F04R_STG01A06 / Stagg Creek / Headwaters to mouth at the South Anna River	4A	Escherichia coli (E. coli)	2006	L	6.56

Stagg Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			6.56

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F04R-03-DO** **Stagg Creek**

Cause Location: Headwaters to mouth at South Anna River

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2008 cycle, Stagg Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/11 at 8-STG005.46 (Route 686).

Additional monitoring was conducted in the 2016 cycle, however the data was insufficient for assessment (1/9). In addition, 2009 sampling at freshwater probabilistic monitoring station 8-STG000.73 was acceptable; therefore, further monitoring is warranted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F04R_STG01A06 / Stagg Creek / Headwaters to mouth at the South Anna River	5C	Dissolved Oxygen	2008	L	6.56

Stagg Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			6.56

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F04R-03-PH** **Stagg Creek**

Cause Location: Headwaters to mouth at South Anna River

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, Stagg Creek was impaired of the Aquatic Life Use due to a pH exceedance rate of 3/9 at 8-STG005.46 (Route 686). In addition, the exceedance rate was 1/2 at 8-STG000.73.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F04R_STG01A06 / Stagg Creek / Headwaters to mouth at the South Anna River	5C	pH	2016	L	6.56

Stagg Creek

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.56

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F05R-01-BEN** **Newfound River**

Cause Location: Newfound River from the confluence of Needstan Creek to its mouth.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 cycle, the lower Newfound River was impaired of the Aquatic Life Use due to benthic community alteration at 2016 freshwater probabilistic monitoring station 8-NFD004.19.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F05R_NFD01A00 / Newfound River / Mainstem downstream of Needstan Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	10.96

Newfound River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.96

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-01-BAC** **Mountain Run**

Cause Location: Begins at the confluence of Madison Run and continues downstream until the confluence with the North Anna River.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-MTN000.96 at Route 643 (Cox Mill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Mountain Run watershed (Eq ID POL0239) was approved by the EPA on 11/04/2005 (Fed ID 24427). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Beaver Creek watershed (ID 152) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_MTN01A00 / Mountain Run / Segment begins at the confluence of Madison Run and continues downstream until the confluence with the North Anna River.	4A	Escherichia coli (E. coli)	1998	L	2.65

Mountain Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.65

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F06R-01-BEN** **North Anna River**

Cause Location: Begins at the confluence with Mountain Run and continues downstream until the confluence with White Oak Creek.

Cause City/County: Louisa County; Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Two biological monitoring events in 2015 at station 8-NAR065.95 (at ~0.6 rivermile downstream from Route 639) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_NAR02A04 / North Anna River / Segment begins at the confluence with Mountain Run and continues downstream until the confluence with White Oak Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.8

North Anna River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.8

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-02-BAC** Beaver Creek

Cause Location: Begins at the confluence with Cooks Creek, approximately 0.68 rivermile upstream from the Route 638 bridge, and continues downstream until the confluence with the North Anna River.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2014 Assessment: E. coli bacteria criterion excursions (5 of 13 samples - 38.5%) at DEQ station 8-BRC001.88 at Route 638.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Beaver Creek watershed (Eq ID POL0238) was approved by the EPA on 11/04/2005 (Fed ID 24426). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Beaver Creek watershed (ID 250) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_BRC01A02 / Beaver Creek / Segment begins at the confluence with Cooks Creek, approximately 0.68 rivermile upstream from the Route 638 bridge, and continues downstream until the confluence with the North Anna River.	4A	Escherichia coli (E. coli)	1998	L	2.84

Beaver Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.84

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F06R-03-BAC** **Gold Mine Creek**

Cause Location: Begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with Lake Anna.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (5 of 10 samples - 50.0%) at DEQ station 8-GMC002.19 at Route 613.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Goldmine Creek watershed (Eq ID POL0240) was approved by the EPA on 11/04/2005 (Fed ID 24428). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Goldmine Creek watershed (ID 247) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_GMC01A00 / Gold Mine Creek / Segment begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with Lake Anna.	4A	Escherichia coli (E. coli)	2002	L	7.53

Gold Mine Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.53

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F06R-04-BAC** **North Anna River**

Cause Location: Begins at the confluence with Mountain Run and continues downstream until the confluence with Hickory Creek.

Cause City/County: Louisa County; Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 8-NAR061.09 at Route 651 (Ellisville Rd / Cales Dr): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 8-NAR066.42 at Route 639 (Mallorys Ford Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. Citizen station 8NAR-EX5-LACA: There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_NAR01A02 / North Anna River / Segment begins at the confluence with Beaver Creek and continues downstream until the confluence with Hickory Creek.	5A	Escherichia coli (E. coli)	2006	L	3.79
VAN-F06R_NAR01B22 / North Anna River/Mountain Run / Segment begins at the confluence with White Oak Creek and continues downstream until the confluence with Beaver Creek.	5A	Escherichia coli (E. coli)	2022	L	2.65
VAN-F06R_NAR02A04 / North Anna River / Segment begins at the confluence with Mountain Run and continues downstream until the confluence with White Oak Creek.	5A	Escherichia coli (E. coli)	2010	L	2.80

North Anna River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			9.24

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-05-BAC** Christopher Creek

Cause Location: Begins at an unnamed tributary to Christopher Creek and continues downstream until the confluence with Lake Anna.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: DEQ station 8-CRC001.82 at Route 613 (Mansfield Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_CRC01A10 / Christopher Creek / Segment begins at an unnamed tributary to Christopher Creek and continues downstream until the confluence with Lake Anna.	5A	Escherichia coli (E. coli)	2010	L	1.99

Christopher Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.99

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-06-BAC** **Hickory Creek**

Cause Location: Begins at the confluence with Fox Branch and continues downstream to the confluence with the North Anna River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Citizen monitoring station 8HIK-EX2-LACA: there were two or more STV exceedances in at least one 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_HIK01A12 / Hickory Creek / Segment begins at the confluence with Fox Branch and continues downstream to the confluence with the North Anna River.	5A	Escherichia coli (E. coli)	2012	L	1.72

Hickory Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.72

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-07-BAC** **White Creek**

Cause Location: Begins at the headwaters of White Creek and continues downstream until the confluence with Gold Mine Creek.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (8 of 12 samples - 66.7%) at DEQ station 8-WHT001.33 at Route 669.

A new TMDL is not required for this impaired segment of White Creek because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24428, 11/04/2005) included modeling, source identification, and reductions that covered the entire Goldmine Creek watershed (Eq ID POL0240). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Goldmine Creek watershed (ID 247) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_WHT01A14 / White Creek / Segment begins at the headwaters of White Creek and continues downstream until the confluence with Gold Mine Creek.	4A	Escherichia coli (E. coli)	2014	L	6.06

White Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.06

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F06R-08-BAC** **Duckinhoe Creek**

Cause Location: Begins at the headwaters of Duckinhoe Creek and continues downstream until the confluence with Lake Anna.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (8 of 12 samples - 66.7%) at DEQ station 8-DKH001.44 at Route 613.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_DKH01A04 / Duckinhoe Creek / Segment begins at the headwaters of Duckinhoe Creek and continues downstream until the confluence with Lake Anna.	5A	Escherichia coli (E. coli)	2016	L	6.98

Duckinhoe Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.98

Sources: Source Unknown

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York River Basin

Cause Group Code: **F06R-10-BAC Hickory Creek**

Cause Location: Begins at the confluence of North Fork Hickory Creek and South Fork Hickory Creek, creating Hickory Creek, and continues downstream to the upstream portion of Lake Louisa, at Lakeshore Drive.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: Excursions from the maximum E. coli bacteria criterion (2 of 15 samples - 13.3%) at citizen monitoring station SHIK-EX9-LACA.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_HIK03A16 / Hickory Creek / Segment begins at the confluence of North Fork Hickory Creek and South Fork Hickory Creek, creating Hickory Creek, and continues downstream to the upstream portion of Lake Louisa, at Lakeshore Drive.	5A	Escherichia coli (E. coli)	2018	L	0.69

Hickory Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.69

Sources: Source Unknown

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York River Basin

Cause Group Code: F07L-01-HAB Lake Anna and Lake Anna State Park Fishing Pond

Cause Location: Upper Lake Anna from the confluence of North Anna Branch and Pamunkey Branch (at “The Splits”) downstream to above the confluence with Pigeon Run; Pamunkey Branch of Lake Anna from the start of the inundated waters downstream to Route 612; North Anna Branch of Lake Anna from the start of the inundated waters downstream to the confluence of North Anna Branch and Pamunkey Branch (at “The Splits”); and the Lake Anna State Park Fishing Pond

Cause City/County: Louisa County; Orange County; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: The recreation use is assessed as impaired based on Virginia Department of Health harmful algae bloom (HAB) swim advisories issued during the years 2019 and 2020 for Lake Anna and the Lake Anna State Park Fishing Pond.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_FIP01A22 / Lake Anna State Park Fishing Pond / Lake Anna State Park Fishing Pond	5A	Harmful Algal Blooms	2022	H	1.92
VAN-F07L_GMC01A02 / Lake Anna/Gold Mine Creek / Segment includes the Gold Mine Creek arm of Lake Anna.	5A	Harmful Algal Blooms	2022	H	91.63
VAN-F07L_NAR03B22 / Lake Anna / Segment begins at the confluence of North Anna Branch and Pamunkey Branch (at "The Splits") and continues downstream until above the confluence with Pigeon Run.	5A	Harmful Algal Blooms	2022	H	344.31
VAN-F07L_NAR04A06 / Lake Anna / Segment includes the upper portion North Anna River of Lake Anna beginning at the start of the inundated waters of the North Anna River downstream until the boundary of the F06 watershed.	5A	Harmful Algal Blooms	2022	H	1422.31
VAN-F07L_PLT01A04 / Lake Anna/Plentiful Creek / Segment includes the Plentiful Creek arm of Lake Anna.	5A	Harmful Algal Blooms	2022	H	109.05
VAN-F07L_PMC01B22 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek arm of Lake Anna beginning at the confluence with the Terrys Run arm of the lake and continuing downstream until Route 612.	5A	Harmful Algal Blooms	2022	H	267.91
VAN-F07L_PMC02A02 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek Arm of Lake Anna from the beginning of the inundated waters of Pamunkey Creek downstream to the confluence with the Terry’s Run arm of the lake.	5A	Harmful Algal Blooms	2022	H	471.90
VAN-F07L_TRY01A04 / Terrys Run/Lake Anna / Segment includes the Terrys Run arm of Lake Anna.	5A	Harmful Algal Blooms	2022	H	431.09

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Lake Anna and Lake Anna State Park Fishing Pond

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:		3140.12	

Sources: Source Unknown

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York River Basin

Cause Group Code: F07L-01-HG **Lake Anna**

Cause Location: Segment includes the lower portion of Lake Anna, beginning near the northern end of the Route 690 bridge, and continues downstream until the dam.

Cause City/County: Louisa County; Spotsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded at DEQ monitoring station 8-NAR034.92 in one species of fish (carp) sampled in 2003, one species of fish (channel catfish) sampled in 2006, and in three samples of two species of fish (largemouth bass and striped bass) sampled in 2017.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_NAR01A02 / Lake Anna / Segment includes the lower portion of Lake Anna (lacustrine), beginning near the northern end of the Route 690 bridge (Dike 2), and continues downstream until the dam.	5A	Mercury in Fish Tissue	2010	L	1563.36

Lake Anna

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		1563.36	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F07L-01-PAHHMW** **Gold Mine Creek**

Cause Location: Begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with Lake Anna (impairment includes the Gold Mine Creek arm).

Cause City/County: Louisa County

Use(s): Fish Consumption

Causes(s)/VA Category: Benzo[a]pyrene (PAHs)/5A

Cause Description: 2010 Assessment: Exceedances of the water quality criterion based fish tissue value (TV) of 5 parts per billion (ppb) for benzo(a)pyrene were recorded in two total samples of two species of fish (largemouth bass and carp) collected in 2003 at station 8-GMC001.43.

NOTE: In 2022, the water quality criterion based fish tissue value (TV) for benzo(a)pyrene was updated from 5.5 ppb to 5 ppb; this change did not affect the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_GMC01A00 / Gold Mine Creek / Segment begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with Lake Anna.	5A	Benzo[a]pyrene (PAHs)	2010	L	7.53
VAN-F07L_GMC01A02 / Lake Anna/Gold Mine Creek / Segment includes the Gold Mine Creek arm of Lake Anna.	5A	Benzo[a]pyrene (PAHs)	2010	L	91.63

Gold Mine Creek

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benzo[a]pyrene (PAHs) - Total Impaired Size by Water Type:		91.63	7.53

Sources: Source Unknown

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York River Basin

Cause Group Code: **F07L-01-PCB** **Lake Anna and Contrary Creek, Goldmine Creek, and Terrys Run tributaries**

Cause Location: Includes the entirety of Lake Anna, including its tributaries Terrys Run, Goldmine Creek, and Contrary Creek.

Cause City/County: Louisa County; Orange County; Spotsylvania County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A; Polychlorinated biphenyls (PCBs)/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health PCB fish consumption advisory. The advisory, dated 6/15/04 and modified 12/13/04 and 08/31/07, limits consumption of bluegill sunfish, carp, channel catfish, largemouth bass, striped bass, white catfish, and white perch to no more than two meals per month. The advisory also bans the consumption of gizzard shad. The affected area includes the entirety of Lake Anna and its tributaries Contrary Creek, Gold Mine Creek, and Terrys Run.

The following exceedances of the water quality criterion based fish tissue value (TV) of 20 parts per billion (ppb) for PCBs in fish tissue were recorded: four species of fish (striped bass, largemouth bass, white catfish, and carp) in four samples collected in 2000, three species of fish (largemouth bass, brown bullhead catfish and carp) in four samples collected in 2003, and four species of fish (largemouth bass, carp, channel catfish, and white catfish) in seven samples collected in 2008 at DEQ station 8-GMC001.43; three species of fish (carp, channel catfish, largemouth bass) in five samples collected in 2003, three species of fish (carp, channel catfish, largemouth bass) in eight samples collected in 2006, one species of fish (carp) in two samples collected in 2008, and in two species of fish (carp, striped bass) in two samples collected in 2017 at DEQ station 8-NAR034.92; two species of fish (channel catfish and bluegill sunfish) in four samples collected in 2006 and in one species of fish (carp) in one sample collected in 2017 at DEQ station 8-NAR044.68; three species of fish (channel catfish, carp, and striped bass) in three samples collected in 2017 at DEQ station 8-NAR056.36; three species of fish (largemouth bass, channel catfish, and carp) in nine samples collected in 2006 at DEQ station 8-NAR056.48; three species of fish (channel catfish, striped bass, bluegill sunfish) in six samples collected in 2006 and four species of fish (largemouth bass, green sunfish, carp, striped bass) in six samples collected in 2017 at DEQ station 8-PMC002.13; three species of fish (carp, largemouth bass, and channel catfish) in three samples collected in 2000, two species of fish (carp and largemouth bass) in three samples collected in 2003, and two species of fish (carp and white catfish) in five samples collected in 2008 at DEQ station 8-CON003.84; six species of fish (bluegill sunfish, carp, channel catfish, gizzard shad, white perch, and largemouth bass) in eight samples collected in 2006 and seven species of fish (bluegill sunfish, brown bullhead catfish, carp, channel catfish, gizzard shad, white perch, and largemouth bass) in 14 samples collected in 2008 at DEQ station 8-TRY001.33; five species of fish (bluegill sunfish, carp, channel catfish, white catfish, and largemouth bass) in 2017 at DEQ station 8-TRY001.37.

The following exceedances of the human health criteria of 0.64 parts per billion (ppb) for total polychlorinated biphenyls (PCBs) in the water column were recorded: one exceedance in 2007 at DEQ station 8-PMC003.18; one exceedances in 2006 at DEQ station 8-PMC002.13; two exceedances in 2006 and two exceedances in 2007 at DEQ station 8-TRY001.39; one exceedance in 2006 at DEQ station 8-TRY002.52.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F06R_GMC01A00 / Gold Mine Creek / Segment begins at the headwaters of Gold Mine Creek and continues downstream until the confluence with Lake Anna.	5A	PCBs in Fish Tissue	2006	L	7.53
VAN-F07L_CON01A02 / Lake Anna/Contrary Creek / Segment includes most of the Contrary Creek arm of Lake Anna, beginning around rivermile 3.53 and continuing downstream until the confluence with the main portion of Lake Anna.	5A	PCBs in Fish Tissue	2002	L	445.20

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CON02A08 / Lake Anna/Contrary Creek / Segment includes the remainder of the Contrary Creek arm of Lake Anna, beginning at the start of the inundated waters and continuing downstream until around rivermile 3.53.	5A	PCBs in Fish Tissue	2002	L	27.87
VAN-F07L_FRC01A04 / Lake Anna/Freshwater Creek / Segment includes the Freshwater Creek arm of Lake Anna.	5A	PCBs in Fish Tissue	2006	L	50.67
VAN-F07L_GMC01A02 / Lake Anna/Gold Mine Creek / Segment includes the Gold Mine Creek arm of Lake Anna.	5A	PCBs in Fish Tissue	2002	L	91.63
VAN-F07L_NAR01A02 / Lake Anna / Segment includes the lower portion of Lake Anna (lacustrine), beginning near the northern end of the Route 690 bridge (Dike 2), and continues downstream until the dam.	5A	PCBs in Fish Tissue	2002	L	1563.36
VAN-F07L_NAR02A02 / Lake Anna / Segment begins at the start of the lacustrine waters of Lake Anna (0.7 miles upstream from 8-NAR044.68), and continues downstream until the northern end of the Route 690 bridge.	5A	PCBs in Fish Tissue	2006	L	3039.19
VAN-F07L_NAR03A02 / Lake Anna / Segment begins above the confluence with Pigeon Run and continues downstream until the start of the lacustrine waters of Lake Anna (0.7 miles upstream from 8-NAR044.68).	5A	PCBs in Fish Tissue	2006	L	797.54
VAN-F07L_NAR03B22 / Lake Anna / Segment begins at the confluence of North Anna Branch and Pamunkey Branch (at "The Splits") and continues downstream until above the confluence with Pigeon Run.	5A	PCBs in Fish Tissue	2006	L	344.31
VAN-F07L_NAR04A06 / Lake Anna / Segment includes the upper portion North Anna River of Lake Anna beginning at the start of the inundated waters of the North Anna River downstream until the boundary of the F06 watershed.	5A	PCBs in Fish Tissue	2006	L	1422.31
VAN-F07L_PLT01A04 / Lake Anna/Plentiful Creek / Segment includes the Plentiful Creek arm of Lake Anna.	5A	PCBs in Fish Tissue	2006	L	109.05
VAN-F07L_PMC01A04 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek arm of Lake Anna beginning at Route 612 and continuing downstream until the confluence with the North Anna River at The Splits.	5A	PCBs in Fish Tissue	2006	L	534.83
VAN-F07L_PMC01B22 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek arm of Lake Anna beginning at the confluence with the Terrys Run arm of the lake and continuing downstream until Route 612.	5A	PCBs in Fish Tissue	2006	L	267.91

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_PMC02A02 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek Arm of Lake Anna from the beginning of the inundated waters of Pamunkey Creek downstream to the confluence with the Terry's Run arm of the lake.	5A	PCBs in Fish Tissue	2006	L	471.90
VAN-F07L_TRY01A04 / Terrys Run/Lake Anna / Segment includes the Terrys Run arm of Lake Anna.	5A	PCBs in Fish Tissue	2006	L	431.09
VAN-F07R_TRY01A00 / Terrys Run / Segment begins at the confluence with Riga Run and continues downstream until the confluence with Lake Anna.	5A	PCBs in Fish Tissue	2006	L	1.99
VAN-F07R_TRY02A02 / Terrys Run / Segment begins at the confluence with Horsepen Branch and continues downstream until the confluence with Riga Run.	5A	PCBs in Fish Tissue	2006	L	3.67
VAN-F07R_TRY03A08 / Terrys Run / Segment begins at the headwaters of Terrys Run and continues downstream until the confluence with Horsepen Branch.	5A	PCBs in Fish Tissue	2006	L	4.37
VAN-F08R_CON01A00 / Contrary Creek / Segment begins at the headwaters of Contrary Creek and continues downstream until the confluence with Lake Anna.	5A	PCBs in Fish Tissue	2006	L	5.52

Lake Anna and Contrary Creek, Goldmine Creek, and Terrys Run tributaries

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	9596.86	23.08

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_PMC01A04 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek arm of Lake Anna beginning at Route 612 and continuing downstream until the confluence with the North Anna River at The Splits.	5A	Polychlorinated biphenyls (PCBs)	2010	L	534.83
VAN-F07L_PMC01B22 / Lake Anna/Pamunkey Creek / Segment includes the Pamunkey Creek arm of Lake Anna beginning at the confluence with the Terrys Run arm of the lake and continuing downstream until Route 612.	5A	Polychlorinated biphenyls (PCBs)	2010	L	267.91
VAN-F07L_TRY01A04 / Terrys Run/Lake Anna / Segment includes the Terrys Run arm of Lake Anna.	5A	Polychlorinated biphenyls (PCBs)	2010	L	431.09

Lake Anna and Contrary Creek, Goldmine Creek, and Terrys Run tributaries

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	1233.83	

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Sources: Source Unknown

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York River Basin

Cause Group Code: **F07L-01-PH** **Lake Orange**

Cause Location: Includes all of Lake Orange.

Cause City/County: Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The aquatic life use is assessed as impaired for pH based on exceedances of the upper limit of the criterion range (10 of 83 samples - 12.0%) recorded from pooled data at stations 8-CLC003.48 (6 of 50 samples - 12.0%) and 8-CLC004.28 (4 of 33 samples - 12.1%). Nutrients were assessed as fully supporting based on two complete monitoring years (2016 and 2017) for chlorophyll a; total phosphorus was not assessed because algaecides were not applied. Because the applicable nutrient criteria are met but the pH criterion range is not met, the pH parameter is classified as category 5C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CLC01A06 / Lake Orange / Segment includes all of Lake Orange.	5C	pH	2022	L	124.85

Lake Orange

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		124.85	

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F07R-01-BAC Pamunkey Creek**

Cause Location: Begins at the confluence of Tomahawk Creek and Church Creek, forming Pamunkey Creek, and continues downstream until the impounded waters of Lake Anna.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-PMC009.85 at Route 651 (Thornhill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

2018 Assessment: Excursions from the maximum E. coli bacteria criterion (2 of 4 samples - 50.0%) at citizen monitoring station 8PMC-P6-LACA.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Pamunkey Creek and Tomahawk Creek watershed (Eq. ID POL0237) was approved by the EPA on 11/04/2005 (Fed ID 24430). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_PMC01A00 / Pamunkey Creek / Segment begins at the confluence with Clear Creek and continues downstream until the confluence with Lake Anna.	4A	Escherichia coli (E. coli)	1998	L	5.49
VAN-F07R_PMC02A02 / Pamunkey Creek / Segment begins at the confluence with Tomahawk Creek and Church Creek, where Pamunkey Creek begins, and continues downstream until the confluence with Clear Creek.	4A	Escherichia coli (E. coli)	1998	L	7.22

Pamunkey Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.71

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-01-BEN Pamunkey Creek**

Cause Location: Begins at the confluence of Tomahawk Creek and Church Creek, forming Pamunkey Creek, and continues downstream until the confluence with Clear Creek.

Cause City/County: Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2016 Assessment: Two biological monitoring events in 2010 at station 8-PMC014.75 at Route 630 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_PMC02A02 / Pamunkey Creek / Segment begins at the confluence with Tomahawk Creek and Church Creek, where Pamunkey Creek begins, and continues downstream until the confluence with Clear Creek.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	7.22

Pamunkey Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			7.22

Sources: Source Unknown

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York River Basin

Cause Group Code: **F07R-01-DO** **Church Run**

Cause Location: Begins at Taylors Pond and continues downstream until the confluence with Tomahawk Creek.

Cause City/County: Orange County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion (2 of 11 samples - 18.2%) at DEQ station 8-CHR000.07 at Route 631.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_CHR01A14 / Church Run / Segment begins at Taylors Pond and continues downstream until the confluence with Tomahawk Creek.	5A	Dissolved Oxygen	2022	L	0.72

Church Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.72

Sources: Source Unknown

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York River Basin

Cause Group Code: **F07R-02-BAC** **Terrys Run**

Cause Location: Begins at the confluence with Horsepen Branch and continues downstream until the confluence with Lake Anna.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-TRY004.98 at Route 629 (Orange Springs Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Terrys Run watershed (Eq ID POL0235) was developed and approved by the EPA on 11/04/2005 (Fed ID 24432). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Terrys Run watershed (ID 248) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_TRY01A00 / Terrys Run / Segment begins at the confluence with Riga Run and continues downstream until the confluence with Lake Anna.	4A	Escherichia coli (E. coli)	1998	L	1.99
VAN-F07R_TRY02A02 / Terrys Run / Segment begins at the confluence with Horsepen Branch and continues downstream until the confluence with Riga Run.	4A	Escherichia coli (E. coli)	2006	L	3.67

Terrys Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.66

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-02-BEN** **Plentiful Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Plentiful Creek, upstream from the Route 601 bridge, and continues downstream until the confluence with Lake Anna.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of four biological monitoring events in 2017, 2019, and 2020 at station 8-PLT002.82 at Route 653 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_PLT01A00 / Plentiful Creek / Segment begins at the confluence with an unnamed tributary to Plentiful Creek, upstream from the Route 601 bridge, and continues downstream until the confluence with Lake Anna.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.3

Plentiful Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.3

Sources: Source Unknown

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York River Basin

Cause Group Code: **F07R-03-BAC** **Plentiful Creek**

Cause Location: Begins at the confluence with an unnamed tributary to Plentiful Creek, upstream from the Route 601 bridge, and continues downstream until the confluence with Lake Anna.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-PLT004.82 at Route 601 (Lawyers Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. DEQ station 8-PMC009.85 at Route 651 (Thornhill Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The York Basin Watersheds around Lake Anna bacteria TMDL for the Plentiful Creek watershed (Eq. ID POL0236) was approved by the EPA on 11/04/2005 (Fed ID 24429). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Plentiful Creek watershed (ID 198) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_PLT01A00 / Plentiful Creek / Segment begins at the confluence with an unnamed tributary to Plentiful Creek, upstream from the Route 601 bridge, and continues downstream until the confluence with Lake Anna.	4A	Escherichia coli (E. coli)	1998	L	3.3

Plentiful Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.3

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-04-BAC** Tomahawk Creek

Cause Location: Begins at the headwaters of Tomahawk Creek and continues downstream until the confluence with Church Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 4 samples - 100.0%) at citizen monitoring station 8THK-P10-LACA.

A new TMDL is not required for this impaired segment of Tomahawk Creek because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek watershed (Eq. ID POL0237). The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_THK01A02 / Tomahawk Creek / Segment begins at the headwaters of Tomahawk Creek and continues downstream until the confluence with Church Run.	4A	Escherichia coli (E. coli)	2014	L	3.84

Tomahawk Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.84

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-05-BAC** **Berry Run**

Cause Location: Begins at the headwaters of Berry Run and continues downstream until the confluence with Clear Creek.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-BRY000.47 at Route 629 (Lahore Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

2018 Assessment: E. coli bacteria criterion excursions (2 of 4 samples - 50.0%) at citizen monitoring station 8BRY-P8-LACA.

A new TMDL is not required for this impaired segment of Berry Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek and Tomahawk Creek watershed (Eq ID POL0237). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_BRY01A06 / Berry Run / Segment begins at the confluence with Little Creek and continues downstream until the confluence with Clear Creek.	4A	Escherichia coli (E. coli)	2006	L	2.34
VAN-F07R_BRY02A14 / Berry Run / Segment begins at the headwaters of Berry Run and continues downstream until the confluence with Little Creek.	4A	Escherichia coli (E. coli)	2014	L	2.96

Berry Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.3

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-06-BAC** **Terrys Run**

Cause Location: Begins at the headwaters of Terrys Run and continues downstream until the confluence with Horsepen Branch.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-TRY010.80 at Route 692 (St Just Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Terrys Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24432, 11/04/2005) included modeling, source identification, and reductions that covered the entire Terrys Run watershed (Eq. ID POL0235). The Upper York River bacteria TMDL Implementation Plan for the Terrys Run watershed (ID 248) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_TRY03A08 / Terrys Run / Segment begins at the headwaters of Terrys Run and continues downstream until the confluence with Horsepen Branch.	4A	Escherichia coli (E. coli)	2010	L	4.37

Terrys Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.37

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-07-BAC** **Clear Creek**

Cause Location: Begins at the outlet of Lake Orange and continues downstream to the confluence with Berry Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (3 of 4 samples - 75.0%) at citizen monitoring station 8CLC-P5-LACA.

A new TMDL is not required for this impaired segment of Church Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek and Tomahawk Creek watershed (Eq. ID POL0237). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_CLC01A12 / Clear Creek / Segment begins at the outlet of Lake Orange and continues downstream to the confluence with Berry Run.	4A	Escherichia coli (E. coli)	2014	L	2.44

Clear Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.44

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-08-BAC** **Riga Run**

Cause Location: Begins at the headwaters of Riga Run and continues downstream until the confluence with Terrys Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-RIG004.52 at Route 650 (Independence Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Riga Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24432, 11/04/2005) included modeling, source identification, and reductions that covered the entire Terrys Run watershed (Eq. ID POL0235). The Upper York River bacteria TMDL Implementation Plan for the Terrys Run watershed (ID 248) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_RIG01A02 / Riga Run / Segment begins at the headwaters of Riga Run and continues downstream until the confluence with Terrys Run.	4A	Escherichia coli (E. coli)	2014	L	7.36

Riga Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.36

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-09-BAC Rocky Run**

Cause Location: Begins at the headwaters of Rocky Run and continues downstream until the confluence with Terrys Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 4 samples - 100.0%) at citizen monitoring station 8ROC-T5-LACA and (3 of 4 samples - 75.0%) at citizen monitoring station 8ROC-T8-LACA.

A new TMDL is not required for this impaired segment of Rocky Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24432, 11/04/2005) included modeling, source identification, and reductions that covered the entire Terrys Run watershed (Eq. ID POL0235). The Upper York River bacteria TMDL Implementation Plan for the Terrys Run watershed (ID 248) was approved by the EPA on 01/09/2013

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_ROC01A10 / Rocky Run / Segment begins at the headwaters of Rocky Run and continues downstream until the confluence with Terrys Run.	4A	Escherichia coli (E. coli)	2014	L	2.41

Rocky Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.41

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-10-BAC** **Church Run**

Cause Location: Begins at Taylors Pond and continues downstream until the confluence with Tomahawk Creek.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 4 samples - 100.0%) at citizen monitoring station 8CHR-P9-LACA.

A new TMDL is not required for this impaired segment of Church Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek and Tomahawk Creek watershed (Eq. ID POL0237). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_CHR01A14 / Church Run / Segment begins at Taylors Pond and continues downstream until the confluence with Tomahawk Creek.	4A	Escherichia coli (E. coli)	2014	L	0.72

Church Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.72

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-11-BAC** **Little Creek**

Cause Location: Begins at the headwaters of Little Creek and continues downstream until the confluence of Berry Run.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions at citizen monitoring stations 8LIT-P7-LACA (7 of 15 samples - 46.7%) and 8LIT-P13-LACA (2 of 14 samples - 14.3%).

A new TMDL is not required for this impaired segment of Little Creek because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek and Tomahawk Creek watershed (Eq. ID POL0237). The SWCB approved the TMDL on 09/27/2006. The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_LIT01A14 / Little Creek / Segment begins at the headwaters of Little Creek and continues downstream until the confluence of Berry Run.	4A	Escherichia coli (E. coli)	2014	L	2.15

Little Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.15

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F07R-12-BAC** **Poor House Run**

Cause Location: Begins at the headwaters of Poor House Run and continues downstream until the confluence with Tomahawk Creek.

Cause City/County: Orange County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 4 samples - 100.0%) at citizen monitoring station 8PHC-P12-LACA.

A new TMDL is not required for this impaired segment of Poor House Run because the downstream York Basin Watersheds around Lake Anna bacteria TMDL (Fed ID 24430, 11/04/2005) included modeling, source identification, and reductions that covered the entire Pamunkey Creek watershed (Eq. ID POL0237). The Upper York River bacteria TMDL Implementation Plan for the Pamunkey Creek watershed (ID 249) was approved by the EPA on 01/09/2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07R_PHC01A14 / Poor House Run / Segment begins at the headwaters of Poor House Run and continues downstream until the confluence with Tomahawk Creek.	4A	Escherichia coli (E. coli)	2014	L	3.51

Poor House Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.51

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F08R-01-CD** **Contrary Creek**

Cause Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

Cause City/County: Louisa County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Cadmium/5A

Cause Description: A total of three exceedances of the freshwater acute criterion for cadmium were recorded in 2017 and 2018 at DEQ stations 8-CON005.38 (at Route 522) and 8-CON006.12 (at 0.6 mile upstream from Route 522).

2012 Assessment: Two exceedances of the freshwater acute criterion for cadmium were recorded in 2006 at DEQ station 8-CON003.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CON02A08 / Lake Anna/Contrary Creek / Segment includes the remainder of the Contrary Creek arm of Lake Anna, beginning at the start of the inundated waters and continuing downstream until around rivermile 3.53.	5A	Cadmium	2008	L	27.87
VAN-F08R_CON01A00 / Contrary Creek / Segment begins at the headwaters of Contrary Creek and continues downstream until the confluence with Lake Anna.	5A	Cadmium	2008	L	5.52

Contrary Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Cadmium - Total Impaired Size by Water Type:		27.87	5.52

Contrary Creek

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Cadmium - Total Impaired Size by Water Type:		27.87	5.52

Sources: Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code: F08R-01-CU **Contrary Creek**

Cause Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

Cause City/County: Louisa County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Copper/5A

Cause Description: A total of three exceedances of the freshwater acute criterion for copper were recorded in 2017 and 2018 at DEQ stations 8-CON005.38 (at Route 522) and 8-CON006.12 (at 0.6 mile upstream from Route 522).

One exceedance of the freshwater acute criterion for copper was recorded in one water sample collected in 2017 at station 8-CON003.53.

2012 Assessment: Two exceedances of the freshwater acute criterion for copper were recorded in 2006 at DEQ station 8-CON003.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CON02A08 / Lake Anna/Contrary Creek / Segment includes the remainder of the Contrary Creek arm of Lake Anna, beginning at the start of the inundated waters and continuing downstream until around rivermile 3.53.	5A	Copper	2008	L	27.87
VAN-F08R_CON01A00 / Contrary Creek / Segment begins at the headwaters of Contrary Creek and continues downstream until the confluence with Lake Anna.	5A	Copper	2008	L	5.52

Contrary Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:		27.87	5.52

Contrary Creek

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:		27.87	5.52

Sources: Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code: **F08R-01-PH** **Contrary Creek**

Cause Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Excursions less than the lower limit of the pH criterion range (36 of 36 samples - 100.0%) at DEQ station 8-CON005.38.

2012 Assessment: Excursions less than the lower limit of the pH criterion range (2 of 2 samples - 100%) at DEQ station 8-CON003.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CON02A08 / Lake Anna/Contrary Creek / Segment includes the remainder of the Contrary Creek arm of Lake Anna, beginning at the start of the inundated waters and continuing downstream until around rivermile 3.53.	5A	pH	2008	L	27.87
VAN-F08R_CON01A00 / Contrary Creek / Segment begins at the headwaters of Contrary Creek and continues downstream until the confluence with Lake Anna.	5A	pH	2002	L	5.52

Contrary Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		27.87	5.52

Sources: Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code: F08R-01-ZN Contrary Creek

Cause Location: Begins at the headwaters of Contrary Creek and continues downstream until approximately rivermile 3.53, partially into the inundated waters of Lake Anna.

Cause City/County: Louisa County

Use(s): Aquatic Life; Wildlife

Causes(s)/VA Category: Zinc/5A

Cause Description: A total of four exceedances of the freshwater acute criterion for zinc were recorded in 2017 and 2018 at DEQ stations 8-CON005.38 (at Route 522) and 8-CON006.12 (at 0.6 mile upstream from Route 522).

One exceedance of the freshwater acute criterion for zinc was recorded in one water sample collected in 2017 at station 8-CON003.53.

2012 Assessment: Two exceedances of the freshwater acute criterion for zinc were recorded in 2006 at DEQ station 8-CON003.86.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F07L_CON02A08 / Lake Anna/Contrary Creek / Segment includes the remainder of the Contrary Creek arm of Lake Anna, beginning at the start of the inundated waters and continuing downstream until around rivermile 3.53.	5A	Zinc	2008	L	27.87
VAN-F08R_CON01A00 / Contrary Creek / Segment begins at the headwaters of Contrary Creek and continues downstream until the confluence with Lake Anna.	5A	Zinc	2008	L	5.52

Contrary Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:		27.87	5.52

Contrary Creek

Wildlife

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:		27.87	5.52

Sources: Impacts from Abandoned Mine Lands (Inactive)

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York River Basin

Cause Group Code: **F09R-01-BAC** **Northeast Creek**

Cause Location: Begins at the headwaters of Northeast Creek and continues downstream until the confluence with another unnamed tributary to Northeast Creek, approximately 0.67 rivermiles upstream from Route 622.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 8-NST007.84 at Route 614. 2016 Assessment: E. coli bacteria criterion excursions (4 of 23 samples - 17.4%) at DEQ station 8-NST011.67 at Route 208.

The Pamunkey River Basin bacteria TMDL for the Northeast Creek watershed was approved by the EPA on 08/2/2006. The modified Pamunkey River and Tributaries bacteria TMDL for the Northeast Creek watershed (Eq ID 1159) was approved by the EPA on 04/27/2015 (Fed ID 64652).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F09R_NST02A98 / Northeast Creek / Segment begins at the confluence with an unnamed tributary to Northeast Creek, approximately 0.67 rivermiles upstream from Route 622, and continues downstream until the confluence with another unnamed tributary to Northeast Creek.	4A	Escherichia coli (E. coli)	2008	L	1.09
VAN-F09R_NST03A08 / Northeast Creek / Segment begins at the confluence with an unnamed tributary to Northeast Creek, at rivermile 9.39, and continues downstream until the confluence with another unnamed tributary to Northeast Creek, approximately 0.67 rivermiles upstream from Route 622.	4A	Escherichia coli (E. coli)	2006	L	6.37
VAN-F09R_NST04A08 / Northeast Creek / Segment begins at the confluence of Knights Branch with Music Branch, forming Northeast Creek, and continues downstream until the confluence with an unnamed tributary to Northeast Creek, approximately 2.28 rivermiles downstream from Route 208.	4A	Escherichia coli (E. coli)	2012	L	3.52

Northeast Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.98

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F09R-02-BAC** **Music Branch**

Cause Location: Begins at the headwaters of Music Branch and continues downstream until the confluence with Northeast Creek.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 3-MUS000.57 at Route 677.

This impairment was originally nested in the Pamunkey River Basin bacteria TMDL for the South Anna River (F04R-01) watershed (Fed ID 24448, 8/2/2006). The modified Pamunkey River and Tributaries bacteria TMDL for the Northeast Creek watershed was approved by the EPA on 4/27/2015 and this segment was included in the modified Northeast Creek TMDL watershed (Eq ID 1159).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F09R_MUS01A06 / Music Branch / Segment begins at the headwaters of Music Branch and continues downstream until the confluence with Northeast Creek.	4A	Escherichia coli (E. coli)	2008	L	3.57

Music Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.57

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F09R-02-BEN XHS - North Anna River, UT**

Cause Location: Unnamed Tributary XHS from its headwaters to its mouth at the North Anna River

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The unnamed tributary was assessed as not supporting of the Aquatic Life Use in the 2008 cycle due to impairment of the benthic community at station 8-XHS000.72.

It was confirmed by benthic monitoring at 8-XHS000.72 in 2011. Additional 2011 and 2012 benthic monitoring at 8-XHS000.49 also showed benthic community impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_XHS01A08 / XHS - North Anna River, UT / Unnamed Tributary XHS from its headwaters to its mouth at the North Anna River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.09

XHS - North Anna River, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.09

Sources: Industrial Point Source Discharge; Source Unknown

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York River Basin

Cause Group Code: **F09R-03-PH** XIM - North Anna River, UT

Cause Location: Unnamed Tributary XIM from its mouth at the North Anna River to the first tributary (near Chandler Crossing)

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2010 cycle, the tributary was assessed as not supporting of the Aquatic Life Use due to a pH exceedance rate of 2/2 at freshwater probabilistic monitoring station 8-XIM000.53.

Additional monitoring was conducted during the 2016 cycle; the exceedance rate was 2/12.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_XIM01A10 / XIM - North Anna, UT / Mouth upstream to first tributary (near Chandler Crossing)	5C	pH	2010	L	0.7

XIM - North Anna River, UT

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.7

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F09R-04-BAC** Mill Creek

Cause Location: Mill Creek in its entirety.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Mill Creek was impaired of the Recreation Use due to an E. coli violation rate of 7/13 at the Route 652 bridge (8-MLL001.19).

The Pamunkey River and Tributaries Bacterial TMDL was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015. The impairment is considered Category 4A.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_MLL01A12 / Mill Creek / Headwaters to mouth at the North Anna River	4A	Escherichia coli (E. coli)	2012	L	4.37

Mill Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.37

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F09R-04-PH** Mill Creek

Cause Location: Mill Creek in its entirety.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Mill Creek was impaired of the Aquatic Life Use due to a pH violation rate of 5/13 at the Route 652 bridge (8-MLL001.19).

Additional monitoring was conducted during the 2022 cycle. Mill Creek remained impaired (5/10).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_MLL01A12 / Mill Creek / Headwaters to mouth at the North Anna River	5C	pH	2012	L	4.37

Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.37

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F09R-05-PH** XJP - North Anna River, UT

Cause Location: Headwaters to mouth

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2016 cycle, tributary XJP was impaired of the Aquatic Life Use due to a pH exceedance rate of 6/7 at station 8-XJP000.01, which is located 15 meters above the mouth.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_XJP01A14 / XJP - North Anna River, UT / Headwaters to mouth at XBU	5C	pH	2016	L	1.01

XJP - North Anna River, UT

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 1.01

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F09R-06-BAC** **North Anna River**

Cause Location: The North Anna River from Bull Run downstream to the Little River.

Cause City/County: Caroline County; Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the North Anna River from Bull Run to the mouth was impaired of the Recreation Use due to an E. coli exceedance rate of 8/59 at station 8-NAR005.42, which is located at the Route 30 bridge (Morris Bridge).

The Pamunkey River and Tributaries Bacterial TMDL was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015; therefore, the segment is considered Category 4A.

The exceedance rate was 9/76 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The river remained impaired due to two or more STV exceedances within the same 90-day period.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F09R_NAR01A00 / North Anna River / From Bull Run to the Doswell PWS intake approximately 0.5 mi upstream of the Rte. 30 bridge.	4A	Escherichia coli (E. coli)	2016	L	1.74
VAP-F09R_NAR02A00 / North Anna River / From the Doswell PWS intake approximately 0.5 mi. upstream of the Route 30 bridge to the confluence with the Little River.	4A	Escherichia coli (E. coli)	2016	L	2.42

North Anna River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.16

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F09R-07-BAC** **Unnamed tributary to Northeast Creek**

Cause Location: Begins at the headwaters of an unnamed tributary to Northeast Creek and continues downstream until the confluence with Northeast Creek, approximately 0.46 rivermiles upstream from the Route 208 crossing.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion (3 of 12 samples - 25.0%) at DEQ station 8-XIA000.89 at Route 659.

A new TMDL is not required for this impaired segment because the downstream Pamunkey River and Tributaries bacteria TMDL (Fed ID 64652, 04/27/2015) included modeling, source identification, and reductions that covered the entire Northeast Creek watershed (Eq. ID 1159).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F09R_XIA01A06 / Unnamed tributary to Northeast Creek / Segment begins at the headwaters of an unnamed tributary to Northeast Creek and continues downstream until the confluence with Northeast Creek, approximately 0.46 rivermiles upstream from the Route 208 crossing.	4A	Escherichia coli (E. coli)	2016	L	3.01

Unnamed tributary to Northeast Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.01

Sources: Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F10R-01-BAC** **Little River**

Cause Location: Begins at the confluence with Hawkins Creek and continues downstream until the confluence with Locust Creek.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (8 of 34 samples - 23.5%) at DEQ station 8-LTL030.55 at Route 654 (Signboard Road).

The Pamunkey River and Tributaries bacteria TMDL for the Upper Little River watershed (EQ ID 1160) was approved by the EPA on 4/27/2015 (Fed ID 65140). The SWCB approved the TMDL on 12/11/2014.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F10R_LTL01A02 / Little River / Segment begins at the confluence with Hawkins Creek and continues downstream until the confluence with Locust Creek.	4A	Escherichia coli (E. coli)	2006	L	4.17

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.17

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F10R-02-BAC** Little River

Cause Location: Begins at the outlet from Swift Millpond and continues downstream until the confluence with Long Creek.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at DEQ station 8-LTL035.32 at Route 609.

A new TMDL is not required for this impaired segment of Long Creek because the downstream Pamunkey River and Tributaries bacteria TMDL (Fed ID 65140, 04/27/2015) included modeling, source identification, and reductions that covered the entire Upper Little River watershed (Eq. ID 1160).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F10R_LTL02A04 / Little River / Segment begins at the outlet from Swift Millpond and continues downstream until the confluence with Long Creek.	4A	Escherichia coli (E. coli)	2014	L	1.29

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.29

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F10R-02-DO** **Long Creek**

Cause Location: Begins at the headwaters of Long Creek and continues downstream until the confluence with Little River.

Cause City/County: Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: 2018 Assessment: Excursions less than the minimum dissolved oxygen criterion (2 of 10 samples - 20.0%) at station 8-LNG000.94 at Route 655.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F10R_LNG01A14 / Long Creek / Segment begins at the headwaters of Long Creek and continues downstream until the confluence with Little River.	5A	Dissolved Oxygen	2014	L	5.16

Long Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 5.16

Sources: Source Unknown

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York River Basin

Cause Group Code: **F10R-03-BAC** Long Creek

Cause Location: Begins at the headwaters of Long Creek and continues downstream until the confluence with Little River.

Cause City/County: Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at DEQ station 8-LNG000.94 at Route 655.

A new TMDL is not required for this impaired segment of Long Creek because the downstream Pamunkey River and Tributaries bacteria TMDL (Fed ID 65140, 04/27/2015) included modeling, source identification, and reductions that covered the entire Upper Little River watershed (Eq. ID 1160).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F10R_LNG01A14 / Long Creek / Segment begins at the headwaters of Long Creek and continues downstream until the confluence with Little River.	4A	Escherichia coli (E. coli)	2014	L	5.16

Long Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.16

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F11R-01-BAC** **Little River**

Cause Location: The Little River from its confluence with Locust Creek downstream to the confluence with Beaverdam Creek.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the segment was assessed as not supporting of the Recreation Use due to E. coli violations at the Route 715 bridge (8-LTL024.86). Additional monitoring at station 8-LTL018.80 in the 2012 cycle confirmed the impairment with a violation rate of 3/12. The violation rate at 8-LTL024.86 was 3/15 during the 2014 cycle.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F11R_LTL01B08 / Little River / From Locust Creek downstream to Fulcher Millpond dam.	4A	Escherichia coli (E. coli)	2008	L	6.30
VAP-F11R_LTL02B14 / Little River / Little River from Fulcher Millpond dam downstream to Beaverdam Creek.	4A	Escherichia coli (E. coli)	2008	L	4.22

Little River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10.52

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F11R-01-BEN** **Locust Creek**

Cause Location: Begins at the headwaters to of Locust Creek and continues downstream until the confluence with Little River.

Cause City/County: Hanover County; Louisa County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Two biological monitoring events in 2007 at DEQ station 8-LOC002.00 (0.9 miles upstream from Route 608) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F11R_LOC01A06 / Locust Creek / Segment begins at the headwaters to of Locust Creek and continues downstream until the confluence with Little River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	6.6

Locust Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.6

Sources: Source Unknown

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York River Basin

Cause Group Code: **F11R-01-DO** **Little River**

Cause Location: The Little River from its confluence with Locust Creek downstream to the Fulcher Millpond dam.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2008 cycle, the Little River from Locust Creek downstream to Beaverdam Creek was assessed as not supporting of the Aquatic Life Use due to a dissolved oxygen violation rate of 2/9 at the Route 715 bridge (8-LTL024.86).

During the 2012 cycle, additional monitoring within the segment at station 8-LTL018.80 was acceptable; therefore, further monitoring was recommended.

The original listing station 8-LTL024.86 was subsequently monitored during the 2014 cycle. A dissolved oxygen impairment was confirmed with an exceedance rate of 10/16. The segment was shortened to end at the Fulcher Millpond dam because of the acceptable downstream dissolved oxygen levels and because of the probable impact caused by backwatering from the dam. The downstream segment was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F11R_LTL01B08 / Little River / From Locust Creek downstream to Fulcher Millpond dam.	5A	Dissolved Oxygen	2008	L	6.3

Little River

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.3

Sources: Dam or Impoundment; Source Unknown

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York River Basin

Cause Group Code: **F11R-02-BAC** Beaverdam Creek

Cause Location: Beaverdam Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Beaverdam Creek was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 4/9 at the Route 601 bridge (8-BDC000.05).

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F11R_BDC01A12 / Beaverdam Creek / Headwaters to mouth at the Little River	4A	Escherichia coli (E. coli)	2012	L	8.48

Beaverdam Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.48

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F11R-02-PH** **Beaverdam Creek**

Cause Location: Beaverdam Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2012 cycle, Beaverdam Creek was assessed as not supporting of the Aquatic Life Use due to a pH violation rate of 3/10 at the Route 601 bridge (8-BDC000.05).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F11R_BDC01A12 / Beaverdam Creek / Headwaters to mouth at the Little River	5A	pH	2012	L	8.48

Beaverdam Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 8.48

Sources: Source Unknown

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York River Basin

Cause Group Code: **F11R-03-BAC** Little River

Cause Location: The Little River from Route 1 downstream to its mouth.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River from Beaverdam Creek to its mouth at the North Anna River was impaired during the 2014 cycle due to E. coli exceedances.

The violation rates are as follows in the 2018 cycle: 7/65 at 8-LTL009.54 (Rt. 685) 5/11 at 8-LTL002.69 (Rt. 689)

The Little River is within the study area for the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015. The impairment is considered nested.

In the 2020 cycle, the exceedance rate was acceptable at 8-LTL009.54 (4/57). No additional data has been collected at 8-LTL002.69. The segment was shortened to extend from Route 1 to the mouth until data can be collected to characterize 8-LTL002.69 again. Additional monitoring should be prioritized. The upper portion (14.54 miles) was partially delisted (Category 2A).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over. There is insufficient information to assess the criteria in the delisted upper portion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F11R_LTL01A98 / Little River / From Route 1 to its mouth at the North Anna River.	4A	Escherichia coli (E. coli)	2014	L	3.74

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.74

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F11R-04-BAC** **Locust Creek**

Cause Location: Begins at the headwaters to of Locust Creek and continues downstream until the confluence with Little River.

Cause City/County: Hanover County; Louisa County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: Excursions from the maximum E. coli bacteria criterion (3 of 12 samples - 25.0%) at DEQ station 8-LOC001.10 at Route 608.

A new TMDL is not required for this impaired segment of Locust Creek because the downstream Pamunkey River and Tributaries bacteria TMDL (Fed ID 65140, 04/27/2015) included modeling, source identification, and reductions that covered the entire Upper Little River watershed (Eq. ID 1160).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F11R_LOC01A06 / Locust Creek / Segment begins at the headwaters to of Locust Creek and continues downstream until the confluence with Little River.	4A	Escherichia coli (E. coli)	2020	L	6.6

Locust Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.6

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F12R-02-BAC** **Mechumps Creek**

Cause Location: Mechumps Creek from its confluence with Slayden Creek to the Pamunkey River.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Mechumps Creek was initially assessed as not supporting of the Recreation Use due to fecal coliform exceedances at 8-MCP002.42.

During the 2006 cycle, the Bacteria TMDL for Mechumps Creek was developed and approved by the EPA on 10/21/2004. The segment remained impaired for fecal coliform and E. coli and was classified as Cat. 4A.

During the 2008 cycle, the impairment converted to E. coli. The exceedance rate at 8-MCP002.42 was 4/19 during the 2010 cycle. No additional data has been collected by the DEQ. However, Level 2 Coliscan data from 8-MCP-8-RMC, which is co-located with 8-MCP002.42, was acceptable during the 2014 cycle (0/16); therefore, additional monitoring by the DEQ is recommended.

The TMDL was superseded by the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_MCP01A94 / Mechumps Creek / Slayden Creek to the Pamunkey River	4A	Escherichia coli (E. coli)	2006	L	5.78

Mechumps Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.78

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-05-BAC** **Mechumps Creek**

Cause Location: Headwaters to the confluence with unnamed tributary to XEG

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Mechumps Creek from its headwaters to the confluence with tributary XEG was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 3/11 at 8-MCP009.56, which is located at Arbor Oak Drive. The bacterial TMDL for a downstream segment of Mechumps Creek was already completed and was approved by the EPA on 10/21/2004 and by the SWCB on 12/20/2005. As this downstream impairment required a 94.04% in nonpoint sources in the watershed, this segment was considered nested (Category 4A.)

Subsequently, the segment was specifically addressed in the Pamunkey River and Tributaries Bacterial TMDL, which superseded the previous TMDL. The TMDL was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015. No additional data has been collected by the DEQ; however, coliscan monitoring at a citizen station showed evidence of continued impairment.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_MCP03A06 / Mechumps Creek / Mechumps Creek from its headwaters downstream to the confluence with XEG.	4A	Escherichia coli (E. coli)	2010	L	1.06

Mechumps Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.06

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-05-DO** **Mechumps Creek**

Cause Location: Headwaters to the confluence with unnamed tributary to XEG

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2010 cycle, Mechumps Creek from its headwaters to the confluence with tributary XEG was assessed as impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 4/23 at 8-MCP009.56, which is located at Arbor Oak Drive.

During the 2016 cycle, the exceedance rate was 3/10.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_MCP03A06 / Mechumps Creek / Mechumps Creek from its headwaters downstream to the confluence with XEG.	5A	Dissolved Oxygen	2010	L	1.06

Mechumps Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			1.06

Sources: Source Unknown

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York River Basin

Cause Group Code: **F12R-05-PH** Mechumps Creek

Cause Location: Headwaters to the confluence with unnamed tributary to XEG

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2006 cycle, Mechumps Creek from its headwaters to the confluence with tributary XEG was assessed as impaired of the Aquatic Life Use due to pH exceedances at 8-MCP009.56, which is located at Arbor Oak Drive.

During the 2016 cycle, the exceedance rate was 4/10.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_MCP03A06 / Mechumps Creek / Mechumps Creek from its headwaters downstream to the confluence with XEG.	5A	pH	2006	L	1.06

Mechumps Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.06

Sources: Source Unknown

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York River Basin

Cause Group Code: **F12R-07-BAC** **Crump Creek**

Cause Location: The mainstem of Crump Creek.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, Crump Creek was assessed as not supporting of the Recreation Use based on E.coli exceedances at the Route 605 bridge (8-CRU000.92).

During the 2016 cycle, the violation rates in the segment were as follows: 0/12 at 8-CRU000.92 3/12 at 8-CRU005.61 2/12 at 8-CRU008.30

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_CRU01A02 / Crump Creek / Crump Creek from its headwaters downstream to its mouth at the Pamunkey River.	4A	Escherichia coli (E. coli)	2008	L	10

Crump Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			10

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-07-PH** **Crump Creek**

Cause Location: The mainstem of Crump Creek.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2010 cycle, Crump Creek was assessed as not supporting of the Aquatic Life Use based on pH violations at the Route 605 bridge (8-CRU000.92). During the 2016 cycle, the violation rates in the segment were as follows:

5/24 at 8-CRU000.92

5/12 at 8-CRU005.61

10/12 at 8-CRU008.30

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_CRU01A02 / Crump Creek / Crump Creek from its headwaters downstream to its mouth at the Pamunkey River.	5C	pH	2010	L	10

Crump Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			10

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-08-BAC Pamunkey River**

Cause Location: The Pamunkey River from its start at the confluence of the South Anna and North Anna Rivers downstream to the confluence with Mechumps Creek.

Cause City/County: Caroline County; Hanover County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the Pamunkey River from its headwaters to the confluence with Mechumps Creek was assessed as not supporting of the Recreation Use based on an E. coli violation rate of 12/58 at the Route 614 bridge (8-PMK082.34). Violation rates at 8-PMK088.11 were acceptable.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

In the 2020 cycle, exceedance rates were 18/72 at 8-PMK082.34 and 5/24 at 8-PMK088.11 (2018 cycle).

New bacteria criteria were implemented in the 2022 cycle; the segment remains impaired due to two or more STV exceedances within the same 90-day window with <10 samples at station 8-PMK082.34. There was insufficient data to assess station 8-PMK088.11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_PMK01B08 / Pamunkey River / The nontidal Pamunkey River from the North and South Anna Rivers to Mechumps Creek.	4A	Escherichia coli (E. coli)	2016	L	12.28

Pamunkey River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.28

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-09-BAC** XEG - Mechumps Creek, UT

Cause Location: Headwaters to its mouth at Mechumps Creek

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, tributary XEG was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at 8-XEG000.06, which is located at Cottage Green Drive. The bacterial TMDL for a downstream segment of Mechumps Creek was already completed and was approved by the EPA on 10/21/2004 and by the SWCB on 12/20/2005. As this downstream impairment required a 94.04% in nonpoint sources in the watershed, this segment was considered nested (Category 4A.)

The TMDL was superseded in the 2016 cycle by the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015; XEG was specifically addressed.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_XEG01A06 / XEG - Mechumps Creek, UT (aka Middle Branch) / Headwaters to mouth at Mechumps Creek	4A	Escherichia coli (E. coli)	2010	L	0.48

XEG - Mechumps Creek, UT

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.48

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-10-PH** Millpond Creek

Cause Location: The mainstem of Millpond Creek downstream of Gravatts Millpond.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Millpond Creek was assessed as not supporting of the Aquatic Life Use based on pH exceedances at the Route 614 bridge (8-MLP002.74).

The exceedance rate was 5/23 during the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_MLP01A00 / Millpond Creek / Mainstem downstream of Gravatts Millpond.	5C	pH	2012	L	3.03

Millpond Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.03

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-11-BAC** **Kersey Creek**

Cause Location: Kersey Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Kersey Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 3/12 at the Route 301 bridge (8-KER001.31).

Kersey Creek was included in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_KER01A12 / Kersey Creek / Headwaters to mouth at Crump Creek	4A	Escherichia coli (E. coli)	2012	L	3.33

Kersey Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.33

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-11-PH** Kersey Creek

Cause Location: Kersey Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Kersey Creek was assessed as impaired of the Aquatic Life Use due to a pH violation rate of 4/12 at the Route 301 bridge (8-KER001.31).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_KER01A12 / Kersey Creek / Headwaters to mouth at Crump Creek	5C	pH	2012	L	3.33

Kersey Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 3.33

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-12-BAC** **XJC - Crump Creek, UT**

Cause Location: XJC mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, XJC was assessed as impaired of the Recreation Use due to an E. coli violation rate of 5/12 at the Route 301 bridge (8-XJC001.12).

The tributary was included in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_XJC01A12 / XJC - Crump Creek, UT / Headwaters to mouth at Crump Creek	4A	Escherichia coli (E. coli)	2012	L	1.97

XJC - Crump Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.97

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-12-PH** **XJC - Crump Creek, UT**

Cause Location: XJC mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, XJC was assessed as impaired of the Aquatic Life Use due to a pH violation rate of 5/12 at the Route 301 bridge (8-XJC001.12).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_XJC01A12 / XJC - Crump Creek, UT / Headwaters to mouth at Crump Creek	5C	pH	2012	L	1.97

XJC - Crump Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.97

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-13-BAC** **Pollard Creek**

Cause Location: Pollard Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Pollard Creek was assessed as impaired of the Recreation Use due to an E. coli violation rate of 2/12 at the Route 647 bridge (8-PLD001.73).

Pollard Creek was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

The exceedance rate was 5/12 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; however, re-evaluation of the 2020 data using the new methodology confirms impairment due to two or more STV exceedances within the same 90-day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_PLD01A12 / Pollard Creek / Headwaters to its mouth at Crump Creek	4A	Escherichia coli (E. coli)	2012	L	4.21

Pollard Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.21

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F12R-13-DO** **Pollard Creek**

Cause Location: Pollard Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2020 cycle, Pollard Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 3/12 at 8-PLD001.73, which is located at the Route 647 bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_PLD01A12 / Pollard Creek / Headwaters to its mouth at Crump Creek	5C	Dissolved Oxygen	2020	L	4.21

Pollard Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.21

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-13-PH** **Pollard Creek**

Cause Location: Pollard Creek mainstem in its entirety.

Cause City/County: Hanover County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Pollard Creek was assessed as impaired of the Aquatic Life Use due to a pH violation rate of 8/12 at the Route 647 bridge (8-PLD001.73).

The exceedance rate was 4/12 in the 2020 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_PLD01A12 / Pollard Creek / Headwaters to its mouth at Crump Creek	5C	pH	2012	L	4.21

Pollard Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.21

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F12R-14-BAC Pamunkey River**

Cause Location: The Pamunkey River from the confluence with Mechumps Creek downstream to the tidal limit.

Cause City/County: Hanover County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, the Pamunkey River from Mechumps Creek downstream to Nelson Bridge Road (Rt. 615) was impaired of the Recreation Use due to an E. coli exceedance rate of 3/24 at 8-PMK072.34.

This segment is located within the Middle Pamunkey River TMDL Watershed Unit which was addressed in the Pamunkey River and Tributaries Bacterial TMDL. The TMDL was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015. Although the impairment was not listed at the time that the TMDL was completed, it is considered nested (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to a 90-day geometric mean exceedance. In addition, downstream monitoring at 8-PMK064.73 also indicated impairment due to a geometric mean exceedance. The impairment will be extended downstream to the tidal limit. The expansion is due in 2034, but will be considered nested.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F12R_PMK01A00 / Pamunkey River / The nontidal Pamunkey River from Mechumps Creek to Nelson Bridge Road (Route 615.)	4A	Escherichia coli (E. coli)	2020	L	9.17
VAP-F13R_PMK01A98 / Pamunkey River / From Nelson Bridge Road (Rt. 615) in F12 to limit of tide near Totopotomoy Creek	4A	Escherichia coli (E. coli)	2022	L	11.56

Pamunkey River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			20.73

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F13E-01-BAC Pamunkey River

Cause Location: From the tidal limit at Totopotomoy Creek to Pampatike Landing

Cause City/County: Hanover County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the Pamunkey River from the tidal limit to Pampatike Landing was impaired of the Recreation Use due to E. coli exceedances at 8-PMK056.87 (Rt. 360 bridge). The exceedance rate was 8/35 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

The Pamunkey River and Tributaries Bacterial TMDL was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_PMK01A98 / Pamunkey River / Extent of tide near Totopotomoy Creek to Pampatike Landing. PMKTF	4A	Escherichia coli (E. coli)	2008	L	0.307

Pamunkey River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.306		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F13E-02-BAC Pamunkey River

Cause Location: From Route 654 (Pampatike Landing to Macon Creek (the downstream boundary of watershed F13).

Cause City/County: Hanover County; King William County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Pamunkey River from Pampatike Landing to Macon Creek was initially listed on the 1998 303(d) list as impaired of the Recreation Use goal because of fecal coliform exceedances at Pampatike Landing (Route 654). EPA also identified the station on their list of “Waters Identified to Virginia for Consideration During Development of the Next Listing Cycle.” This inclusion was probably in error as the segment was already 303(d) listed.

During the 2006 cycle, the bacteria standard changed to E. coli and the segment had acceptable exceedance rates and the segment was delisted. However, it was included in the Pamunkey Basin TMDL which was approved by the EPA on 8/2/2006.

During the 2008 cycle, the Pamunkey River again failed the Recreation Use based on E. coli exceedances at 8-PMK048.80. The original impairment is considered a Category 4A water.

The Pamunkey remains impaired in the 2020 cycle (6/29 at 8-PMK048.80 and 2/12 at 8-PMK039.74 (2016 cycle)). Monitoring at 8-PMK044.64 was acceptable.

The segment is considered a Category 4A water. The TMDL was superseded by the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_PMK02A98 / Pamunkey River / Pampatike Landing downstream to Jacks Creek. PMKTF	4A	Escherichia coli (E. coli)	2008	L	0.783
VAP-F13E_PMK03A06 / Pamunkey River / Jacks Creek downstream to Macon Creek. PMKTF	4A	Escherichia coli (E. coli)	2008	L	0.115

Pamunkey River

Recreation	Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.898

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-01-BAC** **Matadequin Creek**

Cause Location: Matadequin from the confluence with Parsleys Creek to the mouth.

Cause City/County: Hanover County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Matadequin Creek from Parsleys Creek to its mouth was assessed in 1998 as fully supporting but threatened of the Recreation Use goal. However, it was mistakenly included on the 1998 Consent Decree as an Attachment A Part 1 Water (“Waters listed on Part 1 of Virginia’s October 14, 1998 303(d) Report”); therefore, the TMDL was due by 2010.

In 2002, the segment was downgraded to impaired. The impairment converted to E. coli during the 2008 cycle.

The bacterial TMDL for Matadequin Creek was approved by the EPA on 10/21/2004 and the segment is a Cat. 4A water. The TMDL was subsequently superseded by the Pamunkey River and Tributaries TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

The segment continued to be impaired of the Recreation Use goal based on an E. coli violation rate of 4/12 at 8-MDQ001.37 in the 2012 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_MDQ01A98 / Matadequin Creek / Downstream of Parsleys Creek.	4A	Escherichia coli (E. coli)	2006	L	4.92

Matadequin Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.92

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-02-BAC** **Totopotomoy Creek**

Cause Location: Strawhorn Creek to the Pamunkey River.

Cause City/County: Hanover County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Totopotomoy Creek was initially listed in 2002 as not supporting of the Recreation Use goal based on fecal coliform exceedances at the Route 606 bridge (8-TPT004.37). During the 2006 cycle, the impairment switched to E. coli.

The bacteria TMDL was completed during the 2008 cycle as part of the Pamunkey River Basin TMDL, which was approved by the EPA on 8/2/2006 and by the SWCB on 6/27/2007. The segment is now considered a Category 4A water.

The exceedance rates were 3/9 at 8-TPT004.37 and 2/10 at 8-TPT000.79 during the 2018 cycle.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_TPT01A98 / Totopotomoy Creek / Strawhorn Creek to the Pamunkey River.	4A	Escherichia coli (E. coli)	2006	L	10.27

Totopotomoy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.27

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-03-BAC** **Jacks Creek and major tributaries**

Cause Location: Jacks Creek, Acquinton Creek, and Mallory Creek in their entireties.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2008 cycle, the streams were assessed as not supporting of the Recreation Use based on E. coli violations at the Route 621 bridge (8-JKC004.15).

Additional E. coli data was collected in the 2014 cycle. The Jacks Creek impairment was confirmed with violation rates of 3/12, 2/11, and 4/12 at stations 8-JKC004.15, 8-JKC005.80, and 8-MLY001.58, respectively (8-JKC007.95 was acceptable (0/12).) E. coli levels on Acquinton Creek was determined to meet the WQS and therefore Acquinton Creek was partially delisted. However, the assessment was in error and Acquinton Creek remains listed.

The entire impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the SWCB on 4/27/2015. The creeks are considered Category 4A.

Monitoring was continued at 8-JKC004.15 in the 2016 cycle (3/12.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_ACQ01A14 / Acquinton Creek / Headwaters to mouth at Jacks Creek	4A	Escherichia coli (E. coli)	2008	L	9.66
VAP-F13R_JKC01A98 / Jacks Creek / Jacks Creek in its entirety	4A	Escherichia coli (E. coli)	2008	L	7.52
VAP-F13R_MLY01A12 / Mallory Creek / Mallory Creek in its entirety.	4A	Escherichia coli (E. coli)	2008	L	4.02

Jacks Creek and major tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.2

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-04-BAC** **Moncuin Creek, Webb Creek**

Cause Location: From the headwaters of Webb Creek downstream to the swampy area around river mile 2.0.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: In 1998, Moncuin Creek was assessed as fully supporting but threatened of the Recreation use because of fecal coliform exceedances at the Route 618 bridge.

In the 2002 cycle, the segment was extended to incorporate the station on Webb Creek and was assessed not supporting of the Recreation Use because of fecal coliform exceedances. The TMDL was due in 2014. The impairment converted to E. coli during the 2006 cycle.

During the 2008 cycle, the bacteria TMDL was addressed as part of the Pamunkey River Basin Bacteria TMDL, which was approved by the EPA on 8/2/2006. This is considered a Category 4A water.

The exceedance rate was 5/23 at 8-MNQ004.19 during the 2010 cycle.

The TMDL was superseded by the Pamunkey River and Tributaries Bacterial TMDL which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

During the 2018 cycle, the E. coli exceedance rate was 4/11 at 8-WEB002.00.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; however, a re-analysis of the 2018 data confirms impairment due to two or more STV hits in the same 90-day period with < 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_MNQ01A98 / Moncuin Creek / Webb Creek / From the headwaters of Webb Creek downstream to the swampy area on Moncuin Creek around river mile 2.	4A	Escherichia coli (E. coli)	2006	L	12.12

Moncuin Creek, Webb Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			12.12

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-04-PCB** **Moncuin Creek, Webb Creek**

Cause Location: From the headwaters of Webb Creek downstream to the swampy area around river mile 2.0.

Cause City/County: King William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 2010 cycle, Moncuin and Webb Creeks were assessed as impaired of the Fish Consumption Use due to exceedances of the PCB tissue value at 8-MNQ004.19. PCBs exceeded in yellow bullhead catfish in 2003 and American eel in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_MNQ01A98 / Monquin Creek / Webb Creek / From the headwaters of Webb Creek downstream to the swampy area on Monquin Creek around river mile 2.	5A	PCBs in Fish Tissue	2010	L	12.12

Moncuin Creek, Webb Creek

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		12.12

Sources: Source Unknown

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York River Basin

Cause Group Code: **F13R-07-PH** **Jacks Creek**

Cause Location: Headwaters to limit of tide

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: During the 2018 cycle, the Jacks Creek watershed was reclassified as Class VII swampwaters. It was assessed against the Class VII pH criteria of 3.7-8.0 SU. Jacks Creek was impaired due to elevated pH levels (2/12) at 8-JKC007.95.

The remaining stations 8-JKC004.15 and 8-JKC005.80 had acceptable exceedance rates (0/24 and 0/13, respectively).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_JKC01A98 / Jacks Creek / Jacks Creek in its entirety	5A	pH	2018	L	7.52

Jacks Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			7.52

Sources: Dam or Impoundment; Source Unknown

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York River Basin

Cause Group Code: **F13R-08-BAC** **Black Creek**

Cause Location: Black Creek from Southern Branch downstream to tidal limit

Cause City/County: New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, Black Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 8-BLC001.77 (Route 608).

The bacteria TMDL was previously completed for this segment as part of the Pamunkey River Basin Bacteria TMDL, which was approved by the EPA on 8/2/2006. The TMDL was subsequently superseded by the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015. The segment is considered a Category 4A water.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_BLC01A00 / Black Creek / Southern Branch downstream to tidal limit	4A	Escherichia coli (E. coli)	2018	L	1.96

Black Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.96

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-09-BAC** XDX - UT to XDW (Pamunkey River, UT)

Cause Location: The mainstem of unnamed tributary XDX.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The tributary was initially considered as not supporting of the Recreation Use goal during the 2004 cycle based on fecal coliform violations at the Route 604 bridge (8-XDX000.38). The impairment converted to E.coli during the 2012 cycle due to an exceedance rate of 3/12.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XDX01A04 / XDX - UT to Pamunkey River, UT (XDW) / Headwaters to mouth at XDW	4A	Escherichia coli (E. coli)	2012	L	3.86

XDX - UT to XDW (Pamunkey River, UT)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.86

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-09-PH** XDX - UT to XDW (Pamunkey River, UT)

Cause Location: The mainstem of unnamed tributary XDX.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The tributary was considered as not supporting of the Aquatic Life Use goal during the 2012 cycle based on a pH violation rate of 2/11 at the Route 604 bridge (8-XDX000.38).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XDX01A04 / XDX - UT to Pamunkey River, UT (XDW) / Headwaters to mouth at XDW	5C	pH	2012	L	3.86

XDX - UT to XDW (Pamunkey River, UT)

Aquatic Life

pH - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.86

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F13R-11-BAC** **XDW - Pamunkey River, UT**

Cause Location: The mainstem of unnamed tributary XDW.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The tributary was assessed as not supporting of the Recreation Use goal during the 2012 cycle based on E. coli exceedances at the Route 604 bridge (8-XDW000.67). During the 2016 cycle, the violation rate was 2/12.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XDW01A08 / XDW - Pamunkey River, UT / Headwaters to mouth at the Pamunkey River	4A	Escherichia coli (E. coli)	2012	L	5.52

XDW - Pamunkey River, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.52

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F13R-11-PH** XDW - UT to Pamunkey River

Cause Location: The mainstem of unnamed tributary XDW.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: The tributary was assessed as not supporting of the Aquatic Life Use goal during the 2012 cycle based on pH exceedances at the Route 604 bridge (8-XDW000.67).

The exceedance rate was 4/23 during the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XDW01A08 / XDW - Pamunkey River, UT / Headwaters to mouth at the Pamunkey River	5C	pH	2012	L	5.52

XDW - UT to Pamunkey River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			5.52

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F13R-12-PH** **Judy Swamp**

Cause Location: Judy Swamp from its headwaters to its mouth at the Pamunkey River.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Judy Swamp was impaired of the Aquatic Life Use due to pH exceedances at 8-JDY000.19 and at 8-JDY001.27, the Rt. 604 and Rt. 639 bridges.

The 2016 cycle's exceedance rates were 4/10 and 9/23, respectively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_JDY01A02 / Judy Swamp / The mainstem of Judy Swamp.	5C	pH	2012	L	3.34

Judy Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F13R-13-HG Pamunkey River**

Cause Location: The Pamunkey River from Nelson Bridge Road (Route 15) downstream approximately 72 miles to the mouth at the York River.

Cause City/County: Hanover County; King William County; New Kent County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: On 9/30/2004, VDH issued a fish consumption advisory from Nelson Bridge Road to Jacks Creek near Liberty Hall. The advisory recommends no more than two meals per month of blue catfish because of mercury contamination in the fish tissue.

This condemnation was expanded on 10/7/2009 and now extends downstream to the mouth at the York River.

The advisory is based on mercury fish tissue exceedances at DEQ monitoring stations 8-PMK056.87, 8-PMK032.00, and 8-PMK006.36.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_PMK01A98 / Pamunkey River / Extent of tide near Totopotomoy Creek to Pampatike Landing. PMKTF	5A	Mercury in Fish Tissue	2006	L	0.307
VAP-F13E_PMK02A98 / Pamunkey River / Pampatike Landing downstream to Jacks Creek. PMKTF	5A	Mercury in Fish Tissue	2006	L	0.783
VAP-F13E_PMK03A06 / Pamunkey River / Jacks Creek downstream to Macon Creek. PMKTF	5A	Mercury in Fish Tissue	2010	L	0.115
VAP-F13R_PMK01A98 / Pamunkey River / From Nelson Bridge Road (Rt. 615) in F12 to limit of tide near Totopotomoy Creek	5A	Mercury in Fish Tissue	2006	L	11.560
VAP-F14E_PMK02A00 / Pamunkey River / Macon Creek to downstream extent of tidal freshwater segment at approximately river mile 23.6 PMKTF	5A	Mercury in Fish Tissue	2010	L	3.638
VAP-F14E_PMK05A18 / Pamunkey River / 0.5 miles above station 8-PMK017.90 downstream to Sweet Hall Landing. PMKOH	5A	Mercury in Fish Tissue	2010	L	0.113
VAP-F14E_PMK05B00 / Pamunkey River / Tidal freshwater/oligohaline boundary at approximately river mile 23.6 downstream to 0.5 mile above station 8-PMK017.90 PMKOH	5A	Mercury in Fish Tissue	2010	L	1.193
VAP-F14E_PMK06A00 / Pamunkey River / Sweet Hall Landing to upstream boundary of VDH-DSS SFC 049-004A, 7/15/2020 PMKOH	5A	Mercury in Fish Tissue	2010	L	3.382

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK06B06 / Pamunkey River / VDH-DSS SFC 049-004A, 7/15/2020 to mesohaline boundary PMKOH	5A	Mercury in Fish Tissue	2010	L	0.584
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMH	5A	Mercury in Fish Tissue	2010	L	0.398

Pamunkey River

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:	10.513		11.56

Sources: Atmospheric Deposition - Toxics; Source Unknown

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York River Basin

Cause Group Code: **F13R-13-PCB Pamunkey River**

Cause Location: The Pamunkey River from Nelson Bridge Road (Route 15) downstream approximately 72 miles to the mouth at the York River.

Cause City/County: Hanover County; King William County; New Kent County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: On 10/7/2009, VDH issued a fish consumption advisory from Nelson Bridge Road to the mouth at West Point. The advisory recommends no more than two meals per month of gizzard shad because of PCB contamination in the fish tissue.

The advisory is based on PCB fish tissue exceedances at DEQ monitoring stations 8-PMK056.87, 8-PMK032.00, and 8-PMK006.36.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_PMK01A98 / Pamunkey River / Extent of tide near Totopotomoy Creek to Pampatike Landing. PMKTF	5A	PCBs in Fish Tissue	2010	L	0.307
VAP-F13E_PMK02A98 / Pamunkey River / Pampatike Landing downstream to Jacks Creek. PMKTF	5A	PCBs in Fish Tissue	2010	L	0.783
VAP-F13E_PMK03A06 / Pamunkey River / Jacks Creek downstream to Macon Creek. PMKTF	5A	PCBs in Fish Tissue	2010	L	0.115
VAP-F13R_PMK01A98 / Pamunkey River / From Nelson Bridge Road (Rt. 615) in F12 to limit of tide near Totopotomoy Creek	5A	PCBs in Fish Tissue	2010	L	11.560
VAP-F14E_PMK02A00 / Pamunkey River / Macon Creek to downstream extent of tidal freshwater segment at approximately river mile 23.6 PMKTF	5A	PCBs in Fish Tissue	2010	L	3.638
VAP-F14E_PMK05A18 / Pamunkey River / 0.5 miles above station 8-PMK017.90 downstream to Sweet Hall Landing. PMKOH	5A	PCBs in Fish Tissue	2010	L	0.113
VAP-F14E_PMK05B00 / Pamunkey River / Tidal freshwater/oligohaline boundary at approximately river mile 23.6 downstream to 0.5 mile above station 8-PMK017.90 PMKOH	5A	PCBs in Fish Tissue	2010	L	1.193
VAP-F14E_PMK06A00 / Pamunkey River / Sweet Hall Landing to upstream boundary of VDH-DSS SFC 049-004A, 7/15/2020 PMKOH	5A	PCBs in Fish Tissue	2010	L	3.382
VAP-F14E_PMK06B06 / Pamunkey River / VDH-DSS SFC 049-004A, 7/15/2020 to mesohaline boundary PMKOH	5A	PCBs in Fish Tissue	2010	L	0.584

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMH	5A	PCBs in Fish Tissue	2010	L	0.398

Pamunkey River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	10.513		11.56

Sources: Atmospheric Deposition - Toxics; Source Unknown

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York River Basin

Cause Group Code: **F13R-14-PH** XIV - Mehixen Creek, UT

Cause Location: Headwaters to mouth at the Pamunkey River

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, Mehixen Creek and its tributary XIV were impaired of the Aquatic Life Use due to pH violation rates of 4/11 at stations 8-MHX001.50 and 8-XIV000.88, which are both located at Rt. 652.

A Natural Conditions Assessment was completed during the 2014 cycle. The exceedances were attributed to natural swampwater conditions and the report recommends that the watershed be reclassified as Class VII swampwater. However, the slopes and nutrients were slightly above the current protocol, so the watershed remained Category 5C.

Additional monitoring was conducted in the 2018 cycle at 8-MHX001.50. The exceedance rate was acceptable (1/11); therefore, the Mehixen Creek mainstem was partially delisted. XIV remained impaired until monitoring at 8-XIV000.88 could be conducted.

The XIV pH impairment was confirmed in the 2022 cycle (2/10 at 8-XIV000.88).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XIV01A18 / XIV - Mehixen Creek, UT / Headwaters to mouth at Mehixen Creek	5C	pH	2012	L	2.05

XIV - Mehixen Creek, UT

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.05

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F13R-15-BAC** **XIW - Jacks Creek, UT**

Cause Location: The tributary XIW from its headwaters to its mouth at Jacks Creek.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The tributary was monitored during the 2014 cycle to help characterize the downstream bacterial impairment on Jacks Creek. The station was located at the Route 663 bridge (8-XIW000.42).

The E. coli exceedance rate was 3/11; therefore, the stream is considered impaired.

The E. coli data results were included in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the SWCB on 4/27/2015. Although the data from XIW was included in the TMDL, the impairment itself was not specifically mentioned so it is considered nested.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13R_XIW01A12 / XIW - Jacks Creek, UT / Headwaters to mouth at Jacks Creek	4A	Escherichia coli (E. coli)	2014	L	2.28

XIW - Jacks Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.28

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14E-03-BAC Pamunkey River**

Cause Location: The Pamunkey River from Sweet Hall Landing to the mouth.

Cause City/County: King William County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Pamunkey River from Sweet Hall Landing to the mouth was assessed as not supporting of the Recreation Use during the 2006 cycle based on enterococci exceedances at 8-PMK006.36, located at the southern end of Lee Marsh.

The TMDL was approved by the EPA on 7/28/2010 and by the SWCB on 12/13/2010.

The exceedance rate in the 2020 cycle was 9/47. Sampling at 8-PMK016.23 was acceptable (1/12).

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to sampling at 8-PMK006.36 (two or more STV exceedances in the same 90-day period with <10 samples.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK06A00 / Pamunkey River / Sweet Hall Landing to upstream boundary of VDH-DSS SFC 049-004A, 7/15/2020 PMKOH	4A	Enterococcus	2006	L	3.382
VAP-F14E_PMK06B06 / Pamunkey River / VDH-DSS SFC 049-004A, 7/15/2020 to mesohaline boundary PMKOH	4A	Enterococcus	2006	L	0.584
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMH	4A	Enterococcus	2006	L	0.398

Pamunkey River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	4.364		

Sources: Agriculture; Industrial Point Source Discharge; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14E-04-EBEN** York-, Pamunkey-, and Mattaponi Rivers

Cause Location: The York mesohaline mainstem, including the applicable mainstem portions of the Pamunkey and Mattaponi Rivers.

Cause City/County: James City County; King And Queen County; King William County; New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: Since the 2018 cycle, the mainstem York mesohaline segment, which includes the mouths of the Pamunkey- and Mattaponi Rivers, has been impaired of the Aquatic Life Use due to failure of the Chesapeake Bay B-IBI. The YRKMHa remains impaired for benthics in the 2022 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMHa	5A	Estuarine Bioassessments	2018	L	0.398
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMHa	5A	Estuarine Bioassessments	2018	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMHa	5A	Estuarine Bioassessments	2006	L	0.641
VAT-F26E_YRK01A04 / York River / York River at Goalders Creek downstream to the boundary of DSS OPEN condemnation # 049-004 (effective 20200715). CBP segment YRKMHa.	5A	Estuarine Bioassessments	2018	L	3.962
VAT-F26E_YRK01B10 / York River / Start of York River at West Point (RM 32.0) downstream to the boundary of ADMIN COND # 049-004 A (effective 7/15/2020), approx. Goff Point . CBP segment YRKMHa.	5A	Estuarine Bioassessments	2018	L	1.086
VAT-F26E_YRK01C12 / York River-at Hockley Cr / York River segment at mouth of Hockley Cr within VDH DSS Condemnation 049-004 C, 7/15/2020. CB Seg - YRKMHa.	5A	Estuarine Bioassessments	2018	L	0.029
VAT-F26E_YRK01D12 / York River / Portion of York River within VDH Seasonal Cond 0049-004 effective date 20200715 YRKMHa	5A	Estuarine Bioassessments	2018	L	0.042
VAT-F26E_YRK01E14 / York River / York River from Goff Point (end of Admin Cond) to the Conditional Approval condemnation. VDH new Restricted Condemnation 049-004 A 7/15/2020 . CBP segment YRKMHa.	5A	Estuarine Bioassessments	2018	L	0.457

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_YRK02A14 / York River (Lower Middle MSN) / Segment starts south of New Kent and James City Boundary and extends downstream to the MSN boundary near Mt. Folly/Poropotank Bay. CBP segment YRKMH. No DSS shellfish direct harvesting condemnation present.	5A	Estuarine Bioassessments	2018	L	2.680
VAT-F26E_YRK03A00 / York River (Lower Middle) / Segment starts at end of MSN boundary near Mt. Folly/Poropotank Bay and extends downstream to the mesohaline/polyhaline boundary. CBP segment YRKMH. Open DSS shellfish direct harvesting condemnation present (effective date 20200715)	5A	Estuarine Bioassessments	2018	L	20.372
VAT-F26E_YRK03B12 / York River (Lower Middle) / Portion of York River at Carter Creek north of Camp Peary. Within VDH-DSS Open condemnation-type #049-004 , 20200715. CB segment YRKMH.	5A	Estuarine Bioassessments	2018	L	0.023

York-, Pamunkey-, and Mattaponi Rivers

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	29.898		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **F14E-05-EBEN Pamunkey River**

Cause Location: The mainstem Pamunkey River from 0.5 mile upstream of station 8-PMK017.90 downstream to Sweet Hall Landing.

Cause City/County: King William County; New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The oligohaline Pamunkey River mainstem initially failed the Chesapeake Bay Index of Biologic Integrity during the 2010 cycle. The impairment continued during the 2014 cycle.

In addition, a 2012 weight-of-evidence analysis at estuarine probabilistic monitoring station 8-PMK017.90 showed benthic alteration probably caused by metals in sediment (Category 5A).

The mainstem met the B-IBI criteria in the 2018 cycle. However, due to the 2012 WOE sample the portion of the mainstem around the station will remain listed. Continued monitoring is recommended. The remaining Pamunkey mainstem was partially delisted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK05A18 / Pamunkey River / 0.5 miles above station 8-PMK017.90 downstream to Sweet Hall Landing. PMKOH	5A	Estuarine Bioassessments	2010	L	0.113

Pamunkey River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.113		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **F14E-06-BAC** **Harrison Creek**

Cause Location: The tidal portion of Harrison Creek.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, tidal Harrison Creek was impaired of the Recreation Use due to E.coli exceedances at 8-HSN000.92, which is located at Elsing Green Road. The violation rate was 3/12 during the 2014 cycle.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL which was approved by the EPA on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_HSN01A12 / Harrison Creek / Tidal portion of Harrison Creek PMKTF	4A	Escherichia coli (E. coli)	2012	L	0.044

Harrison Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.044		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14E-07-EBEN Pamunkey River**

Cause Location: The mainstem Pamunkey River from the boundary of VDH-DSS condemnation 049-004A downstream to the mesohaline boundary.

Cause City/County: King William County; New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2020 cycle, monitoring at 8-PMK002.60, a 2017 weight-of-evidence station, indicated impairment due to the probable effects of multiple PAHs and metals in sediment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK06B06 / Pamunkey River / VDH-DSS SFC 049-004A, 7/15/2020 to mesohaline boundary PMKOH	5A	Estuarine Bioassessments	2020	L	0.584

Pamunkey River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	0.584		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **F14E-08-BAC Pamunkey River**

Cause Location: Tidal Pamunkey River from Macon Creek downstream to the transition zone boundary.

Cause City/County: King William County; New Kent County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2022 cycle, the Pamunkey River from Macon Creek downstream to the transition zone boundary was impaired of the Recreation Use due to two or more STV exceedances within the same 90-day period with <10 samples at station 8-PMK034.17, which is located at the railroad trestle near White House.

The station only violated during one 90-day period; therefore, continued monitoring is recommended.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015; therefore, it was Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK02A00 / Pamunkey River / Macon Creek to downstream extent of tidal freshwater segment at approximately river mile 23.6 PMKTF	4A	Escherichia coli (E. coli)	2022	L	3.638

Pamunkey River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	3.638		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14R-01-DO** Cohoke Mill Creek

Cause Location: Cohoke Mill Stream mainstem from its headwaters downstream to Cohoke Millpond

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2010 cycle, Cohoke Mill Stream was assessed as not supporting of the Aquatic Life Use based on dissolved oxygen violations at 8-CMC005.16, which is located at the Route 626 bridge.

The exceedance rate was 9/25 during the 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_CMC01A00 / Cohoke Mill Creek / Mainstem upstream of Cohoke Millpond.	5C	Dissolved Oxygen	2010	L	7.39

Cohoke Mill Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			7.39

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F14R-02-BAC** **Harrison Creek**

Cause Location: Harrison Creek and tributary upstream of pond at Elsing Green upstream to nearest tributaries.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Harrison Creek was assessed as not supporting of the Recreation Use in 2008 based on an E. coli violations at the Route 632 bridge (8-HSN002.12). During the 2014 cycle, the exceedance rates were as follows:

2/12 at 8-HSN002.12 3/12 at 8-HSN002.43 4/15 at 8-HSN003.93

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_HSN01A00 / Harrison Creek and Tributary / Upstream of pond at Elsing Green to nearest tributaries.	4A	Escherichia coli (E. coli)	2008	L	2.8

Harrison Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.8

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14R-02-DO** **Harrison Creek**

Cause Location: Harrison Creek and tributary upstream of pond at Elsing Green upstream to nearest tributaries.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2014 cycle, Harrison Creek was assessed as not supporting of the Aquatic Life Use based on a dissolved oxygen exceedance rate of 2/11 at the Route 632 bridge (8-HSN002.12).

Monitoring at stations 8-HSN002.43 and 8-HSN003.93 was acceptable (1/11).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_HSN01A00 / Harrison Creek and Tributary / Upstream of pond at Elsing Green to nearest tributaries.	5C	Dissolved Oxygen	2014	L	2.8

Harrison Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.8

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F14R-04-BAC XJD - Harrison Creek, UT**

Cause Location: Harrison Creek, UT from its headwaters to its mouth at Harrison Creek

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The UT was impaired of the Recreation Use during the 2012 cycle based on E. coli exceedances at 8-XJD000.02. The exceedance rate was 4/12 during the 2014 cycle.

The impairment was addressed in the Pamunkey River and Tributaries Bacterial TMDL, which was approved by the SWCB on 12/11/2014 and by the EPA on 4/27/2015.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_XJD01A12 / XJD - Harrison Creek, UT / Headwaters to mouth at Harrison Creek	4A	Escherichia coli (E. coli)	2012	L	0.17

XJD - Harrison Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.17

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F14R-04-PH** XJD - Harrison Creek, UT

Cause Location: Harrison Creek, UT from its headwaters to its mouth at Harrison Creek

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: During the 2012 cycle, XJD was impaired of the Aquatic Life Use due to pH exceedance at 8-XJD000.02. The violation rate was 5/11 during the 2014 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_XJD01A12 / XJD - Harrison Creek, UT / Headwaters to mouth at Harrison Creek	5C	pH	2012	L	0.17

XJD - Harrison Creek, UT

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 pH - Total Impaired Size by Water Type: 0.17

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F14R-05-DO** Mill Creek

Cause Location: Mill Creek from Cooks Millpond dam downstream to the tidal limit

Cause City/County: New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2022 cycle, lower Mill Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/10 at 8-MCR001.64, which is located on the Route 623 bridge (dam).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14R_MCR01A98 / Mill Creek / Mill Creek below Cooks Millpond.	5A	Dissolved Oxygen	2022	L	0.78

Mill Creek

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.78

Sources: Dam or Impoundment; Source Unknown

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York River Basin

Cause Group Code: **F15R-01-BAC** Ni River

Cause Location: Begins at the confluence of an unnamed tributary to the Ni River, approximately 0.95 rivermiles downstream from the Route 608 bridge, and continues downstream until the confluence with the Po River, forming the Poni River.

Cause City/County: Caroline County; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-NIR003.96 at Route 1: There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of Ni River because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66031, 07/19/2016) included modeling, source identification, and reductions that covered the entire Poni River watershed (Eq. ID 1577). The Mattaponi River Watershed TMDL Implementation Plan for the Poni River Watershed (ID 341) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F15R_NIR01A00 / Ni River / Segment begins at the confluence of an unnamed tributary to the Ni River, approximately 0.95 rivermiles downstream from the Route 608 bridge, and continues downstream until the confluence with the Po River, forming the Poni River.	4A	Escherichia coli (E. coli)	2020	L	5.69

Ni River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.69

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F15R-01-BEN** Ni River

Cause Location: Begins at the confluence of an unnamed tributary to the Ni River, approximately 0.95 rivermiles downstream from the Route 608 bridge, and continues downstream until the confluence with the Po River, forming the Poni River.

Cause City/County: Caroline County; Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2014 Assessment: Three biological monitoring events in 2007 and 2008 at DEQ station 8-NIR003.96 at Route 1 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F15R_NIR01A00 / Ni River / Segment begins at the confluence of an unnamed tributary to the Ni River, approximately 0.95 rivermiles downstream from the Route 608 bridge, and continues downstream until the confluence with the Po River, forming the Poni River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	5.69

Ni River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.69

Sources: Source Unknown

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York River Basin

Cause Group Code: **F15R-01-DO** **Brock Run**

Cause Location: Begins at the confluence with Aunt Sarah Spring Creek and continues downstream until the confluence with the Ni River.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion (2 of 8 samples - 25.0%) at DEQ ambient water quality monitoring station 8-BRK000.06 at Jackson Trail off Route 613.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F15R_BRK01A06 / Brock Run / Segment begins at the confluence with Aunt Sarah Spring Creek and continues downstream until the confluence with the Ni River.	5A	Dissolved Oxygen	2012	L	2.57

Brock Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.57

Sources: Source Unknown

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York River Basin

Cause Group Code: **F15R-01-PH** **Brock Run**

Cause Location: Begins at the headwaters of Brock Run, and continues downstream to the confluence with Aunt Sarah Spring Creek.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5A

Cause Description: Excursions less than the lower limit of the pH criterion range (4 of 26 samples - 15.4%) recorded at National Park Service's station 8BRK-17-NPS in Wilderness Battlefield.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F15R_BRK01B12 / Brock Run / Segment begins at the headwaters of Brock Run, and continues downstream to the confluence with Aunt Sarah Spring Creek.	5A	pH	2014	L	3.22

Brock Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.22

Sources: Source Unknown

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York River Basin

Cause Group Code: **F15R-02-BAC** **Brock Run**

Cause Location: Begins at the confluence with Aunt Sarah Spring Creek and continues downstream until the confluence with the Ni River.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 10 samples - 40.0%) at station 8-BRK000.06 at Jackson Trail off Route 613.

The Mattaponi River Watershed bacteria TMDL for the Brock Run watershed (Eq ID 1566) was developed and approved by the EPA on 07/19/2016 (Fed ID 66045). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Poni River Watershed (ID 341) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F15R_BRK01A06 / Brock Run / Segment begins at the confluence with Aunt Sarah Spring Creek and continues downstream until the confluence with the Ni River.	4A	Escherichia coli (E. coli)	2008	L	2.57

Brock Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.57

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F16R-01-BAC** **Po River**

Cause Location: Begins at the confluence with Piltzer Creek and continues downstream until the confluence with the Ni River, forming the Poni River.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (17 of 68 samples - 25.0%) at DEQ station 8-POR004.13 at Route 1 (2014 Assessment). E. coli bacteria criterion excursions (8 of 39 samples - 20.5%) at DEQ station 8-POR008.97 at Route 208 (Courthouse Rd). Two or more STV exceedances in at least one 90-day period with <10 samples at DEQ station 8-POR016.04 at Route 608 (Robert E Lee Dr).

The Mattaponi River Watershed bacteria TMDL for the Po River watershed (Eq. ID 1575) was approved by the EPA on 07/19/2016 (Fed ID 66035). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Po River Watershed (ID 340) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F16R_POR01A10 / Po River / Segment begins at an unnamed tributary to the Po River and continues downstream until the confluence with the Ni River, forming the Poni River.	4A	Escherichia coli (E. coli)	2010	L	7.22
VAN-F16R_POR01B02 / Po River / Segment begins at the confluence with Gladly Run and continues downstream until the confluence with an unnamed tributary to the Po River at rivermile 6.69, near the upstream boundary of the Old Trap development.	4A	Escherichia coli (E. coli)	2018	L	7.71
VAN-F16R_POR01C06 / Po River / Segment begins at the confluence with Piltzer Creek and continues downstream until the confluence with Gladly Run.	4A	Escherichia coli (E. coli)	2018	L	5.18

Po River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.11

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F16R-01-BEN** **Glady Run**

Cause Location: Begins at the headwaters of Glady Run and continues downstream until the confluence with the Po River.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: A total of two biological monitoring events in 2019 at DEQ freshwater probabilistic monitoring station 8-GDY000.88 (2.8 miles downstream of Route 649) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F16R_GDY01A10 / Glady Run / Segments begins at the headwaters of Glady Run and continues downstream until the confluence with the Po River.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	9.31

Glady Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		9.31

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F16R-02-BAC** **Glady Run**

Cause Location: Begins at the headwaters of Glady Run and continues downstream until the confluence with the Po River.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 7 samples - 28.6%) at DEQ station 8-GDY003.00 at Route 649.

The Mattaponi River Watershed bacteria TMDL for the Glady Run watershed (Eq ID 1569) was approved by the EPA on 07/19/2016 (Fed ID 66042). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Po River Watershed (ID 340) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F16R_GDY01A10 / Glady Run / Segments begins at the headwaters of Glady Run and continues downstream until the confluence with the Po River.	4A	Escherichia coli (E. coli)	2010	L	9.31

Glady Run

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.31

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F17L-01-HG** **Bowies Pond**

Cause Location: Includes all of Bowies Pond.

Cause City/County: Caroline County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2012 Assessment: Six exceedances of the water quality criterion based tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded in three species of fish (bowfin, chain pickerel, largemouth bass) sampled in 2005 at DEQ fish tissue/sediment station 8-CAM001.00.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F17L_CAM01A06 / Bowies Pond / Segment includes all of Bowies Pond.	5A	Mercury in Fish Tissue	2008	L	25.72

Bowies Pond

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	25.72	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F17R-02-BAC** **Mattaponi River**

Cause Location: Begins at the confluence with Matta River and continues downstream until the confluence with Polecat Creek at the outlet of waterbody F17R.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (3 of 22 samples - 13.6%) at DEQ station 8-MPN083.62 at Route 301 (2014 Assessment). E. coli bacteria criterion (5 of 12 samples - 41.7%) at DEQ station 8-MPN090.74 at Route 722 (2020 Assessment). E. coli bacteria criterion excursions (12 of 67 samples - 17.9%) at DEQ station 8-MPN094.79 (fka 8-MPN094.94) at Route 605 (2020 Assessment). E. coli bacteria criterion excursions (4 of 11 samples - 36.4%) at DEQ station 8-MPN101.86 at Route 626 (2020 Assessment).

The Mattaponi River Watershed bacteria TMDL for the Mattaponi River watershed (Eq ID 1573) was approved by the EPA on 07/19/2016 (Fed ID 66038). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Mattaponi River Watershed (ID 343) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F17R_MPN01A02 / Mattaponi River / Segment begins at the confluence with an unnamed tributary, draining from Goose Pond, and continues downstream until the confluence with Polecat Creek at the outlet of waterbody F17R.	4A	Escherichia coli (E. coli)	2008	L	3.21
VAN-F17R_MPN02A20 / Mattaponi River / Segment begins at the confluence with South River and continues downstream until the confluence with an unnamed tributary draining from Goose Pond.	4A	Escherichia coli (E. coli)	2020	L	6.59
VAN-F17R_MPN02B02 / Mattaponi River / Segment begins at the confluence with Downers Branch and continues downstream until the confluence with the South River.	4A	Escherichia coli (E. coli)	2006	L	8.24
VAN-F17R_MPN03A02 / Mattaponi River / Segment begins at the confluence of the Matta River and the Poni River, forming the Mattaponi River, and continues downstream until the confluence with Downers Branch.	4A	Escherichia coli (E. coli)	2020	L	3.66

Mattaponi River

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.7

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F17R-02-PH** **Unnamed Tributary to Poni River**

Cause Location: Begins at the confluence of an unnamed tributary at rivermile 3.66 and continues downstream to the confluence with an unnamed tributary at rivermile 0.05.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (2 of 6 samples - 33.3%) at DEQ station 8-XJV001.81 at Route 660 (2020 Assessment). Excursions less than the lower limit of the pH criterion range (5 of 12 samples - 41.7%) at DEQ station 8-XJV000.80 at Route 607.

The pH excursions may be attributable to natural conditions as this water is in a low-lying coastal plain environment that is subject to low pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F17R_XJV01A18 / Unnamed Tributary to Poni River / Segment begins at the confluence with an unnamed tributary at rivermile 0.72 and continues downstream to the confluence with an unnamed tributary at rivermile 0.05.	5C	pH	2018	L	0.67
VAN-F17R_XJV02A16 / Unnamed Tributary to Poni River / Segment begins at the confluence of an unnamed tributary at rivermile 3.66 and continues downstream to the confluence with an unnamed tributary at rivermile 0.72.	5C	pH	2018	L	2.94

Unnamed Tributary to Poni River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			3.61

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F17R-03-BAC** **Poni River**

Cause Location: Begins at the confluence with an unnamed tributary and continues downstream until the confluence with the Matta River, forming the Mattaponi River

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 11 samples - 18.2%) at DEQ station 8-PNI002.43 at Route 606.

The Mattaponi River Watershed bacteria TMDL for the Poni River watershed (Eq ID 1577) was approved by the EPA on 07/19/2016 (Fed ID 66031). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Poni River Watershed (ID 341) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F17R_PNI01A10 / Poni River / Segment begins at the confluence with an unnamed tributary and continues downstream until the confluence with the Matta River, forming the Mattaponi River	4A	Escherichia coli (E. coli)	2010	L	3.21

Poni River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.21

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F17R-04-BAC** **Unnamed Tributary to Poni River**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 0.72 and continues downstream to the confluence with an unnamed tributary at rivermile 0.05.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-XJV000.80 at Route 607 (Guinea Station Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

A new TMDL is not required for this impaired segment of an unnamed tributary to Poni River because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66031, 07/19/2016) included modeling, source identification, and reductions that covered the entire Poni River watershed (Eq. ID 1577). The Mattaponi River Watershed bacteria TMDL Implementation Plan for the Poni River watershed (ID 341) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F17R_XJV01A18 / Unnamed Tributary to Poni River / Segment begins at the confluence with an unnamed tributary at rivermile 0.72 and continues downstream to the confluence with an unnamed tributary at rivermile 0.05.	4A	Escherichia coli (E. coli)	2018	L	0.67

Unnamed Tributary to Poni River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.67

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F18R-02-BAC** **Matta River**

Cause Location: Begins at the confluence of the Mat River and the Ta River and continues downstream until the confluence with the Poni River, forming the Mattaponi River.

Cause City/County: Caroline County; Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-MTA001.69 at Route 632 (Edgehill Academy Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples. 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 8-MTA008.96 at Route 646.

The Mattaponi River Watershed bacteria TMDL for the Matta River watershed (Eq ID 1572) was approved by the EPA on 07/19/2016 (Fed ID 66039). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Matta River Watershed (ID 342) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F18R_MTA01A00 / Matta River / Segment begins at the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from the Route 646 bridge, and continues downstream until the confluence with the Poni River, forming the Mattaponi River.	4A	Escherichia coli (E. coli)	2006	L	11.89
VAN-F18R_MTA02A04 / Matta River / Segment begins at the confluence of the Mat River and the Ta River and continues downstream until the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from Route 646.	4A	Escherichia coli (E. coli)	2020	L	1.24

Matta River

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.13

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F18R-02-DO** **Bluff Run**

Cause Location: Begins at the confluence with Glebe Run and continues downstream to the confluence with Ta River.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: Excursions less than the minimum dissolved oxygen criterion (4 of 12 samples - 33.3%) were recorded at DEQ station 8-BLF001.48 at Route 648.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F18R_BLF01A20 / Bluff Run / Segment begins at the confluence with Glebe Run and continues downstream to the confluence with Ta River.	5A	Dissolved Oxygen	2020	L	3.07

Bluff Run

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 3.07
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Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F18R-03-BAC** **Mat River**

Cause Location: Begins at the confluence with an unnamed tributary at rivermile 2.14 and continues downstream to the confluence with the Ta River to form the Matta River.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 8-MAT001.87 at Route 647. DEQ station 8-MAT005.35 at Route 738 (Partlow Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mattaponi River Watershed bacteria TMDL for the Mat River watershed (Eq ID 1571) was approved by the EPA on 07/19/2016 (Fed ID 66040). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Matta River Watershed (ID 342) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F18R_MAT01A12 / Mat River / Segment begins at the confluence with an unnamed tributary, at rivermile 2.14, and continues downstream to the confluence with the Ta River to form the Matta River.	4A	Escherichia coli (E. coli)	2014	L	2.3
VAN-F18R_MAT02A18 / Mat River / Segment begins at the perennial headwaters and continues downstream to the confluence with an unnamed tributary at rivermile 2.14.	4A	Escherichia coli (E. coli)	2018	L	5.2

Mat River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.5

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F18R-03-BEN** **Matta River**

Cause Location: Begins at the confluence of the Mat River and the Ta River and continues downstream until the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from Route 646.

Cause City/County: Spotsylvania County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2010 Assessment: One of two biological monitoring events in 2003 at station 8-MTA012.09 (upstream of Route 646) resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F18R_MTA02A04 / Matta River / Segment begins at the confluence of the Mat River and the Ta River and continues downstream until the confluence with an unnamed tributary to the Matta River, approximately 0.5 rivermile upstream from Route 646.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.24

Matta River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.24

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F18R-04-BAC** Ta River

Cause Location: Begins at the confluence with Bluff Run, approximately 0.7 rivermile upstream from Route 738, and continues downstream until the confluence with the Mat River, forming the Matta River.

Cause City/County: Spotsylvania County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 8-TAR002.40 at Route 738.

A new TMDL is not required for this impaired segment of Ta River because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66039, 07/19/2016) included modeling, source identification, and reductions that covered the entire Matta River watershed (Eq. ID 1572). The Mattaponi River Watershed TMDL Implementation Plan for the Matta River Watershed (ID 342) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F18R_TAR01A00 / Ta River / Segment begins at the confluence with Bluff Run, approximately 0.7 rivermile upstream from Route 738, and continues downstream until the confluence with the Mat River, forming the Matta River.	4A	Escherichia coli (E. coli)	2018	L	3.76

Ta River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.76

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F19R-01-BAC** **South River**

Cause Location: Begins at the headwaters of the South River and continues downstream until the confluence with the Motto River.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 8-STH010.79 at Route 1.

A new TMDL is not required for this impaired segment of South River because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66038, 07/19/2016) included modeling, source identification, and reductions that covered the entire Mattaponi River watershed (Eq. ID 1573). The Mattaponi River Watershed TMDL Implementation Plan for the Mattaponi River Watershed (ID 343) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F19R_STH03A08 / South River / Segment begins at the headwaters of the South River and continues downstream until the confluence with the Motto River.	4A	Escherichia coli (E. coli)	2020	L	9.1

South River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			9.1

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F19R-02-BAC** **Motto River**

Cause Location: Begins at the confluence with an unnamed tributary, approximately 0.5 rivermile upstream from Route One, and continues downstream until the confluence with another unnamed tributary (streamcode XCF), downstream from I-95.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (2 of 8 samples - 25.0%) at DEQ station MOT002.62 at Route 1.

The Mattaponi River Watershed bacteria TMDL for the Motto River watershed (Eq ID 1574) was approved by the EPA on 07/19/2016 (Fed ID 66036). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Mattaponi River Watershed (ID 343) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F19R_MOT01A04 / Motto River / Segment begins at the confluence with an unnamed tributary, approximately 0.5 rivermile upstream from Route One, and continues downstream until the confluence with another unnamed tributary (streamcode XCF), downstream from I-95.	4A	Escherichia coli (E. coli)	2014	L	1.81

Motto River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.81

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F19R-02-PH** **Hobby Swamp**

Cause Location: Begins at the confluence with an unnamed tributary to Hobby Swamp, approximately 0.36 rivermile upstream from Route 634, and continues downstream until the confluence with the South River.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (9 of 9 samples - 100.0%) at DEQ station 8-HBS001.85 at Route 634

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F19R_HBS01A00 / Hobby Swamp / Segment begins at the confluence with an unnamed tributary to Hobby Swamp, approximately 0.36 rivermile upstream from Route 634, and continues downstream until the confluence with the South River.	5C	pH	2020	L	1.28

Hobby Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			1.28

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: F19R-03-BAC Hobby Swamp

Cause Location: Begins at the confluence with an unnamed tributary to Hobby Swamp, approximately 0.36 rivermile upstream from Route 634, and continues downstream until the confluence with the South River.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 9 samples - 33.3%) at DEQ station 8-HBS001.85 at Route 634.

A new TMDL is not required for this impaired segment of Hobby Swamp because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66038, 07/19/2016) included modeling, source identification, and reductions that covered the entire Mattaponi River watershed (Eq. ID 1573). The Mattaponi River Watershed TMDL Implementation Plan for the Mattaponi River Watershed (ID 343) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F19R_HBS01A00 / Hobby Swamp / Segment begins at the confluence with an unnamed tributary to Hobby Swamp, approximately 0.36 rivermile upstream from Route 634, and continues downstream until the confluence with the South River.	4A	Escherichia coli (E. coli)	2020	L	1.28

Hobby Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.28

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F20R-01-BEN** **Polecat Creek**

Cause Location: Begins at the confluence with Hackett Creek, approximately 0.5 rivermile upstream from Route 207, and continues downstream until the confluence with the Mattaponi River.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events at station 8-PCT002.29 at Route 601 in 2011 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F20R_PCT01A00 / Polecat Creek / Segment begins at the confluence with an unnamed tributary at rivermile 5.0 and continues downstream until the confluence with the Mattaponi River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.24

Polecat Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.24

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F20R-01-DO** **Polecat Creek**

Cause Location: Begins at the confluence with Stevens Mill Run and continues downstream until the confluence with an unnamed tributary at rivermile 5.0.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: 2018 Assessment: Excursions less than the minimum dissolved oxygen criterion (5 of 8 samples - 50.0%) at station 8-PCT005.44 at Polecat Creek below Caroline County POTW; excursions less than the minimum dissolved oxygen criterion (5 of 8 samples - 62.5%) at station 8-PCT006.34 at Route 207.

The DO excursions may be attributable to natural conditions as this segment is in a low-lying coastal plain environment that is subject to low DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F20R_PCT01B06 / Polecat Creek / Segment begins at the confluence with Stevens Mill Run and continues downstream until the confluence with an unnamed tributary at rivermile 5.0.	5C	Dissolved Oxygen	2018	L	4.34

Polecat Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.34

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F20R-02-BAC** Polecat Creek

Cause Location: Begins at the headwaters of Polecat Creek and continues downstream until the confluence with Stevens Mill Run.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-PCT010.10 at Route 652 (Cool Water Dr): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mattaponi River Watershed bacteria TMDL for the Polecat Creek watershed was approved by the EPA on 07/19/2016 (Fed ID 66034). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Polecat Creek Watershed (ID 345) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F20R_PCT02A02 / Polecat Creek / Segment begins at the headwaters of Polecat Creek and continues downstream until the confluence with Stevens Mill Run.	4A	Escherichia coli (E. coli)	2012	L	5.31

Polecat Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.31

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F21R-01-BAC** **Boot Swamp**

Cause Location: Begins at the confluence with Malden Creek and continues downstream to the confluence with Mattaponi River.

Cause City/County: Caroline County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: Excursions from the maximum E. coli bacteria criterion (3 of 12 samples - 25%) at DEQ station 8-BOT002.14 at Route 600.

While this impaired segment is not included in a TMDL, it was considered during development of the Mattaponi River Watershed TMDL Implementation Plan for the Reedy Creek watershed (ID 347; approved by the EPA on 04/23/2020).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_BOT01A20 / Boot Swamp / Segment begins at the confluence with Malden Creek and continues downstream to the confluence with Mattaponi River.	5A	Escherichia coli (E. coli)	2020	L	1.68

Boot Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			1.68

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F21R-01-BEN** **Herring Creek**

Cause Location: Begins at the headwaters of Herring Creek and continues downstream until the confluence with Millpond Creek.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2008 Assessment: Two biological monitoring events in 2002 at DEQ freshwater probabilistic monitoring station 8-HER012.99 (downstream of Route 601) resulted in a VCPMI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_HER02A04 / Herring Creek / Segment begins at the outlet of a pond near the perennial headwaters of Herring Creek and continues downstream until the confluence with Millpond Creek.	5A	Benthic Macroinvertebrates Bioassessments	2008	L	3.64

Herring Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.64

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F21R-01-HG** **Herring Creek**

Cause Location: Extends from the Route 628 bridge (Dorrell Road) to the confluence with the Mattaponi River.

Cause City/County: King William County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health mercury fish consumption advisory. The advisory, dated 09/30/04, limits bluegill sunfish and yellow bullhead catfish consumption to no more than two meals per month.

Additionally, there were three exceedances of the fish tissue value (TV) of 300 parts per billion (ppb) for mercury in three fish species (redbreast sunfish, chain pickerel, and fallfish) collected in 2019 and two exceedances of the fish TV of 300 ppb for mercury in two fish species (flier sunfish, largemouth bass) collected in 2003 at DEQ fish tissue station 8-HER005.12 at Route 609.

Additional monitoring in 2019 at station 8-MPN041.41 confirmed the impairment with mercury in white perch and spotted bass.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_HER01A06 / Herring Creek / Segment begins at the confluence with an unnamed tributary to Herring Creek, at rivermile 2.14, and continues downstream until the confluence with the Mattaponi River.	5A	Mercury in Fish Tissue	2006	L	2.14
VAN-F21R_HER01B02 / Herring Creek / Segment begins at the confluence with Dorrell Creek and continues downstream until the confluence with an unnamed tributary to Herring Creek, at rivermile 2.14.	5A	Mercury in Fish Tissue	2006	L	5.09

Herring Creek

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			7.23

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F21R-02-BEN** **Reedy Creek**

Cause Location: Begins at Route 301 and continues downstream until the start of Reedy Millpond. Class VII waters.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: 2018 Assessment: Two biological monitoring events in 2011 at DEQ station 8-RDY003.43 at Route 648 resulted in a VSCI assessment that indicates an impaired macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_RDY02A10 / Reedy Creek / Segment begins at Route 301 and continues downstream until the start of Reedy Millpond.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.3

Reedy Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.3

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: F21R-02-HG Mattaponi River

Cause Location: Extends from the Route 628 bridge and continues downstream approximately 55 miles, to the confluence with Pamunkey River near West Point.

Cause City/County: King And Queen County; King William County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health mercury fish consumption advisory. The advisory, dated 09/30/04, limits largemouth bass consumption to no more than two meals per month. It originally extended from the Route 628 bridge downstream about 40 miles to Melrose Landing at Rt. 602.

The advisory was revised on 10/7/2009. The advisory now extends from Route 628 downstream approximately 55 miles to the mouth of the Mattaponi at West Point.

The advisory is based on the results of DEQ's monitoring fish tissue monitoring program, which indicated exceedances at 8-MPN041.41, 8-MPN029.08, and 8-MPN014.33.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_MPN01A06 / Mattaponi River / Segment begins at the confluence with Gravel Run and continues downstream until the confluence with Herring Creek.	5A	Mercury in Fish Tissue	2006	L	6.070
VAN-F21R_MPN01B02 / Mattaponi River / Segment begins at the Route 628 crossing and continues downstream until the confluence with Gravel Run.	5A	Mercury in Fish Tissue	2006	L	4.910
VAP-F23E_MPN02A98 / Mattaponi River / From the limit of tide above the Route 360 bridge to Aylett Creek. MPNTF	5A	Mercury in Fish Tissue	2006	L	0.159
VAP-F23E_MPN03A06 / Mattaponi River / Aylett Creek to Garnetts Creek. MPNTF	5A	Mercury in Fish Tissue	2006	L	1.756
VAP-F23R_MPN01A00 / Mattaponi River / From the watershed boundary (Herring Creek) to the limit of tide near the Route 360 bridge.	5A	Mercury in Fish Tissue	2006	L	4.720
VAP-F24E_MPN03A98 / Mattaponi River / Garnetts Creek to tidal freshwater/oligohaline boundary at approximately river mile 18 MPNTF	5A	Mercury in Fish Tissue	2006	L	1.384
VAP-F24E_MPN03B02 / Mattaponi River / Tidal freshwater/oligohaline boundary to Melrose Landing at Route 602 MPNOH	5A	Mercury in Fish Tissue	2006	L	0.423
VAP-F24E_MPN03C06 / Mattaponi River / Melrose Landing (Route 602) to Heartquake Creek. MPNOH	5A	Mercury in Fish Tissue	2010	L	0.717

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Appendix 4 - Fact Sheets for
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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25E_MPN05A00 / Mattaponi River / Mattaponi River from Heartquake Creek to the downstream boundary of VDH-DSS 049-004F, 7/15/2020 MPNOH	5A	Mercury in Fish Tissue	2010	L	1.292
VAP-F25E_MPN05B06 / Mattaponi River / From the upstream boundary of VDH-SFC 049-004B, 7/15/2020 downstream to the oligohaline/York mesohaline boundary. MPNOH	5A	Mercury in Fish Tissue	2010	L	0.384
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMH	5A	Mercury in Fish Tissue	2010	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMH	5A	Mercury in Fish Tissue	2010	L	0.641

Mattaponi River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
6.965		15.7

Sources: Atmospheric Deposition - Toxics; Source Unknown

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F21R-03-BAC** **Reedy Creek**

Cause Location: Begins at the headwaters of Reedy Creek and continues downstream until the start of Reedy Millpond.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (3 of 23 samples - 13.0%) at DEQ station 8-RDY003.43 at Route 648 (2014 Assessment). There were two or more STV exceedances in at least one 90-day period with <10 samples at DEQ station 8-RDY004.39 at Route 301/2 (Richmond Turnpike)

The Mattaponi River Watershed bacteria TMDL for the Reedy Creek watershed (Eq ID 1578) was approved by the EPA on 07/19/2016 (Fed ID 66030). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Reedy Creek Watershed (ID 347) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_RDY02A10 / Reedy Creek / Segment begins at Route 301 and continues downstream until the start of Reedy Millpond.	4A	Escherichia coli (E. coli)	2010	L	3.3
VAN-F21R_RDY02B10 / Reedy Creek / Segment begins at the headwaters of Reedy Creek and continues downstream to Route 301 bridge.	4A	Escherichia coli (E. coli)	2010	L	9.4

Reedy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.7

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F21R-03-HG** **Reedy Creek and Reedy Millpond**

Cause Location: Begins at the 301 bridge and continues downstream to the confluence with the Mattaponi River.

Cause City/County: Caroline County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: The fish consumption use is categorized as impaired due to a Virginia Department of Health mercury fish consumption advisory. The advisory, dated 10/07/09, limits redbreast sunfish and yellow bullhead catfish consumption to no more than two meals per month and is applicable from Rt. 301 downstream to the confluence with Mattaponi River

Additionally, the following exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury in fish tissue were recorded: DEQ station 8-RDY003.43: one species of fish (creek chubsucker) in 2003, three species of fish (yellow bullhead catfish, bluegill sunfish, and redbreast sunfish) in 2008, four species of fish (American eel, yellow bullhead catfish, redbreast sunfish, and chain pickerel) in 2019

Four exceedances of the water quality criterion based fish tissue value (TV) of 300 parts per billion (ppb) for mercury in fish tissue were recorded in two species of fish (bowfin and largemouth bass) sampled in 2003 at DEQ station 8-RDY000.87.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21L_RDY01A06 / Reedy Millpond / Segment includes all of Reedy Millpond.	5A	Mercury in Fish Tissue	2010	L	41.25
VAN-F21R_RDY01A10 / Reedy Creek / Segment begins at the outlet of Reedy Millpond and continues downstream to the confluence with the Mattaponi River.	5A	Mercury in Fish Tissue	2010	L	0.14
VAN-F21R_RDY02A10 / Reedy Creek / Segment begins at Route 301 and continues downstream until the start of Reedy Millpond.	5A	Mercury in Fish Tissue	2010	L	3.30
VAN-F21R_RDY02B10 / Reedy Creek / Segment begins at the headwaters of Reedy Creek and continues downstream to Route 301 bridge.	5A	Mercury in Fish Tissue	2010	L	9.40

Reedy Creek and Reedy Millpond

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		41.25	12.84

Sources: Source Unknown

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York River Basin

Cause Group Code: **F21R-04-BAC** **Chapel Creek**

Cause Location: Begins at the confluence with Beaver Branch and continues downstream until the confluence with the Mattaponi River.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 8-CPL004.15 at Route 721.

The Mattaponi River Watershed bacteria TMDL for the Chapel Creek watershed (Eq ID 1567) was approved by the EPA on 07/19/2016 (Fed ID 66044). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Chapel Creek (ID 344) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_CPL01A06 / Chapel Creek / Segment begins at the confluence with Beaver Branch and continues downstream until the confluence with the Mattaponi River.	4A	Escherichia coli (E. coli)	2014	L	4.65

Chapel Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.65

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F21R-04-PH** **Chapel Creek**

Cause Location: Begins at the perennial headwaters of Chapel Creek and continues downstream to the upstream boundary of Garnett Millpond. Begins again at the confluence with Beaver Branch and continues downstream until the confluence with the Mattaponi River.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (2 of 12 samples - 16.7%) at DEQ station 8-CPL004.15 at Route 721. Excursions less than the lower limit of the pH criterion range (4 of 12 samples - 33.3%) at DEQ station 8-CPL011.27 at Route 623.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_CPL01A06 / Chapel Creek / Segment begins at the confluence with Beaver Branch and continues downstream until the confluence with the Mattaponi River.	5C	pH	2008	L	4.65
VAN-F21R_CPL02A18 / Chapel Creek / Segment begins at the perennial headwaters of Chapel Creek and continues downstream to the upstream boundary of Garnett Millpond.	5C	pH	2018	L	3.94

Chapel Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			8.59

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F21R-05-BAC** **Herring Creek**

Cause Location: Begins at the confluence with Dorrell Creek and continues downstream until the confluence with the Mattaponi River

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (4 of 24 samples - 16.7%) at DEQ station 8-HER000.33 at Route 600. E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 8-HER005.12 at Route 609.

The Mattaponi River and Tributaries bacteria TMDL for the Herring Creek watershed (Eq ID 2701) was approved by the EPA on 02/04/2022. The SWCB approved the TMDL on 12/14/2021.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_HER01A06 / Herring Creek / Segment begins at the confluence with an unnamed tributary to Herring Creek, at rivermile 2.14, and continues downstream until the confluence with the Mattaponi River.	4A	Escherichia coli (E. coli)	2018	L	2.14
VAN-F21R_HER01B02 / Herring Creek / Segment begins at the confluence with Dorrell Creek and continues downstream until the confluence with an unnamed tributary to Herring Creek, at rivermile 2.14.	4A	Escherichia coli (E. coli)	2016	L	5.09

Herring Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.23

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F21R-07-BAC** **Mattaponi River**

Cause Location: Begins at the confluence with Union Swamp, at rivermile 76.58, and continues downstream until the confluence with Cobbin Creek, at rivermile 67.64.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 13 samples - 15.4%) at DEQ station 8-MPN073.75 at Route 647.

While this impaired segment is not included in a TMDL, it was considered during development of the Mattaponi River Watershed TMDL Implementation Plan for the Reedy Creek watershed (ID 347; approved by the EPA on 04/23/2020).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_MPN02A02 / Mattaponi River / Segment begins at the confluence with Union Swamp, at rivermile 76.58, and continues downstream until the confluence with Cobbin Creek, at rivermile 67.64.	5A	Escherichia coli (E. coli)	2018	L	8.87

Mattaponi River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.87

Sources: Source Unknown

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York River Basin

Cause Group Code: **F21R-08-BAC** **Dorrell Creek**

Cause Location: Begins at the confluence with Little Dorrell Creek and continues downstream to the confluence with Herring Creek.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (2 of 12 samples - 16.7%) at DEQ station 8-DRL000.85 at Route 608.

The Mattaponi River and Tributaries bacteria TMDL for the Dorrell Creek watershed (Eq ID 2679) was approved by the EPA on 02/04/2022. The SWCB approved the TMDL on 12/14/2021.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_DRL01A18 / Dorrell Creek / Segment begins at the confluence with Little Dorrell Creek and continues downstream to the confluence with Herring Creek.	4A	Escherichia coli (E. coli)	2018	L	4.97

Dorrell Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.97

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F21R-09-BAC** **Gravel Run**

Cause Location: Begins at the perennial headwaters of Gravel Run and continues downstream to the confluence with Mattaponi River.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-GVL000.56 at Route 628 (Spring Cottage Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mattaponi River and Tributaries bacteria TMDL for the Gravel Run watershed (Eq ID 2700) was approved by the EPA on 02/04/2022. The SWCB approved the TMDL on 12/14/2021.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_GVL01A18 / Gravel Run / Segment begins at the perennial headwaters of Gravel Run and continues downstream to the confluence with Mattaponi River.	4A	Escherichia coli (E. coli)	2018	L	3.55

Gravel Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.55

Sources: Agriculture; Grazing in Riparian or Shoreline Zones; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F22L-01-HG** **Collins Pond**

Cause Location: Segment includes all of Collins Pond.

Cause City/County: Caroline County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: 2010 Assessment: three exceedances of the water quality criterion based tissue value (TV) of 300 parts per billion (ppb) for mercury were recorded in two species of fish (largemouth bass and yellow bullhead catfish) sampled in 2003 at DEQ station 8-DOC003.63.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22L_DOC01A06 / Collins Pond / Segment includes all of Collins Pond.	5A	Mercury in Fish Tissue	2010	L	63.93

Collins Pond

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	63.93	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F22R-01-BAC** **Maracossic Creek**

Cause Location: Begins at the outlet of Broaddus Pond and continues downstream until the confluence with Jones Run. Begins again at the confluence with Beverly Run and continues downstream until the confluence with the Mattaponi River.

Cause City/County: Caroline County; King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2020 Assessment: E. coli bacteria criterion excursions (8 of 35 samples - 22.9%) at DEQ station 8-MAR003.24 at Route 627. 2020 Assessment: E. coli bacteria criterion excursions (4 of 12 samples - 33.3%) at DEQ station 8-MAR011.09 at Route 721. DEQ station 8-MAR014.20 at Route 641: There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mattaponi River Watershed bacteria TMDL for the Maracossic Creek watershed (Eq ID 1570) was approved by the EPA on 07/19/2016 (Fed ID 66041). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Maracossic Creek Watershed (ID 346) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_MAR01A02 / Maracossic Creek / Segment begins at the confluence with Beverly Run and continues downstream until the confluence with the Mattaponi River.	4A	Escherichia coli (E. coli)	2006	L	4.22
VAN-F22R_MAR03A08 / Maracossic Creek / Segment begins at the confluence with Jones Run and continues downstream until the confluence with Doctors Creek.	4A	Escherichia coli (E. coli)	2020	L	5.14
VAN-F22R_MAR04A08 / Maracossic Creek / Segment begins at the outlet of Broaddus Pond and continues downstream until the confluence with Jones Run.	4A	Escherichia coli (E. coli)	2018	L	6.77

Maracossic Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			16.13

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F22R-02-BAC** **Doctors Creek**

Cause Location: Begins at the confluence with Tanyard Swamp and continues downstream until the confluence with Maracossic Creek.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: DEQ station 8-DOC000.69 at Route 644 (Bagby Rd): There were two or more STV exceedances in at least one 90-day period with <10 samples.

The Mattaponi River Watershed bacteria TMDL for the Doctors Creek watershed (Eq ID 1568) was approved by the EPA on 07/19/2016 (Fed ID 66043). The SWCB approved the TMDL on 6/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Maracossic Creek Watershed (ID 346) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_DOC01A08 / Doctors Creek / Segment begins at the confluence with Tanyard Swamp and continues downstream until the confluence with Maracossic Creek.	4A	Escherichia coli (E. coli)	2014	L	2.33

Doctors Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.33

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: **F22R-02-PH** **Root Swamp**

Cause Location: Begins at the headwaters of Root Swamp and continues downstream until the confluence with Beverly Run.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2018 Assessment: Excursions less than the lower limit of the pH criterion range (3 of 19 samples - 15.8%) at DEQ station 8-ROT001.09 at Route 721 and excursions less than the lower limit of the pH criterion range (5 of 11 samples - 45.5%) at DEQ station 8-ROT003.65 at Route 649.

The pH excursions may be attributable to natural conditions as this segment is in a low-lying coastal plain environment that is subject to low pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_ROT01A06 / Root Swamp / Segment begins at the headwaters of Root Swamp and continues downstream until the confluence with Beverly Run.	5C	pH	2006	L	7.84

Root Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			7.84

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F22R-03-BAC** **Root Swamp**

Cause Location: Begins at the confluence with Cook Swamp and continues downstream until the confluence with Beverly Run.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: 2018 Assessment: E. coli bacteria criterion excursions (4 of 18 samples - 22.2%) at station 8-ROT001.09 at Route 721.

The Mattaponi River Watershed bacteria TMDL for the Root Swamp watershed (Eq ID 1579) was approved by the EPA on 07/19/2016 (Fed ID 66029). The SWCB approved the TMDL on 06/27/2016. The Mattaponi River Watershed TMDL Implementation Plan for the Maracossic Creek Watershed (ID 346) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_ROT01A06 / Root Swamp / Segment begins at the headwaters of Root Swamp and continues downstream until the confluence with Beverly Run.	4A	Escherichia coli (E. coli)	2014	L	7.84

Root Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.84

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

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York River Basin

Cause Group Code: F22R-03-DO Unnamed tributary to Root Swamp

Cause Location: Begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: 2008 Assessment: Excursions less than the minimum dissolved oxygen criterion (2 of 6 samples - 33.3%) at DEQ station 8-XDY000.27 at Route 689.

The DO excursions may be attributable to natural conditions as this segment is in a low-lying coastal plain environment that is subject to low DO.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_XDY01A06 / Unnamed tributary to Root Swamp / Segment begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.	5C	Dissolved Oxygen	2006	L	0.71

Unnamed tributary to Root Swamp

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.71

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F22R-03-PH** **Unnamed tributary to Root Swamp**

Cause Location: Begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: 2008 Assessment: Excursions less than the lower limit of the pH criterion range (6 of 6 samples - 100%) at DEQ station 8-XDY000.27 at Route 689.

The pH excursions may be attributable to natural conditions as this segment is in a low-lying coastal plain environment that is subject to low pH.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_XDY01A06 / Unnamed tributary to Root Swamp / Segment begins at the headwaters of an unnamed tributary to Root Swamp and continues downstream until the confluence with Root Swamp.	5C	pH	2006	L	0.71

Unnamed tributary to Root Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			0.71

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F22R-04-BAC** **Beverly Run**

Cause Location: Begins at the confluence with Mason Swamp and continues downstream until the confluence with King and Queen Swamp.

Cause City/County: Caroline County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: E. coli bacteria criterion excursions (3 of 12 samples - 25.0%) at DEQ station 8-BEV006.78 at Route 630.

A new TMDL is not required for this impaired segment of Beverly Run because the downstream Mattaponi River Watershed bacteria TMDL (Fed ID 66041, 07/19/2016) included modeling, source identification, and reductions that covered the entire Maracossic Creek watershed (Eq ID 1570). The Mattaponi River Watershed TMDL Implementation Plan for the Maracossic Creek Watershed (ID 346) was approved by the EPA on 04/23/2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_BEV01B00 / Beverly Run / Segment begins at the confluence with Mason Swamp and continues downstream until the confluence with King and Queen Swamp.	4A	Escherichia coli (E. coli)	2016	L	3.07

Beverly Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.07

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F22R-04-PH** **Beverly Run**

Cause Location: Begins at the confluence with Shady Grove Run and continues downstream until the confluence with Mason Swamp.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (6 of 10 samples - 60.0%) at DEQ station 8-BEV008.47 at Route 665.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_BEV02A08 / Beverly Run / Segment begins at the outlet of White Lake and continues downstream until the confluence with Mason Swamp.	5C	pH	2008	L	2.58

Beverly Run

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.58

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F22R-05-PH** **Doctors Creek**

Cause Location: Begins at the confluence with Tanyard Swamp and continues downstream until the confluence with Maracossic Creek.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (3 of 17 samples - 17.6%) at DEQ station 8-DOC000.69 at Route 644.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_DOC01A08 / Doctors Creek / Segment begins at the confluence with Tanyard Swamp and continues downstream until the confluence with Maracossic Creek.	5C	pH	2008	L	2.33

Doctors Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			2.33

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F22R-06-PH** **Maracossic Creek**

Cause Location: Begins at the outlet of Broaddus Pond and continues downstream until the confluence with Jones Run.

Cause City/County: Caroline County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Excursions less than the lower limit of the pH criterion range (3 of 12 samples - 25.0%) at DEQ station 8-MAR014.20 at Route 641. Excursions less than the lower limit of the pH criterion range (7 of 10 samples - 70.0%) at DEQ station 8-MAR018.48 at Route 619.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F22R_MAR04A08 / Maracossic Creek / Segment begins at the outlet of Broaddus Pond and continues downstream until the confluence with Jones Run.	5C	pH	2018	L	6.77

Maracossic Creek

Aquatic Life	pH - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 6.77
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Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F23E-02-BAC** **Mattaponi River**

Cause Location: The mainstem Mattaponi River from Ayletts Creek to the confluence with Garnetts Creek.

Cause City/County: King And Queen County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, the Mattaponi River from Ayletts Creek to Garnetts Creek was assessed as impaired of the Recreation Use due to an E. coli exceedance rate of 2/9 at 8-MPN034.33 (pier at Rosepont.)

Continued monitoring was recommended due to an acceptable exceedance rate at 8-MPN029.08 (Rt. 629 bridge near Walkerton.)

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23E_MPN03A06 / Mattaponi River / Aylett Creek to Garnetts Creek. MPNTF	4A	Escherichia coli (E. coli)	2016	L	1.756

Mattaponi River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:	1.756		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23E-03-BAC** **Mattaponi River**

Cause Location: The mainstem Mattaponi River from the limit of tide to the confluence with Aylett Creek.

Cause City/County: King And Queen County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, the Mattaponi River from the tidal limit to Aylett Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 5/33 at 8-MPN039.10.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due a geometric mean exceedance.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was not specifically addressed; however, the segment is located within the study watershed for the tidal Mattaponi River impairment. It is proposed for nesting (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23E_MPN02A98 / Mattaponi River / From the limit of tide above the Route 360 bridge to Aylett Creek. MPNTF	4A	Escherichia coli (E. coli)	2020	L	0.159

Mattaponi River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	0.159		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F23R-01-BAC** **Garnetts Creek**

Cause Location: The mainstem of Garnetts Creek from the confluence with Dickeys Swamp to the tidal limit.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, Garnetts Creek from the confluence with Dickeys Swamp downstream to the tidal limit was assessed as impaired of the Recreation Use due to E. coli violations at the Route 633 bridge (8-GNT001.54).

The exceedance rate was 6/23 during the 2014 cycle and 3/12 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_GNT01A00 / Garnetts Creek / Dickeys Swamp to tidal limit	4A	Escherichia coli (E. coli)	2010	L	2.84

Garnetts Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.84

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23R-03-DO** **Walkerton Branch**

Cause Location: Watershed upstream of Walkerton Millpond

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Walkerton Branch was initially assessed as not supporting of the Aquatic Life Use for dissolved oxygen in 2006 based on exceedances at Route 636 (8-WKN003.16).

Additional monitoring was conducted during the 2014 cycle. The segment remained impaired for dissolved oxygen with an exceedance rates of 3/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_WKN01A00 / Walkerton Branch / Watershed above Walkerton Millpond.	5C	Dissolved Oxygen	2006	L	4.63

Walkerton Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			4.63

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23R-03-PH** **Walkerton Branch**

Cause Location: Watershed upstream of Walkerton Millpond

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: pH/5C

Cause Description: Walkerton Branch was initially assessed as not supporting of the Aquatic Life Use goal in 2004 based on pH exceedances at Route 636 (8-WKN003.16).

Additional monitoring was conducted during the 2014 cycle. The segment remained impaired for pH with an exceedance rate of 4/11.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_WKN01A00 / Walkerton Branch / Watershed above Walkerton Millpond.	5C	pH	2004	L	4.63

Walkerton Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			4.63

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23R-04-BAC** Aylett Creek

Cause Location: The mainstem of Aylett Creek.

Cause City/County: King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, Aylett Creek was impaired of the Recreation Use due to an E. coli violation rate of 3/11 at 8-AYL002.27, which is located at the Route 600 bridge.

The exceedance rate was 6/12 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data was collected. However, re-analysis of the 2020 data confirms the impairment due to two or more STV exceedances in the same 90-day period with <10 samples.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_AYL01A12 / Aylett Creek / Headwaters to mouth at Mattaponi River	4A	Escherichia coli (E. coli)	2012	L	6.84

Aylett Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.84

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23R-05-BEN** **Fleets Creek**

Cause Location: Fleets Creek from its headwaters to its mouth.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: During the 2018 cycle, Fleets Creek was assessed as impaired of the Aquatic Life Use due to benthic alteration during sampling in 2015 at 8-FTS001.98.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_FTS01A10 / Fleets Creek / Headwaters to mouth at Dickey's Swamp	5A	Benthic Macroinvertebrates Bioassessments	2018	L	5.01

Fleets Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.01

Sources: Source Unknown

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York River Basin

Cause Group Code: **F23R-06-PCB** **Mattaponi River**

Cause Location: The Mattaponi River from the Route 628 bridge downstream to the mouth at West Point.

Cause City/County: King And Queen County; King William County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: During the 1998 cycle, the Mattaponi River from Herring Creek to the tidal limit was considered fully supporting but threatened of the Fish Consumption Use due to exceedance of a PCB screening value in white perch in 1996.

During the 2006 cycle, 2003 monitoring at 8-MPN041.41 indicated exceedances of the fish tissue level for PCBs in two species. In addition, the VDH issued a fish consumption advisory on 12/13/2004 for PCBs from Herring Creek to Aylett Creek which recommends that adults eat no more than two meals/month of anadromous striped bass, white perch, and gizzard shad. The TMDL is due in 2018.

The advisory was revised on 10/7/2009. The advisory now extends from Route 628 downstream approximately 55 miles to the mouth of the Mattaponi at West Point. No more than two meals/month of anadromous (coastal) striped bass, white perch, and gizzard shad are recommended due to PCBs.

The advisory is based on the results of DEQ's fish tissue monitoring program, which has indicated PCB exceedances at 8-MPN029.08, 8-MPN014.33 and 8-MPN041.41. .

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAN-F21R_MPN01A06 / Mattaponi River / Segment begins at the confluence with Gravel Run and continues downstream until the confluence with Herring Creek.	5A	PCBs in Fish Tissue	2010	L	6.070
VAN-F21R_MPN01B02 / Mattaponi River / Segment begins at the Route 628 crossing and continues downstream until the confluence with Gravel Run.	5A	PCBs in Fish Tissue	2010	L	4.910
VAP-F23E_MPN02A98 / Mattaponi River / From the limit of tide above the Route 360 bridge to Aylett Creek. MPNTF	5A	PCBs in Fish Tissue	2006	L	0.159
VAP-F23E_MPN03A06 / Mattaponi River / Aylett Creek to Garnetts Creek. MPNTF	5A	PCBs in Fish Tissue	2010	L	1.756
VAP-F23R_MPN01A00 / Mattaponi River / From the watershed boundary (Herring Creek) to the limit of tide near the Route 360 bridge.	5A	PCBs in Fish Tissue	2006	L	4.720
VAP-F24E_MPN03A98 / Mattaponi River / Garnetts Creek to tidal freshwater/oligohaline boundary at approximately river mile 18 MPNTF	5A	PCBs in Fish Tissue	2010	L	1.384
VAP-F24E_MPN03B02 / Mattaponi River / Tidal freshwater/oligohaline boundary to Melrose Landing at Route 602 MPNOH	5A	PCBs in Fish Tissue	2010	L	0.423

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24E_MPN03C06 / Mattaponi River / Melrose Landing (Route 602) to Heartquake Creek. MPNOH	5A	PCBs in Fish Tissue	2010	L	0.717
VAP-F25E_MPN05A00 / Mattaponi River / Mattaponi River from Heartquake Creek to the downstream boundary of VDH-DSS 049-004F, 7/15/2020 MPNOH	5A	PCBs in Fish Tissue	2010	L	1.292
VAP-F25E_MPN05B06 / Mattaponi River / From the upstream boundary of VDH-SFC 049-004B, 7/15/2020 downstream to the oligohaline/York mesohaline boundary. MPNOH	5A	PCBs in Fish Tissue	2010	L	0.384
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMH	5A	PCBs in Fish Tissue	2010	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMH	5A	PCBs in Fish Tissue	2010	L	0.641

Mattaponi River

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	6.965		15.7

Sources: Atmospheric Deposition - Toxics; Source Unknown

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York River Basin

Cause Group Code: F23R-08-BAC Dickey's Swamp

Cause Location: Dickey's Swamp from the confluence with Dogwoods Fork downstream to the Route 620 bridge.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Dickey's Swamp from Dogwoods Fork downstream to the Route 620 bridge was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at station 8-DKW004.31. Monitoring at station 8-DKW001.12 was acceptable (0/12).

In the 2020 cycle, the segment remained impaired (3/12).

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_DKW01B00 / Dickey's Swamp / Dogwoods Fork to Route 620	4A	Escherichia coli (E. coli)	2014	L	4.34

Dickey's Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.34

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F23R-09-BAC** **Market Swamp**

Cause Location: Market Swamp from the Walker Coleman Pond dam downstream to its mouth.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Market Swamp below Walker Coleman Pond was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at station 8-MKT001.04, which is located at the Route 14 bridge.

Note: monitoring at station 8-MKT001.96 was acceptable (0/12).

The exceedance rate was 4/12 at 8-MKT001.04 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_MKT01B00 / Market Swamp / Walker Coleman Pond to mouth at Dickeys Swamp.	4A	Escherichia coli (E. coli)	2014	L	2.01

Market Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.01

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F23R-10-BAC XJG - Dickeys Swamp, UT

Cause Location: Tributary XJG in its entirety.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Dickeys Swamp UT XJG was considered impaired of the Recreation Use due to an E. coli exceedance rate of 5/12 at 8-XJG000.08.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_XJG01A14 / XJG - Dickeys Swamp, UT / Headwaters to mouth	4A	Escherichia coli (E. coli)	2014	L	2

XJG - Dickeys Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F23R-11-BAC Dogwood Fork**

Cause Location: Dogwood Fork from its headwaters to its mouth at Dickey's Swamp

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2014 cycle, Dogwood Fork was impaired of the Recreation Use due to an E. coli exceedance rate of 4/12 at station 8-DWD000.77, which is located at the Route 621 bridge.

The exceedance rate was 3/12 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_DWD01A00 / Dogwood Fork / From its headwaters to its mouth at Dickey's Swamp.	4A	Escherichia coli (E. coli)	2014	L	2.92

Dogwood Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.92

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F23R-12-BAC** XDN - Garnetts Creek, UT

Cause Location: Headwaters to mouth at Garnetts Creek

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Based on monitoring during the 2014 cycle, tributary XDN was impaired of the Recreation Use due to an E. coli exceedance rate of 2/11 at 8-XDN000.12, which is located at the Route 620 bridge.

Unfortunately, the impairment was inadvertently left off in the 2014 cycle. Although XDN was first listed in the 2016 cycle, the TMDL due date is 2026 to reflect the initial monitoring.

The exceedance rate was 5/9 during the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the 2020 cycle data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_XDN01A00 / XDN - Garnetts Creek, UT / Headwaters to mouth at Garnetts Creek.	4A	Escherichia coli (E. coli)	2016	L	2.54

XDN - Garnetts Creek, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.54

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F23R-13-BAC** **Dickeys Swamp**

Cause Location: Dickeys Swamp from its headwaters downstream to the confluence with Dogwood Fork.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Dickeys Swamp from its headwaters to the confluence with Dogwood Fork was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 8-DKW005.73.

New bacteria criteria were implemented in the 2022 cycle. No new data were collected, but re-analysis of the 2020 cycle data confirms that the segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was not specifically addressed; however, the segment is located within the study watershed for the downstream Dickeys Swamp impairment. It is proposed for nesting (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_DKW01A00 / Dickeys Swamp / Headwaters to Dogwood Fork.	4A	Escherichia coli (E. coli)	2020	L	3.99

Dickeys Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.99

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F23R-14-BAC** **Dickeys Swamp**

Cause Location: Dickeys Swamp from Route 620 downstream to its mouth at Garnetts Creek.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2020 cycle, Dickeys Swamp from Route 620 to its mouth at Garnetts Creek was impaired of the Recreation Use due to an E. coli exceedance rate of 4/23 at 8-DKW000.12.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was not specifically addressed; however, the segment is located within the study watershed for the Dickeys Swamp impairment. It is proposed for nesting (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_DKW01C98 / Dickeys Swamp / Route 620 to mouth at Garnetts Creek	4A	Escherichia coli (E. coli)	2020	L	0.08

Dickeys Swamp

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.08

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F23R-15-BAC** **Mattaponi River**

Cause Location: From Herring Creek downstream to the limit of tide near the Route 360 bridge

Cause City/County: King And Queen County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2022 cycle, the Mattaponi River from Herring Creek downstream to the limit of tide was impaired of the Recreation Use due to an E. coli geometric mean exceedance at station 8-MPN043.76.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was not specifically addressed; however, the segment is located within the study watershed for the tidal Mattaponi River impairment. It is proposed for nesting (Category 4A.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23R_MPN01A00 / Mattaponi River / From the watershed boundary (Herring Creek) to the limit of tide near the Route 360 bridge.	4A	Escherichia coli (E. coli)	2022	L	4.72

Mattaponi River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.72

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F23R-16-DO** Mill Creek

Cause Location: Custis Pond to mouth at tidal limit.

Cause City/County: King William County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: In the 2022 cycle, lower Mill Creek was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/10 at 8-MIL001.19, which is located at Route 625.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24R_MIL01A00 / Mill Creek / Custis Pond to mouth at tidal limit.	5C	Dissolved Oxygen	2022	L	0.41

Mill Creek

Aquatic Life

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Dissolved Oxygen - Total Impaired Size by Water Type: 0.41

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: F24E-02-BAC Mattaponi River

Cause Location: The Mattaponi River from Garnetts Creek to the tidal freshwater/oligohaline boundary at approximately river mile 18

Cause City/County: King And Queen County; King William County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2018 cycle, the Mattaponi River from Garnetts Creek to the tidal freshwater/oligohaline boundary was impaired of the Recreation Use due to an E. coli exceedance rate of 4/35 at 8-MPN017.46.

The exceedance rate was 4/34 in the 2020 cycle.

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24E_MPN03A98 / Mattaponi River / Garnetts Creek to tidal freshwater/oligohaline boundary at approximately river mile 18 MPNTF	4A	Escherichia coli (E. coli)	2018	L	1.384

Mattaponi River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:	1.384		

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F24R-01-BAC** **Heartquake Creek**

Cause Location: Heartquake Creek from the confluence with the UT at approx. rivermile 4.67 downstream to the tidal limit.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2012 cycle, the segment was impaired of the Recreation Use due to an E. coli exceedance rate of 2/12 at the Route 14 bridge (8-HTQ003.77).

The stream is located within the study area for the Upper York Shellfish TMDL, which was approved by the EPA on 7/28/2010; therefore, the impairment is considered nested (Category 4A).

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24R_HTQ01A00 / Heartquake Creek / From the confluence with the UT at approx. rivermile 4.67 downstream to the tidal limit.	4A	Escherichia coli (E. coli)	2012	L	2.27

Heartquake Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.27

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F24R-03-BAC** Courthouse Creek

Cause Location: Courthouse Creek from King and Queen Courthouse Pond to the tidal limit

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2016 cycle, Courthouse Creek downstream of King and Queen Courthouse Pond was impaired of the Recreation Use due to an E. coli exceedance rate of 3/12 at 8-CTH001.96, which is located at the Route 14 bridge.

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

The Mattaponi River and Tributaries Bacteria TMDL was approved by the SWCB on 12/14/2021 and by the EPA on 2/4/2022. The impairment was addressed in the TMDL and is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24R_CTH01A00 / Courthouse Creek / From King and Queen Courthouse Pond downstream to the tidal limit.	4A	Escherichia coli (E. coli)	2016	L	0.72

Courthouse Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.72

Sources: Agriculture; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: **F24R-03-DO** **Courthouse Creek**

Cause Location: Courthouse Creek from King and Queen Courthouse Pond to the tidal limit

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5A

Cause Description: During the 2014 cycle, Courthouse Creek downstream of King and Queen Courthouse Pond was impaired of the Aquatic Life Use due to dissolved oxygen exceedances at 8-CTH001.96, which is located at the Route 14 bridge.

The exceedance rate was 4/24 during the 2016 cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24R_CTH01A00 / Courthouse Creek / From King and Queen Courthouse Pond downstream to the tidal limit.	5A	Dissolved Oxygen	2014	L	0.72

Courthouse Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			0.72

Sources: Dam or Impoundment; Natural Conditions - Water Quality Standards Use Attainability Analyses Needed; Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

York River Basin

Cause Group Code: F25E-01-BAC Mattaponi River

Cause Location: The Mattaponi River from Heartquake Creek downstream to its mouth.

Cause City/County: King And Queen County; King William County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The Mattaponi from Heartquake Creek downstream to its mouth was assessed as not supporting the Recreation Use based on enterococci exceedances at 8-MPN004.39 during the 2006 cycle.

The TMDL was approved by the EPA on 7/28/2010; therefore, the segment is Category 4A.

During the 2020 cycle, enterococci exceedance rates were 20/69 at 8-MPN004.39 and 5/12 at 8-MPN006.23. The exceedance rate at 8-MPN000.98 was acceptable (0/10).

New bacteria criteria were implemented in the 2022 cycle. The segment remains impaired due to two or more STV exceedances in the same 90-day period with <10 samples at 8-MPN004.39; no additional data has been collected at 8-MPN006.23.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25E_MPN05A00 / Mattaponi River / Mattaponi River from Heartquake Creek to the downstream boundary of VDH-DSS 049-004F, 7/15/2020 MPNOH	4A	Enterococcus	2006	L	1.292
VAP-F25E_MPN05B06 / Mattaponi River / From the upstream boundary of VDH-SFC 049-004B, 7/15/2020 downstream to the oligohaline/York mesohaline boundary. MPNOH	4A	Enterococcus	2006	L	0.384
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMH	4A	Enterococcus	2006	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMH	4A	Enterococcus	2006	L	0.641

Mattaponi River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	2.525		

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F25R-01-BAC Tastine Swamp and Little Tastine Swamp

Cause Location: From the headwaters of Little Tastine Swamp down Tastine Swamp to Corbins Pond.

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Tastine Swamp from the Route 611 bridge downstream to Corbins Pond was initially assessed in 1998 as fully supporting but threatened of the Recreation use goal.

During the year 2002 cycle the segment was downgraded and extended to incorporate Little Tastine Swamp.

In the 2004 cycle, the segment continued to be impaired based on fecal coliform exceedances at 8-TST001.81 (Route 611 bridge).

E. coli monitoring was conducted during the 2010 cycle. Although the exceedance rate was acceptable at the original listing station (1/12 at 8-TST001.81), impairment was noted at two new stations (3/12 at 8-LTS001.65 and 2/12 at 8-TST001.35). The impairment converted to E. coli but the original TMDL due date was maintained.

The stream is located within the study area for the tidal Lower Mattaponi River Bacterial TMDL, which was approved by the EPA on 7/28/2010. Implementation of the enterococci TMDL is expected to bring the riverine E. coli impairment into compliance; therefore, the impairment was considered nested (Category 4A) in the 2012 cycle.

New bacteria criteria were implemented in the 2022 cycle. There is insufficient information to assess the criteria; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25R_TST01A98 / Tastine Swamp, Little Tastine Swamp / From the headwaters of Little Tastine Swamp down Tastine Swamp to Corbin Pond	4A	Escherichia coli (E. coli)	2010	L	6.26

Tastine Swamp and Little Tastine Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.26

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F25R-01-DO** **Tastine Swamp and Little Tastine Swamp**

Cause Location: From the headwaters of Little Tastine Swamp down Tastine Swamp to Corbins Pond.

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: During the 2016 cycle, the segment was impaired of the Aquatic Life Use due to a dissolved oxygen exceedance rate of 2/12 at 8-TST001.81 (Rt. 611 bridge.)

There has been no additional monitoring at 8-TST001.81. However, additional monitoring was conducted in the 2022 cycle at 8-LTS001.65 (4/10 - impaired) and 8-TST001.35 (0/11 - fully supporting.)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25R_TST01A98 / Tastine Swamp, Little Tastine Swamp / From the headwaters of Little Tastine Swamp down Tastine Swamp to Corbin Pond	5C	Dissolved Oxygen	2016	L	6.26

Tastine Swamp and Little Tastine Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			6.26

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F25R-02-DO** **Tastine Swamp**

Cause Location: From the headwaters of Tastine Swamp downstream to the confluence with Little Tastine Swamp

Cause City/County: King And Queen County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/5C

Cause Description: Tastine Swamp from its headwaters down to the confluence with Little Tastine Swamp was assessed as not supporting of the Aquatic Life Use in the 2010 cycle due to a dissolved oxygen exceedance rate of 2/12 at station 8-TST003.16.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25R_TST01B10 / Tastine Swamp / Headwaters to confluence with Little Tastine Swamp	5C	Dissolved Oxygen	2010	L	2.16

Tastine Swamp

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			2.16

Sources: Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

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York River Basin

Cause Group Code: **F25R-03-BAC** XIN - Tastine Swamp, UT

Cause Location: From the headwaters downstream to the mouth at Tastine Swamp

Cause City/County: King And Queen County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: During the 2010 cycle, the tributary was assessed as not supporting of the Recreation Use due to an E. coli violation rate of 3/12 at station 8-XIN001.00.

The stream is located within the study area for the tidal Lower Mattaponi River Bacterial TMDL, which was approved by the EPA on 7/28/2010 and by the SWCB on 12/13/2010. Implementation of the enterococci TMDL is expected to bring the riverine E. coli impairment into compliance; therefore, the impairment was considered nested during the 2012 cycle (Category 4A.)

New bacteria criteria were implemented in the 2022 cycle. No additional data have been collected; therefore, the impairment is carried over.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25R_XIN01A10 / XIN - Tastine Swamp, UT / Headwaters to mouth at Tastine Swamp	4A	Escherichia coli (E. coli)	2010	L	2.41

XIN - Tastine Swamp, UT

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.41

Sources: Agriculture; Municipal Point Source Discharges; Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F26E-01-PCB** **York River, Queens Creek, Kings Creek, Wormley**

Cause Location: This cause encompasses the area from the confluence of the Mattaponi and Pamunkey Rivers down to the mouth of the York River including King, Queens and Wormley Creek

Cause City/County: Gloucester County; James City County; King And Queen County; King William County; New Kent County; Williamsburg; York County

Use(s): Fish Consumption

Causes(s)/VA Category: PCBs in Fish Tissue/5A

Cause Description: The segment is included under a 12/13/2004 VDH Fish Consumption Advisory due to polychlorinated biphenyls (PCBs) in fish tissue. The advisory recommends that adults eat no more than two meals/month of croaker, gizzard shad, and spot. High risk individual

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_QEN01A02 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of tidal waters (below dam at Waller Mill Res.) downstream to end of DSS shellfish condemnation # 051-035 A, 8/14/2018. CBP segment YRKMH. Split in 2012 cycle.	5A	PCBs in Fish Tissue	2006	L	0.296
VAT-F26E_QEN01B12 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of DSS shellfish condemnation # 051-035 (20180814). downstream to mouth. CBP segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	0.136
VAT-F26E_YRK01A04 / York River / York River at Goalders Creek downstream to the boundary of DSS OPEN condemnation # 049-004 (effective 20200715). CBP segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	3.962
VAT-F26E_YRK01B10 / York River / Start of York River at West Point (RM 32.0) downstream to the boundary of ADMIN COND # 049-004 A (effective 7/15/2020), approx. Goff Point . CBP segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	1.086
VAT-F26E_YRK01C12 / York River-at Hockley Cr / York River segment at mouth of Hockley Cr within VDH DSS Condemnation 049-004 C, 7/15/2020. CB Seg - YRKMH.	5A	PCBs in Fish Tissue	2006	L	0.029
VAT-F26E_YRK01D12 / York River / Portion of York River within VDH Seasonal Cond 0049-004 effective date 20200715 YRKMH	5A	PCBs in Fish Tissue	2006	L	0.042
VAT-F26E_YRK01E14 / York River / York River from Goff Point (end of Admin Cond) to the Conditional Approval condemnation. VDH new Restricted Condemnation 049-004 A 7/15/2020 . CBP segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	0.457

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_YRK02A14 / York River (Lower Middle MSN) / Segment starts south of New Kent and James City Boundary and extends downstream to the MSN boundary near Mt. Folly/Poropotank Bay. CBP segment YRKMH. No DSS shellfish direct harvesting condemnation present.	5A	PCBs in Fish Tissue	2006	L	2.680
VAT-F26E_YRK02E20 / York River (lower middle) / York River from Goff Point (end of Restricted-Condemnation) to Goalders Creek. VDH new Conditionally Approved condemnation 20200715. CBP segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	2.125
VAT-F26E_YRK03A00 / York River (Lower Middle) / Segment starts at end of MSN boundary near Mt. Folly/Poropotank Bay and extends downstream to the mesohaline/polyhaline boundary. CBP segment YRKMH. Open DSS shellfish direct harvesting condemnation present (effective date 20200715)	5A	PCBs in Fish Tissue	2006	L	20.372
VAT-F26E_YRK03B12 / York River (Lower Middle) / Portion of York River at Carter Creek north of Camp Peary. Within VDH-DSS Open condemnation-type #049-004 , 20200715. CB segment YRKMH.	5A	PCBs in Fish Tissue	2006	L	0.023
VAT-F27E_KNG01A02 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to end of DSS condemnation # 051-035C, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	5A	PCBs in Fish Tissue	2006	L	0.128
VAT-F27E_KNG02A02 / King Creek - Mouth / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From boundary of (OPEN) condemnation # 051-035 (8/14/2018) to mouth. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2002	L	0.220
VAT-F27E_KNG03A20 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to halfway through DSS Open condemnation-type # 051-035, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	5A	PCBs in Fish Tissue	2006	L	0.072
VAT-F27E_WOR01A08 / Wormley Creek / South shore York River near Amoco facility southeast of Gloucester Point. CBP segment YRKPH. Upstream portion of DSS (ADMINISTRATIVE) condemnation # 052-006 A (effective 2018-05-03).	5A	PCBs in Fish Tissue	2002	L	0.283

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_YRK01A00 / York River - Lower Middle / The polyhaline boundary downstream to line from Roosevelt Pond N to Mumfort Islands at RM 7.49, excluding otherwise segmented DSS shellfish condemnation areas. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715). YRKPH	5A	PCBs in Fish Tissue	2006	L	10.393
VAT-F27E_YRK01B00 / York R - DSS AdminCond @ Cheatham Annex/Camp Peary / Segment adjacent to Cheatham Annex, VDH-DSS condemnation 051-035 B (effective 8/14/2018) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2006	L	0.260
VAT-F27E_YRK01C00 / York R - DSS AdminCond @ Naval Weapons Station / Segment adjacent to Yorktown Naval Weapons Sta., VDH-DSS condemnation 051-040 B (effective 20080618) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2006	L	0.236
VAT-F27E_YRK01D06 / York River - Yorktown Beach / Yorktown Beach VDH bathing area. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #052-006 (effective date 20180503).	5A	PCBs in Fish Tissue	2006	L	0.024
VAT-F27E_YRK01E06 / York River - Gloucester Point Beach / Gloucester Point Beach VDH bathing area. CBP segment YRKPH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 046-052 (effective 20200915).	5A	PCBs in Fish Tissue	2006	L	0.018
VAT-F27E_YRK02A00 / York River - Lower / Segment starts at line across river from Roosevelt Pond to Mumfort Islands (RM 7.49), downstream to mouth (RM 0.0) near Thoroughfare Creek. CBP segment YRKPH. No DSS shellfish condemnation.	5A	PCBs in Fish Tissue	2006	L	11.657
VAT-F27E_YRK02B00 / York R - DSS AdminCond @ HRSD York STP/Amoco / Described in VDH-DSS (ADMINISTRATIVE) shellfish condemnation 052-006 B&C (effective 20180503) adjacent Wormley Cr., HRSD STP & power plant and refinery. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2006	L	0.508
VAT-F27E_YRK02C00 / York River - DSS AdminCond @ Wormley to USCG / Segment on Yorktown side (south shore) of river. DSS (ADMINISTRATIVE) shellfish condemnation # 052-006 A (effective 2018-05-03) (portion in York R), from Wormley Cr. to USCG Station, S shore to mid-channel. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2006	L	2.698

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_YRK02D12 / York River - Lower / Portion of York River within VDH-DSS seasonal condemnation 046-052M1, effective date 20200915. CBP segment YRKPH.	5A	PCBs in Fish Tissue	2006	L	0.139

York River, Queens Creek, Kings Creek, Wormley

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:	57.844		

Sources: Source Unknown

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York River Basin

Cause Group Code: F26E-03-BAC Queens Creek

Cause Location: This cause encompasses the entirety of Queens Creek to the end of VDH shellfish condemnation 051-035 on the southern shore of the York River.

Cause City/County: Williamsburg; York County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: Queens Creek was initially assessed as impaired for the Recreation Use in the 2002 cycle and remains impaired into the 2022 IR cycle.

Recreation Use is impaired based on enterococci data from station 8-QEN002.47 with 6 exc/ 33 samp due to 2 or more STV hits in the same 90-day period with < 10 samples.

The Recreation Use impairment is located within the study area for the Shellfish TMDL completed April 17, 2008; therefore it will be considered nested in 2012 (Outside of 2022 IR cycle).

NESTED: 34372, 4/17/2008 2006 00328 / 2008 F26E-03-BAC

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_QEN01A02 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of tidal waters (below dam at Waller Mill Res.) downstream to end of DSS shellfish condemnation # 051-035 A, 8/14/2018. CBP segment YRKMH. Split in 2012 cycle.	4A	Enterococcus	2002	L	0.296
VAT-F26E_QEN01B12 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of DSS shellfish condemnation # 051-035 (20180814). downstream to mouth. CBP segment YRKMH.	4A	Enterococcus	2002	L	0.136

Queens Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Enterococcus - Total Impaired Size by Water Type:	0.432		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: **F26E-06-SF** **Fox Creek**

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Condemnation #047-072A,8/15/2018.

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/5B

Cause Description: The Shellfishing Use is impaired based on the VDH-DSS condemnation 047-072A (20180815).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_FOX01A06 / Fox Creek / North shore trib to York River. Located southeast of Allmondsville in Gloucester Co. From estuarine/riverine transition to mouth. CBP segment YRKMH. DSS condemnation # 047-072A (effective 20180815).	5B	Fecal Coliform	2006	L	0.016

Fox Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.016		

Sources: Source Unknown

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York River Basin

Cause Group Code: **F26E-10-SF** Carter Creek

Cause Location: Described in VDH Notice and Description of Shellfish Direct Harvesting Condemnation # 050-087B, 8/15/2020.

Cause City/County: York County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/5B

Cause Description: Shellfishing Use is not supporting due to a VDH-DSS Restricted Condemnation #050-087B, effective 20200815 Carter Creek has been impaired since the 2004 cycle due to a VDH condemnation. During the 2012 cycle, the condemnation extends into a portion of the York River.

2006 70004 / 2008 F26E-10-SF

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_CTC01A06 / Carter Creek / Located in York County near Skimino. From estuarine/riverine transition to mouth. CBP segment YRKM. Portion of DSS Restricted condemnation # 050-087B, 20200815.	5B	Fecal Coliform	2004	L	0.025

Carter Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.025		

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: F26E-12-SF Adams Creek-Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 048-128 B (effective 07/15/2020).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired based on the VDH-DSS condemnation 048-128B, 7/15/2020. A portion of Adams Creek was listed on the 1998 303(d) list due to VDH condemnation 198B. The condemnation expanded and, during the 2010 cycle, the condemnation extended to the mouth of the creek (#048-128B, 7/6/2005). The TMDL was approved by the EPA on 6/9/2009 for most of the Creek (from upstream end of tidal waters to downstream last Unnamed Trib). During the 2014 cycle, the condemnation shrank. The open area within the TMDL study area will be partially delisted (Category 2C) and added to AU VAT-F26E_ADM01B12, the condemned area will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_ADM01A00 / Adams Creek-Upper / Eastern shore of York River near Purtan Island. CBP segment YRKMH. DSS shellfish restricted condemnation and Conditionally Approved # 048-128B (effective 07/15/2020).	4A	Fecal Coliform	1998	L	0.116

Adams Creek-Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.116		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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Appendix 4 - Fact Sheets for
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York River Basin

Cause Group Code: F26E-14-SF Poropotank River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 048-128A, 7/15/2020.

Cause City/County: Gloucester County; King And Queen County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the VDH-DSS condemnation 048-128A, 7/15/2020. A portion of Poropotank Creek was listed on the 1998 303(d) list due to VDH condemnation 198A. The condemnation expanded and during the 2010 cycle, the condemnation extended to the mouth of the creek (#048-128A, 7/6/2005) (see 2010 fact sheet F26E-28-SF). However, the TMDL addressed the 1998 impaired area only. The TMDL was approved by the EPA on 6/9/2009. During the 2012 cycle, the condemnation shrank and is now smaller than the 1998 impairment. The downstream area will be partially delisted (Category 2A), the open area within the TMDL study area will be partially delisted (Category 2C), the condemned area is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_PTK01A00 / Poropotank River / North shore of York River near Purtan Island. Forms boundary of King and Queen/Gloucester Co. From end of tidal waters downstream to end of DSS condemnation # 048-128A, 7/15/2020. CBP segment YRKMH.	4A	Fecal Coliform	1998	L	0.451

Poropotank River

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.451		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-15-SF Aberdeen Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 047-078 A (7/15/2020).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired for a portion of Aberdeen Creek has been impaired since the 1998 cycle due to VDH shellfish condemnation 4/7/1997. The condemnation had expanded and was included under 047-078A, 7/8/2010. However, the TMDL “York River: Gloucester Point to Jones Creek”, which was approved by the EPA on 7/30/2007, only addressed the 1998 portion. The original condemned area will be considered Category 4A. In 2014, the downstream expansion (F26E-02-SF) will be Nested and now included with this CGC and AU. New nesting rules for 2014 allow nesting within the tidal range as long as newly impaired segments are comparable and all existing sources are accounted for in the TMDL. NESTED 2014: 33102 , 7/30/2007 from VAT-F26E_ABD02A12 from 2012.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_ABD01A00 / Aberdeen Creek - Upper / Southeast of Clay Bank, south of Rt. 631. From the end of tidal waters downstream to the end of Shellfish Restricted area. Portion of CBP segment YRKMH. Portion of DSS shellfish direct harvesting condemnation # 047-078 A (effective 7/15/2020).	4A	Fecal Coliform	1998	L	0.094

Aberdeen Creek - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.094		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-16-SF Queens Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 051-035 A, 8/14/2018.

Cause City/County: Williamsburg; York County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired for Queens Creek. Queens Creek was impaired of the Shellfish Use in the 1998 cycle. The TMDL was developed to address the impairment and was approved by the EPA on 4/17/2008. However, the condemnation has subsequently shortened and is currently addressed in VDH condemnation #051-035A, 8/14/2018. The open downstream area was partially delisted (Category 2C); the condemned area remains Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_QEN01A02 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of tidal waters (below dam at Waller Mill Res.) downstream to end of DSS shellfish condemnation # 051-035 A, 8/14/2018. CBP segment YRKMH. Split in 2012 cycle.	4A	Fecal Coliform	1998	L	0.296

Queens Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.296		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-17-SF Skimino Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 050-087 A (effective 20200815).

Cause City/County: James City County; York County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation which is present 050-087A, 8/15/2020. The TMDL for Chesapeake Bay Shellfish Waters: Ware Creek, Taskinas Creek, and Skimino Creek Bacterial Impairments in York, James City, and New Kent Counties, VA, for growing area 50 - Condemnations 073 and 087 was completed during the 2012 cycle and was approved by the EPA on 3/25/2010. Skimino Creek will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_SKM01A00 / Skimino Creek / North of Skimino Farms. Boundary of James City/York Co. From estuarine/riverine transition (dam at Barlows Pond, Rt 604) to mouth. CBP segment YRKM. DSS shellfish condemnation # 050-087 A (effective 20200815).	4A	Fecal Coliform	1998	L	0.174

Skimino Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.174		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-18-SF Taskinas Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 050-073 B (effective 20200815).

Cause City/County: James City County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation which is present 050-073B, 8/15/2020. The TMDL was completed during the 2012 cycle and was approved by the EPA on 3/25/2010. Taskinas Creek will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_TSK01A00 / Taskinas Creek / West of Purtan Island, south of Croaker Landing. From end of tidal waters downstream to mouth. CBP segment YRKMH. DSS shellfish condemnation # 050-073 B (effective 20200815).	4A	Fecal Coliform	1998	L	0.026

Taskinas Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.026		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F26E-19-SF** Ware Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 050-073A (effective 20200815).

Cause City/County: James City County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation which is present, 050-073A, 8/15/2020. The TMDL was completed during the 2012 cycle and was approved by the EPA on 3/25/2010. Ware Creek will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_WRE01A00 / Ware Creek / South of Terrapin Pt., W of Purtan Island. From end of tidal waters downstream to mouth; includes piece of York SF Cond, CBP segment YRKMH. DSS shellfish condemnation # 050-073 A (effective 20200815).	4A	Fecal Coliform	1998	L	0.133

Ware Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.133		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-20-SF Baker Creek, Philbates Creek, York River at Hockley and Unsegmented SF Condemned in F26E

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 049-004 A (20200715) as well as the southern portion of VDH condemnation 049-004 A (20150803)

Cause City/County: King And Queen County; New Kent County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on the DSS condemnation #049-004A, effective 20200715.

VAT-F26E_PHB01A00 - The Shellfishing Use is supporting due to a Open condemnation #049-004 20200715 in the 2022 IR cycle. There was a Restricted-Condemnation in Philbates Creek resulting in an impairment in the 2018 IR cycle.

Included in TMDL for Bacteria for the Upper York River EPA approved 7/28/2010. TMDL #1 for SF Condemnations in the York R Mainstem, unsegmented estuaries in F26, Philbates, Baker, Bakers Ferry, Hockley and Robinson Creeks are included.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_BKS01A08 / Baker Creek / South shore trib to York R. S of Plum Pt. & E of Davis Pond. Estuarine portion of creek with York River. CBP segment YRKMH. DSS Cond 049-004A (20200715)	4A	Fecal Coliform	2008	L	0.017
VAT-F26E_YRK01C12 / York River-at Hockley Cr / York River segment at mouth of Hockley Cr within VDH DSS Condemnation 049-004 C, 7/15/2020. CB Seg - YRKMH.	4A	Fecal Coliform	2002	L	0.029

Baker Creek, Philbates Creek, York River at Hockley and Unsegmented SF Condemned in F26E

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.046		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-22-SF Hockley Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 049-004C (effective 7/15/2020). Northern portion of condemnation area.

Cause City/County: King And Queen County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Shellfish Use is impaired based on DSS Condemnation 049-004C effective 20200715.

The impairment was addressed in the report “Bacteria Total Maximum Daily Load (TMDL) Development for the Upper York River, the Lower Pamunkey River, and the Lower Mattaponi River (Tidal) Watersheds” which was completed during the 2012 cycle and was approved by the EPA on 7/28/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_HCK01A04 / Hockley Creek / North shore York R NW of Belleview. Estuarine portion of creek. CBP segment YRKMH. Portion of DSS condemnation # 049-004C (effective 7/15/2020).	4A	Fecal Coliform	2002	L	0.055

Hockley Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.054		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F26E-29-SF York River

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 049-004 A ,7/15/2020. This is the only portion of the condemnation that is not administrative.

Cause City/County: King And Queen County; King William County; New Kent County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on new VDH Restricted Condemnation apart of Admin Condemn 049-004 A effective date 7/15/2020. Included in the report “Bacteria Total Maximum Daily Load (TMDL) Development for the Upper York River, the Lower Pamunkey River, and the Lower Mattaponi River (Tidal) Watersheds” which was completed during the 2012 cycle and was approved by the EPA on 7/28/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_YRK01E14 / York River / York River from Goff Point (end of Admin Cond) to the Conditional Approval condemnation. VDH new Restricted Condemnation 049-004 A 7/15/2020 . CBP segment YRKMH.	4A	Fecal Coliform	2014	L	0.457

York River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shellfishing			
Fecal Coliform - Total Impaired Size by Water Type:	0.457		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F26L-02-HAB** **Woodstock Pond**

Cause Location: The cause encompasses the entirety of Woodstock Pond located within York River State Park in James City County.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Harmful Algal Blooms/5A

Cause Description: The Recreation Use is impaired based on the VDH swimming advisory that was issued in the two most recent years of the assessment window and the HAB event that persisted over a 30-day period and confirmed through follow-up monitoring.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26L_WSP01A22 / Woodstock Pond / Located within York River State Park South of Taskinas Cr, James City County	5A	Harmful Algal Blooms	2022	L	7.57

Woodstock Pond

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Harmful Algal Blooms - Total Impaired Size by Water Type:		7.57	

Sources: Source Unknown

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York River Basin

Cause Group Code: **F26R-01-BAC** **Carter Creek**

Cause Location: This cause encompasses Carter Creek from the tidal limit upstream to the confluence with an unnamed tributary.

Cause City/County: York County

Use(s): Recreation

Causes(s)/VA Category: Fecal Coliform/5A

Cause Description: No new data to assess in the 2022 IR cycle.

Carter Creek is impaired of the Recreation Use due to fecal coliform exceedances at 8-CTC003.78. The exceedance rate was 2/3 during the 2006 cycle. No additional monitoring has been conducted.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26R_CTC01A04 / Carter Creek / NW & SE of Skimino, N of Camp Peary area. Riverine portion of Carter Creek, extends upstream to branches SW of Skimino area.	5A	Fecal Coliform	2004	L	3.39

Carter Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			3.39

Sources: Source Unknown

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York River Basin

Cause Group Code: **F26R-01-BEN** Carter Creek

Cause Location: This cause encompasses Carter Creek from the tidal limit upstream to the confluence with an unnamed tributary.

Cause City/County: York County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: No new data to assess in the 2022 IR cycle.

Benthic biological monitoring previously conducted at station 8-CTC003.78 (located at State Route 604) indicated the stream's benthic community was moderately impaired (Benthic MI: 1999, SI S&F 2000, MI F 2001]. As a result, DEQ's General Standard (VR680-21-01.2) is not met for the protection of benthic aquatic life and this segment is assessed as not supporting of the Clean Water Act's Aquatic Life Use. Impairment retained as no more recent data available since 2001.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26R_CTC01A04 / Carter Creek / NW & SE of Skimino, N of Camp Peary area. Riverine portion of Carter Creek, extends upstream to branches SW of Skimino area.	5A	Benthic Macroinvertebrates Bioassessments	2004	L	3.39

Carter Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.39

Sources: Source Unknown

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York River Basin

Cause Group Code: **F26R-02-BEN** XEA - Bland Creek, UT

Cause Location: This cause encompasses the tributary XEA from its headwater to its mouth at Bland Creek.

Cause City/County: Gloucester County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: No new data to assess in the 2022 IR cycle.

The Aquatic life use is not supporting based on benthic population diversity and abundance measures at this Freshwater Probabilistic Monitoring (FPM) station. The Aquatic Life Use is not supporting based on benthic population diversity and abundance measures at this Freshwater Probabilistic Monitoring (FPM) station, IM-carried forward as no data in cycle. The Aquatic Life Use is not supported based on the benthic data collected in 2001 (Benthic ProbMon-Benthic IM [MI: S&F-01]. Benthic biological monitoring at station 8-XEA000.12 (FPM) indicated the stream's benthic community was moderately impaired. As a result, DEQ's General Standard (VR680-21-01.2) is not met for the protection of benthic aquatic life and this segment is assessed as not supporting of the Clean Water Act's Aquatic Life Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26R_XEA01A08 / Unnamed Tributary to Bland Creek / Located northwest of Sassafras area, in Gloucester County. From headwaters downstream to confluence with Bland Creek. Downstream (west) of Rt. 606 7 Rt 615, NE of Stubbs Pond	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.23

XEA - Bland Creek, UT

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.23

Sources: Source Unknown

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York River Basin

Cause Group Code: **F26R-04-BEN** Bird Creek

Cause Location: This cause encompasses Bird Creek from its headwater to its mouth at Ware Creek.

Cause City/County: James City County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: No new data to assess in the 2022 IR cycle.

During the 2012 cycle, Byrd Creek was impaired of the Aquatic Use due to a slightly impaired benthic community at freshwater probabilistic monitoring station 8-BRD000.43.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26R_BRD01A12 / Bird Swamp / Headwaters to mouth at Ware Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.47

Bird Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.47

Sources: Source Unknown

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York River Basin

Cause Group Code: F26R-05-BAC France Swamp

Cause Location: This cause encompasses the Trib to Ware Creek. NW of Croaker, NE of Toano.

Cause City/County: James City County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: No new data to assess in the 2022 IR cycle

Recreation Use is not supporting based on E.coli data at station 8-FRS001.17, with 4 exc/ 22 samples. Previously was supporting with 0 exc/ 11 samples. In 2018 nested new recreation use impairment in EPA approved Ware, Taskinas and Skimino Creeks Fecal Coliform TMDL. New impairment is contained in TMDL watershed with similar land uses. Reductions in the TMDL apply to entire TMDL and are adequate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26R_FRS01A00 / France Swamp (Upper) / Trib to Ware Creek. NW of Croaker, NE of Toano.	4A	Escherichia coli (E. coli)	2018	L	4.53

France Swamp

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.53

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F27E-05-BAC King Creek

Cause Location: This cause encompasses all of King Creek, at South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility.

Cause City/County: York County

Use(s): Recreation

Causes(s)/VA Category: Enterococcus/4A

Cause Description: The segment is impaired for Recreation Use due to an enterococci violation rate of 12 exc/ 33 samples at 8-KNG004.46. The impaired status is given due to 2 or more STV hits in the same 90-day period with < 10 samples. The Recreation Use is nested within the Shellfish Use TMDL, EPA approved 4/8/2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_KNG01A02 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to end of DSS condemnation # 051-035C, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Enterococcus	1998	L	0.128
VAT-F27E_KNG02A02 / King Creek - Mouth / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From boundary of (OPEN) condemnation # 051-035 (8/14/2018) to mouth. CBP segment YRKPH.	4A	Enterococcus	1998	L	0.220
VAT-F27E_KNG03A20 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to halfway through DSS Open condemnation-type # 051-035, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Enterococcus	1998	L	0.072

King Creek

Recreation		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Enterococcus - Total Impaired Size by Water Type:	0.42		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F27E-13-SF King Creek - Upper

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 051-035C, 8/14/2018.

Cause City/County: York County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired based on VDH-DSS Restricted Condemnation 051-035C, 8/14/2018. King Creek was impaired in the 1998 cycle due to a VDH-DSS condemnation. The TMDL was approved by the EPA on 4/17/2008 and addressed King Creek to the mouth at the York River. During the 2012 cycle, the condemnation shortened. The condemned area remains Category 4A; the open downstream area will be Category 2C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_KNG01A02 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to end of DSS condemnation # 051-035C, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Fecal Coliform	1998	L	0.128

King Creek - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.128		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F27E-15-SF** Northwest and Northeast Branch Sarah Creek

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 046-052 A, C,E, M1 as well as the non-administratively condemned region of 046-052 B (effective 20200915).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfish Use is impaired for a portion of VDH-DSS condemnation 046-052 Seasonal M1 and Restricted A, B, C,E 10/11/2016.

Sarah Creek was impaired of the Shellfish Use in the 1998 cycle. The TMDL for Sarah Creek from Tidemill Road downstream to the extent of the 1998 impairment was approved by the EPA on 6/4/2006. The condemned areas will be considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_SRH01B10 / Sarah Creek - Northeast Branch, Upper / North shore trib to York River near Gloucester Point. Segment includes north branch off of the northeast branch of Sarah Creek. CBP segment YRKPH. Part of DSS condemnation # 046-052 B, 20200915.	4A	Fecal Coliform	1998	L	0.029
VAT-F27E_SRW01A14 / Northwest Branch Sarah Creek / North shore York River near Gloucester Point. Segment extends from headwaters north of Rt 641 downstream to mouth of Northwest Br. DSS Restricted condemnation # 046-052 A (effective 20200915). CBP segment YRKPH.	4A	Fecal Coliform	1998	L	0.193

Northwest and Northeast Branch Sarah Creek

Shellfishing	Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.222		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F27E-16-SF** **Timberneck Creek - Upper [TMDL-bact]**

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number # 047-003 A (effective 7/22/2016).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the DSS shellfish direct harvesting condemnation which is present, 047-003A 7/22/2016. Covered under TMDL “York River: Gloucester Point to Jones Creek” VAT-F26E-13, 15-18, EPA approved 7/30/2007.

VAT-F27E_TMB01A00 - Shellfishing Use not supporting based on VDH-DSS shellfish direct harvesting condemnation #047-003 A (effective 20200715) and conditionally approved #047-003 S16 (effective date 20200715). Previous (2006 IR) TMDL ID = VAT-F26E-16. Covered under TMDL “York River: Gloucester Point to Jones Creek VAT-F26E-13, 15-18 EPA approved 7/30/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_TMB01A00 / Timberneck Creek - Upper [TMDL-bact] / North shore York River, NE of Catlett Islands. From the end of tidal waters downstream to the end of VDH-DSS shellfish direct harvesting Restricted condemnation #047-003 A (effective 20200715) and conditionally approved #047-003 S16 (effective date 20200715).	4A	Fecal Coliform	1998	L	0.139

Timberneck Creek - Upper [TMDL-bact]

Shellfishing	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.138		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F27E-17-SF** Cedarbush Creek - Upper [TMDL-bact]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 047-078 C (effective 20200715).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing Use is impaired due to the restricted DSS shellfish direct harvesting condemnation which is present, 047-078C (20200715). Covered under TMDL “York River: Gloucester Point to Jones Creek” VAT-F26E-13, 15-18, EPA approved 7/30/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_CDB01A00 / Cedarbush Creek - Upper [TMDL-bact] / North shore York River, NW of Catlett Islands. From the end of tidal waters downstream to the end of TMDL (07) coverage. Portion of CBP segment YRKPH. DSS shellfish direct harvesting condemnation # 047-078 C (effective 20200715).	4A	Fecal Coliform	1998	L	0.078

Cedarbush Creek - Upper [TMDL-bact]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.078		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **F27E-18-SF** Carter Cr. (Gloucester Co.) - Upper portion [TMDL-bact]

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 047-078B (20150804).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The shellfish use is impaired for Carter Creek. Carter Creek has been impaired since the 1998 cycle due to VDH-DSS condemnations. The impairment was addressed in the TMDL “York River: Gloucester Point to Jones Creek VAT-F26E-13, 15-18, which was approved by the EPA on 7/30/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_CRT01A00 / Carter Cr. (Gloucester Co.) - Upper portion [TMDL-bact] / North shore York River, north of Catlett Islands. From the end of tidal waters downstream to the end of DSS condemnation 047-078B, 20180815 . Portion of CBP segment YRKPH. Split in 2012 cycle	4A	Fecal Coliform	1998	L	0.18

Carter Cr. (Gloucester Co.) - Upper portion [TMDL-bact]

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.18		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F27E-20-SF Water Name Cedarbush Creek - Mouth

Cause Location: Described in VDH Notice and Description of Shellfish Condemnation Number 047-078 C (effective 20200715).

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: The Shellfishing use is not supporting due to a restricted condemnation #047-078C (20200715) in this AU. The Shellfishing use was partially delisted in the 2020 IR cycle due to a Conditional Approval #047-078C (20180804) in this AU. The Shellfishing Use was previously impaired due to a Restricted Condemnation # 047-078C (effective date 20150804). Cedarbush Creek is under the TMDL project York River shellfish waters (growing area 47) (0765).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_CDB02A00 / Cedarbush Creek - Mouth / North shore York River, NW of Catlett Islands. CBP segment YRKPH. Restricted DSS shellfish condemnation # 047-078 C (20200715)	4A	Fecal Coliform	2010	L	0.015

Water Name Cedarbush Creek - Mouth

Shellfishing		Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:	0.015		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F27E-28-SF Jones Creek

Cause Location: Described in the VDH Notice and Description of Shellfish Condemnation number 047-072B (20180815) and conditionally approved condemnation #047-072 (effective date 20180815)

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Shellfishing Use is restricted for all of Jones Creek based on VDH-DSS Restricted-Condemnation #047-072B (20180815) and conditionally approved condemnation #047-072 (effective date 20180815) Covered under TMDL “York River: Gloucester Point to Jones Creek” VAT-F26E-13, 15-18, EPA approved 7/30/2007.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_JNS01A00 / Jones Creek / NW of Clay Bank, between Rts 618 & 616. Portion of CBP segment YRKMH. Described in DSS shellfish direct harvesting condemnation # 047-072B (effective 20180815) and conditionally approved condemnation #047-072 (effective date 20180815).	4A	Fecal Coliform	2002	L	0.051

Jones Creek

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.051		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: F27E-29-SF Perrin River - Upper

Cause Location: Described in the VDH Notice and Description of Shellfish Condemnation number 046-081 B and C (20200915)

Cause City/County: Gloucester County

Use(s): Shellfishing

Causes(s)/VA Category: Fecal Coliform/4A

Cause Description: Shellfish Use is impaired for Upper Perrin River based on Restricted Condemnation for Shellfish Use based on VDH-DSS condemnation #046-081 B and C(effective date 20200915).

VAT-F27E_SRH03A20 - The Shellfishing use is impaired #046-052 C (20200915) due to a Restricted-Condemnation in the 2022 IR cycle.

VAT-F27E_SRH01D14 - Portion of VDH-DSS Restricted condemnation 046-052 A (effective 20200915).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_PRN01A00 / Perrin River - Upper / North shore York River near Cuba Island. Described in DSS Restricted condemnation # 046-081 B and C (effective 20200915). CBP segment YRKPH.	4A	Fecal Coliform	2002	L	0.052
VAT-F27E_SRH01D14 / Sarah Creek / North shore trib of York River near Gloucester Point. Segment extends from end of Restricted SF Cond 046-052 to end of TMDL area near Rt 642. CBP segment YRKPH. DSS restricted condemnation # 046-052 A (effective 20200915).	4A	Fecal Coliform	2022	L	0.062
VAT-F27E_SRH03A20 / Sarah Creek - Northeast Branch / Sarah Creek is a North shore trib to York River near Gloucester Point. Northern branch of Sarah Creek near Guinea Neck. DSS Restricted-Condemnation #046-052 C (20200915). CBP segment YRKPH.	4A	Fecal Coliform	2020	L	0.003

Perrin River - Upper

Shellfishing

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	0.116		

Sources: Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Urban Runoff/Storm Sewers

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York River Basin

Cause Group Code: **MPNOH-DO-BAY** **Mattaponi River**

Cause Location: The oligohaline Mattaponi estuary.

Cause City/County: King And Queen County; King William County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Chesapeake Bay and its tidal tributaries were added by the EPA to the 1998 303(d) list. This included the entire tidal portion of the Mattaponi River. EPA listed the impairment as dissolved oxygen exceedances caused by nutrient overenrichment. During the 2002 cycle, dissolved oxygen and chlorophyll A violation rates at multiple monitoring stations were all acceptable. Since the listing was based solely on the EPA overlist, the impairment was considered Nutrients/Eutrophication Biological Indicators.

However, during the 2006 cycle, the Chesapeake Bay water quality standards were implemented. The area failed both the Open Water (OW) default summer criteria and the rest-of-year criteria of 5 mg/L.

Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted in the 2008 cycle. The specific criteria recognize that DO is naturally depressed in the rivers due to their extensive marsh systems. Since the 2016 cycle, MPNOH has failed the OW summer criteria. The Rest-of-Year criteria is met. The TMDL was approved by the EPA on 12/29/2010; therefore, the estuary is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F24E_MPN03B02 / Mattaponi River / Tidal freshwater/oligohaline boundary to Melrose Landing at Route 602 MPNOH	4A	Dissolved Oxygen	2006	L	0.423
VAP-F24E_MPN03C06 / Mattaponi River / Melrose Landing (Route 602) to Heartquake Creek. MPNOH	4A	Dissolved Oxygen	2006	L	0.717
VAP-F24E_ZZZ02A06 / Unsegmented estuaries in F24 / Unsegmented portion of the watershed within MPNOH	4A	Dissolved Oxygen	2006	L	0.102
VAP-F25E_BMC01A08 / Burnt Mill Creek / Tidal limit to mouth at Mattaponi River MPNOH	4A	Dissolved Oxygen	2006	L	0.054
VAP-F25E_CBN01A00 / Corbin Creek / Corbin Pond to tidal limit MPNOH	4A	Dissolved Oxygen	2006	L	0.037
VAP-F25E_MPN05A00 / Mattaponi River / Mattaponi River from Heartquake Creek to the downstream boundary of VDH-DSS 049-004F, 7/15/2020 MPNOH	4A	Dissolved Oxygen	2006	L	1.292
VAP-F25E_MPN05B06 / Mattaponi River / From the upstream boundary of VDH-SFC 049-004B, 7/15/2020 downstream to the oligohaline/York mesohaline boundary. MPNOH	4A	Dissolved Oxygen	2006	L	0.384
VAP-F25E_ZZZ01A00 / Unsegmented estuaries in F25 / Unsegmented portion of the watershed. MPNOH	4A	Dissolved Oxygen	2006	L	0.067

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F25E_ZZZ02A06 / Unsegmented estuaries in F25 / Unsegmented portion of the watershed within SFC 049-004B, 7/15/2020. MPNOH	4A	Dissolved Oxygen	2006	L	0.006

Mattaponi River

Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.081		

Mattaponi River

Migratory Fish Spawning and Nursery	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.081		

Mattaponi River

Open-Water Aquatic Life	Dissolved Oxygen - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.081		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **MPNTF-DO-BAY** **Mattaponi River**

Cause Location: The tidal freshwater Mattaponi mainstem.

Cause City/County: King And Queen County; King William County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4D

Cause Description: The Chesapeake Bay and its tidal tributaries were added by the EPA to the 1998 303(d) list. This included the entire tidal mainstem of the Mattaponi River. EPA listed the impairment as dissolved oxygen exceedances caused by nutrient overenrichment. During the 2002 cycle, dissolved oxygen and chlorophyll a exceedance rates at multiple monitoring stations were all acceptable (see below). Since the listing was based solely on the EPA overlist, the impairment was considered Nutrients/Eutrophication Biological Indicators.

During the 2006 cycle, the Chesapeake Bay water quality standards were implemented. The area failed the default CB 30-day open water summer criteria of 5.5 mg/L.

Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted in the 2008 cycle. The specific criteria recognize that dissolved oxygen is naturally depressed in the rivers due to their extensive marsh systems. The Mattaponi Tidal Freshwater segment is in attainment of both the site-specific 30-day open water summer DO criteria and the 30-day Rest of Year DO criteria.

Although the Mattaponi Tidal Freshwater segment is in attainment of every Chesapeake Bay criteria which is measured, there is insufficient information to assess the Migratory Spawning Use or the other Open Water Use's dissolved oxygen frequency criteria; therefore, the mainstem must remain impaired due to EPA's overlisting (nutrients/eutrophication biological indicators). The TMDL is was approved on 12/29/2010, so the mainstem Mattaponi is considered Category 4D.

Note: The tributaries are considered Category 2C because they were not included in the overlist.

Previously MPNTF-BNUT-BAY

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F23E_MPN02A98 / Mattaponi River / From the limit of tide above the Route 360 bridge to Aylett Creek. MPNTF	4D	Dissolved Oxygen	1998	L	0.159
VAP-F23E_MPN03A06 / Mattaponi River / Aylett Creek to Garnetts Creek. MPNTF	4D	Dissolved Oxygen	1998	L	1.756
VAP-F24E_MPN03A98 / Mattaponi River / Garnetts Creek to tidal freshwater/oligohaline boundary at approximately river mile 18 MPNTF	4D	Dissolved Oxygen	1998	L	1.384

Mattaponi River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	3.3		

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Mattaponi River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Migratory Fish Spawning and Nursery			
Dissolved Oxygen - Total Impaired Size by Water Type:	3.3		

Mattaponi River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Open-Water Aquatic Life			
Dissolved Oxygen - Total Impaired Size by Water Type:	3.3		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **PMKOH-DO-BAY Pamunkey River Oligohaline Estuary**

Cause Location: The oligohaline Pamunkey estuary.

Cause City/County: King William County; New Kent County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the Aquatic Life Use goal because a 1995 special study showed river subject to 33% violation rate of daily mean DO standard during warm weather conditions (May through October). The estuarine Pamunkey was considered fully allocated relative to dissolved oxygen and new discharges cannot result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by the EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen exceedances caused by nutrient overenrichment. This listing included the entire mainstem estuarine Pamunkey River.

However, during the 2006 cycle, the new Chesapeake Bay water quality standards were adopted. The oligohaline Pamunkey segment failed the default CB 30-day open water summer dissolved oxygen criteria of 5 mg/L.

During the 2008 cycle, Water Quality Standards specific for the Pamunkey and Mattaponi Rivers were adopted; the specific criteria recognize that dissolved oxygen is naturally depressed below the default criteria in the rivers due to their extensive marsh systems.

The TMDL was approved by the EPA on 12/29/2010.

In the 2018 cycle, the segment met all criteria that could be measured. The Pamunkey mainstem remained listed due to EPA's overlisting (Category 4D.) The tributaries were considered fully supporting (Category 2C.)

During the 2020 and 2022 cycles, the Pamunkey Oligohaline estuary failed the site-specific 30-day open water summer DO criteria. The 30-day Rest of Year DO criteria is met. In addition, the Open Water Subuse and the Migratory Spawning and Nursery (MSN) Subuse both failed the instantaneous minimum DO criteria. The MSN Subuse met the 7-day mean criteria. The mainstem and tributaries are all considered impaired (Category 4A.)

Previously PMKOH-BNUT-BAY

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK05A18 / Pamunkey River / 0.5 miles above station 8-PMK017.90 downstream to Sweet Hall Landing. PMKOH	4A	Dissolved Oxygen	1998	L	0.113
VAP-F14E_PMK05B00 / Pamunkey River / Tidal freshwater/oligohaline boundary at approximately river mile 23.6 downstream to 0.5 mile above station 8-PMK017.90 PMKOH	4A	Dissolved Oxygen	1998	L	1.193
VAP-F14E_PMK06A00 / Pamunkey River / Sweet Hall Landing to upstream boundary of VDH-DSS SFC 049-004A, 7/15/2020 PMKOH	4A	Dissolved Oxygen	1998	L	3.382
VAP-F14E_PMK06B06 / Pamunkey River / VDH-DSS SFC 049-004A, 7/15/2020 to mesohaline boundary PMKOH	4A	Dissolved Oxygen	1998	L	0.584

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_ZZZ02A06 / Unsegmented estuaries in F14 / Unsegmented portion of the watershed within PMKOH	4A	Dissolved Oxygen	2020	L	0.265
VAP-F14E_ZZZ02B06 / Unsegmented estuaries in F14 / Unsegmented portion of the watershed within SFC 004A & PMKOH	4A	Dissolved Oxygen	2020	L	0.060

Pamunkey River Oligohaline Estuary

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.597		

Pamunkey River Oligohaline Estuary

Migratory Fish Spawning and Nursery

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.597		

Pamunkey River Oligohaline Estuary

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.597		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Contaminated Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: PMKTF-DO-BAY Pamunkey River Tidal Freshwater Estuary

Cause Location: The tidal freshwater Pamunkey River estuary.

Cause City/County: Hanover County; King William County; New Kent County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The tidal Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the Aquatic Life Use goal because a 1995 special study showed river subject to 33% violation rate of daily mean DO standard during warm weather conditions May through October. The estuarine Pamunkey River was considered fully allocated relative to dissolved oxygen and new discharges could not result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by the EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen exceedances caused by nutrient overenrichment. This listing included the entire mainstem estuarine Pamunkey River.

During the 2006 cycle, the new Chesapeake Bay water quality standards were adopted. The tidal freshwater Pamunkey segment failed the default CB 30-day open water summer dissolved oxygen criteria of 5.5 mg/L. Water quality standards specific for the Pamunkey and Mattaponi Rivers were adopted and the new criteria were used in the 2008 cycle. The specific criteria recognize that dissolved oxygen is naturally depressed in the rivers due to their extensive marsh systems. The Pamunkey Tidal Freshwater segment is in attainment of both the site-specific 30-day open water summer DO criteria and the 30-day Rest of Year DO criteria. The Shallow Water Use is fully supporting the SAV acreage criteria.

Previously, the mainstem Pamunkey remained impaired even though the segment met every criteria that was monitored due to EPA's overlisting because there was insufficient information to assess the Migratory Spawning and Nursery subuse as well as some other Open Water frequency criteria (Category 4D). However, in the 2020 cycle, the Migratory Spawning and Nursery Use failed the instantaneous minimum dissolved oxygen criteria; therefore, the impairment converted to Category 4A and the tributaries were added to the impairment. The 7-day mean criterion is met.

The Chesapeake Bay TMDL was approved by the EPA on 12/31/2010. The Pamunkey River and tributaries are considered Cat 4A waters.

Previously PMKTF-BNUT-BAY

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_PMK01A98 / Pamunkey River / Extent of tide near Totopotomoy Creek to Pampatike Landing. PMKTF	4A	Dissolved Oxygen	1998	L	0.307
VAP-F13E_PMK02A98 / Pamunkey River / Pampatike Landing downstream to Jacks Creek. PMKTF	4A	Dissolved Oxygen	1998	L	0.783
VAP-F13E_PMK03A06 / Pamunkey River / Jacks Creek downstream to Macon Creek. PMKTF	4A	Dissolved Oxygen	1998	L	0.115
VAP-F13E_ZZZ01C14 / Unsegmented estuaries in F13 / Unsegmented portion of watershed YO31. PMKTF	4A	Dissolved Oxygen	2020	L	0.009

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F13E_ZZZ01D14 / Unsegmented estuaries in F13 / Unsegmented portion of watershed YO32. PMKTF	4A	Dissolved Oxygen	2020	L	0.016
VAP-F13E_ZZZ01E14 / Unsegmented estuaries in F13 / Unsegmented portion of watershed YO33. PMKTF	4A	Dissolved Oxygen	2020	L	0.009
VAP-F13E_ZZZ01F14 / Unsegmented estuaries in F13 / Unsegmented portion of watershed YO34. PMKTF	4A	Dissolved Oxygen	2020	L	0.213
VAP-F13E_ZZZ01G14 / Unsegmented estuaries in F13 / Unsegmented portion of watershed YO35. PMKTF	4A	Dissolved Oxygen	2020	L	0.047
VAP-F14E_CMC01A06 / Cohoke Mill Creek / Tidal limit at Cohoke Millpond to mouth at Pamunkey River PMKTF	4A	Dissolved Oxygen	2020	L	0.026
VAP-F14E_HSN01A12 / Harrison Creek / Tidal portion of Harrison Creek PMKTF	4A	Dissolved Oxygen	2020	L	0.044
VAP-F14E_PMK02A00 / Pamunkey River / Macon Creek to downstream extent of tidal freshwater segment at approximately river mile 23.6 PMKTF	4A	Dissolved Oxygen	1998	L	3.638
VAP-F14E_ZZZ01A00 / Unsegmented estuaries in F14 / Unsegmented portion of the watershed within PMKTF	4A	Dissolved Oxygen	2020	L	0.697

Pamunkey River Tidal Freshwater Estuary

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.904		

Pamunkey River Tidal Freshwater Estuary

Migratory Fish Spawning and Nursery

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.904		

Pamunkey River Tidal Freshwater Estuary

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
5.904		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKMH-DO-BAY** York Mesohaline

Cause Location: The York mesohaline segment, including the applicable portions of the Pamunkey and Mattaponi Rivers.

Cause City/County: Gloucester County; James City County; King And Queen County; King William County; New Kent County; Williamsburg; York County

Use(s): Aquatic Life; Migratory Fish Spawning and Nursery; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Pamunkey River was initially listed on the 1998 303(d) list as fully supporting but threatened of the aquatic life use goal because a 1995 special study showed river subject to 33% exceedance rate of daily mean dissolved oxygen (DO) standard during warm weather conditions May through October. The estuarine Pamunkey River is considered fully allocated relative to dissolved oxygen; new discharges cannot result in further DO depression.

The Chesapeake Bay and its tidal tributaries were added by the EPA to the 1998 303(d) list. EPA listed the impairment as dissolved oxygen exceedances caused by nutrient overenrichment. This listing included the entire mainstem estuarine York, Pamunkey, and Mattaponi Rivers.

New Chesapeake Bay water quality standards have since been adopted. In the 2022 cycle, the mesohaline York segment (which includes the mouths of the Pamunkey and Mattaponi Rivers) fails the 30-day mean open water summer dissolved oxygen criteria. The rest-of-year criteria was met.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010. The segment is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMH	4A	Dissolved Oxygen	1998	L	0.398
VAP-F14E_ZZZ03A06 / Unsegmented estuaries in F14 / Unsegmented portion of the watershed within YRKMH	4A	Dissolved Oxygen	2006	L	0.077
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMH	4A	Dissolved Oxygen	2006	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMH	4A	Dissolved Oxygen	2006	L	0.641
VAP-F25E_ZZZ03A06 / Unsegmented estuaries in F25 / Unsegmented portion of the watershed within SFC 049-004E, 7/15/2020. YRKMH	4A	Dissolved Oxygen	2006	L	0.031
VAT-F26E_ABD01A00 / Aberdeen Creek - Upper / Southeast of Clay Bank, south of Rt. 631. From the end of tidal waters downstream to the end of Shellfish Restricted area. Portion of CBP segment YRKMH. Portion of DSS shellfish direct harvesting condemnation # 047-078 A (effective 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.094

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_ABD01B08 / Aberdeen Creek - Mouth / Southeast of Clay Bank, south of Rt. 631. From the end of TMDL (07) coverage downstream to the mouth. Portion of CBP segment YRKMH. Conditionally Approved shellfish direct harvesting condemnation # 047-078S18 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.010
VAT-F26E_ABD02A20 / Aberdeen Creek - Upper / Southeast of Clay Bank, south of Rt. 631. From the end of tidal waters downstream to the start of Shellfish Admin-Cond. Portion of CBP segment YRKMH. Portion of DSS shellfish Admin-Condemn # 047-078 A (effective 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.011
VAT-F26E_ADM01A00 / Adams Creek-Upper / Eastern shore of York River near Purtan Island. CBP segment YRKMH. DSS shellfish restricted condemnation and Conditionally Approved # 048-128B (effective 07/15/2020).	4A	Dissolved Oxygen	2006	L	0.116
VAT-F26E_ADM01B12 / Adams Creek / Eastern shore of York River near Purtan Island. CBP segment YRKMH. Portion of 1998 impairment open in DSS shellfish condemnation # 048-128 (effective 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.072
VAT-F26E_BAK01A00 / Bakers Creek / North shore York R SE of West Point Municipal Airport & NW of Hockley Cr. Estuarine portion of creek. CBP segment YRKMH. DSS Admin-Condemnation.	4A	Dissolved Oxygen	2006	L	0.039
VAT-F26E_BKS01A08 / Baker Creek / South shore trib to York R. S of Plum Pt. & E of Davis Pond. Estuarine portion of creek with York River. CBP segment YRKMH. DSS Cond 049-004A (20200715)	4A	Dissolved Oxygen	2006	L	0.017
VAT-F26E_BND01A06 / Bland Creek / North shore York R west of Sassafra. Estuarine portion of creek, from the tidal limit to mouth. CBP segment YRKMH. Conditionally approved condemnation #048-128S90 20200715.	4A	Dissolved Oxygen	2006	L	0.051
VAT-F26E_CTC01A06 / Carter Creek / Located in York County near Skimino. From estuarine/riverine transition to mouth. CBP segment YRKMH. Portion of DSS Restricted condemnation # 050-087B, 20200815.	4A	Dissolved Oxygen	2006	L	0.025
VAT-F26E_FER01A08 / Ferry Creek / South shore trib to York R. SW of West Point. Estuarine portion of creek. From dam to confluence with York River. CBP segment YRKMH. Portion of DSS shellfish ADMIN condemnation # 049-004 A (effective 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.004

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_FOX01A06 / Fox Creek / North shore trib to York River. Located southeast of Allmondsville in Gloucester Co. From estuarine/riverine transition to mouth. CBP segment YRKM. DSS condemnation # 047-072A (effective 20180815).	4A	Dissolved Oxygen	2006	L	0.016
VAT-F26E_HCK01A04 / Hockley Creek / North shore York R NW of Belleview. Estuarine portion of creek. CBP segment YRKM. Portion of DSS condemnation # 049-004C (effective 7/15/2020).	4A	Dissolved Oxygen	2006	L	0.055
VAT-F26E_JNS01A00 / Jones Creek / NW of Clay Bank, between Rts 618 & 616. Portion of CBP segment YRKM. Described in DSS shellfish direct harvesting condemnation # 047-072B (effective 20180815) and conditionally approved condemnation #047-072 (effective date 20180815).	4A	Dissolved Oxygen	2006	L	0.051
VAT-F26E_PHB01A00 / Philbates Creek / South shore trib to York R. NW of Belleview. Estuarine portion of creek. From dam to confluence with York River. CBP segment YRKM. VDH-DSS #049-009 shellfish Conditional Approval (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.013
VAT-F26E_PTK01A00 / Poropotank River / North shore of York River near Purtan Island. Forms boundary of King and Queen/Gloucester Co. From end of tidal waters downstream to end of DSS condemnation # 048-128A, 7/15/2020. CBP segment YRKM.	4A	Dissolved Oxygen	2006	L	0.451
VAT-F26E_PTK02A08 / Morris Bay at mouth of Poropotank River / From end of the upstream DSS condemnation downstream to the mouth. CBP segment YRKM. DSS shellfish direct harvesting OPEN condemnation # 048-128 (effective date 20200715).	4A	Dissolved Oxygen	2006	L	0.474
VAT-F26E_PTN01A08 / Purtan & Leigh Creeks / North shore of York River at Purtan Bay. Forms headwaters of Purtan Bay. CBP segment YRKM. DSS shellfish Open condemnation # 048-128 (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.098
VAT-F26E_PTN02A20 / Purtan Creek / North shore of York River at Purtan Bay. Forms headwaters of Purtan Bay just prior to the formation of the mouth. CBP segment YRKM. DSS shellfish Conditionally Approved -Condemnation # 048-128 S164 (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.089
VAT-F26E_QEN01A02 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of tidal waters (below dam at Waller Mill Res.) downstream to end of DSS shellfish condemnation # 051-035 A, 8/14/2018. CBP segment YRKM. Split in 2012 cycle.	4A	Dissolved Oxygen	1998	L	0.296

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_QEN01B12 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of DSS shellfish condemnation # 051-035 (20180814). downstream to mouth. CBP segment YRKMH.	4A	Dissolved Oxygen	1998	L	0.136
VAT-F26E_RBN01A08 / Robinson Creek / North shore York R SE of West Point Municipal Airport. Estuarine portion of creek. CBP segment YRKMH. Part of VDH-DSS Open condemnation 049-004 (effective 20200715)	4A	Dissolved Oxygen	2006	L	0.012
VAT-F26E_SKM01A00 / Skimino Creek / North of Skimino Farms. Boundary of James City/York Co. From estuarine/riverine transition (dam at Barlows Pond, Rt 604) to mouth. CBP segment YRKMH. DSS shellfish condemnation # 050-087 A (effective 20200815).	4A	Dissolved Oxygen	2006	L	0.174
VAT-F26E_SND01A08 / Sandy Creek / North shore York R near Allmondsville. Estuarine portion of creek, from the tidal limit to mouth. CBP segment YRKMH. DSS (OPEN) shellfish direct harvesting condemnation # 049-004, 20200715.	4A	Dissolved Oxygen	2006	L	0.007
VAT-F26E_TSK01A00 / Taskinas Creek / West of Purtan Island, south of Croaker Landing. From end of tidal waters downstream to mouth. CBP segment YRKMH. DSS shellfish condemnation # 050-073 B (effective 20200815).	4A	Dissolved Oxygen	2006	L	0.026
VAT-F26E_WRE01A00 / Ware Creek / South of Terrapin Pt., W of Purtan Island. From end of tidal waters downstream to mouth; includes piece of York SF Cond, CBP segment YRKMH. DSS shellfish condemnation # 050-073 A (effective 20200815).	4A	Dissolved Oxygen	2006	L	0.133
VAT-F26E_YRK01A04 / York River / York River at Goaders Creek downstream to the boundary of DSS OPEN condemnation # 049-004 (effective 20200715). CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	3.962
VAT-F26E_YRK01B10 / York River / Start of York River at West Point (RM 32.0) downstream to the boundary of ADMIN COND # 049-004 A (effective 7/15/2020), approx. Goff Point . CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	1.086
VAT-F26E_YRK01C12 / York River-at Hockley Cr / York River segment at mouth of Hockley Cr within VDH DSS Condemnation 049-004 C, 7/15/2020. CB Seg - YRKMH.	4A	Dissolved Oxygen	2006	L	0.029
VAT-F26E_YRK01D12 / York River / Portion of York River within VDH Seasonal Cond 0049-004 effective date 20200715 YRKMH	4A	Dissolved Oxygen	2006	L	0.042

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_YRK01E14 / York River / York River from Goff Point (end of Admin Cond) to the Conditional Approval condemnation. VDH new Restricted Condemnation 049-004 A 7/15/2020 . CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	0.457
VAT-F26E_YRK02A14 / York River (Lower Middle MSN) / Segment starts south of New Kent and James City Boundary and extends downstream to the MSN boundary near Mt. Folly/Poropotank Bay. CBP segment YRKMH. No DSS shellfish direct harvesting condemnation present.	4A	Dissolved Oxygen	2006	L	2.680
VAT-F26E_YRK02E20 / York River (lower middle) / York River from Goff Point (end of Restricted-Condemnation) to Goalders Creek. VDH new Conditionally Approved condemnation 20200715. CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	2.125
VAT-F26E_YRK03A00 / York River (Lower Middle) / Segment starts at end of MSN boundary near Mt. Folly/Poropotank Bay and extends downstream to the mesohaline/polyhaline boundary. CBP segment YRKMH. Open DSS shellfish direct harvesting condemnation present (effective date 20200715)	4A	Dissolved Oxygen	2006	L	20.372
VAT-F26E_YRK03B12 / York River (Lower Middle) / Portion of York River at Carter Creek north of Camp Peary. Within VDH-DSS Open condemnation-type #049-004 , 20200715. CB segment YRKMH.	4A	Dissolved Oxygen	2006	L	0.023
VAT-F26E_ZZZ01A00 / Unsegmented estuaries in F26E / Non-segmented areas of F26E (N shore York R. trib SW of Gressit) within MSN area. CBP segment YRKMH. DSS (OPEN) shellfish direct harvesting condemnation # 049-004 (effective 20200715)	4A	Dissolved Oxygen	2006	L	0.008
VAT-F26E_ZZZ01B06 / Unsegmented estuaries in F26E / Non-segmented areas of F26E (N shore York R. tribs, upstream of Poropotank R.) below MSN boundary. CBP segment YRKMH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715).	4A	Dissolved Oxygen	2006	L	0.072
VAT-F26E_ZZZ02A06 / Unsegmented estuaries in F26E / Non-segmented areas within VDH-DSS OPEN condemnation 049-004 (effective 20200715). Includes Goalders Creek. CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	0.038
VAT-F26E_ZZZ02B18 / Unsegmented SF Condemned estuaries in F26E / Non-segmented areas within VDH-DSS Admin-Condemnation 049-004 A (effective 20200715). CBP segment YRKMH.	4A	Dissolved Oxygen	2006	L	0.043

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York Mesohaline

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	34.76		

York Mesohaline

Migratory Fish Spawning and Nursery

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	12.085		

York Mesohaline

Open-Water Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:	34.76		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKMH-EBEN-BAY** **Adams Creek - Upper and the lower York River**

Cause Location: This cause encompasses upper portions of Adams Creek and a portion of the lower York River.

Cause City/County: Gloucester County; King And Queen County; King William County; New Kent County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: The Aquatic Life Use is impaired for the benthic BIBI assessment for the YRKMHa in the 2022 IR. The 2020 IR cycle is the initial list date for the estuarine bioassessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_ADM01A00 / Adams Creek-Upper / Eastern shore of York River near Purtan Island. CBP segment YRKMH. DSS shellfish restricted condemnation and Conditionally Approved # 048-128B (effective 07/15/2020).	5A	Estuarine Bioassessments	2020	L	0.116
VAT-F26E_ADM01B12 / Adams Creek / Eastern shore of York River near Purtan Island. CBP segment YRKMH. Portion of 1998 impairment open in DSS shellfish condemnation # 048-128 (effective 7/15/2020).	5A	Estuarine Bioassessments	2022	L	0.072
VAT-F26E_PTN01A08 / Purtan & Leigh Creeks / North shore of York River at Purtan Bay. Forms headwaters of Purtan Bay. CBP segment YRKMH. DSS shellfish Open condemnation # 048-128 (effective 20200715).	5A	Estuarine Bioassessments	2022	L	0.098
VAT-F26E_YRK02E20 / York River (lower middle) / York River from Goff Point (end of Restricted-Condemnation) to Goaders Creek. VDH new Conditionally Approved condemnation 20200715. CBP segment YRKMH.	5A	Estuarine Bioassessments	2018	L	2.125

Adams Creek - Upper and the lower York River

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Estuarine Bioassessments - Total Impaired Size by Water Type:	2.41		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKMH-SAV-BAY** York Mesohaline

Cause Location: The York mesohaline segment, including the applicable portions of the Pamunkey and Mattaponi Rivers.

Cause City/County: Gloucester County; James City County; King And Queen County; King William County; New Kent County; Williamsburg; York County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: During the 2006 cycle, the Chesapeake Bay water quality standards were adopted. The mesohaline York segment (which includes the mouths of the Pamunkey and Mattaponi Rivers) fails the Shallow Water Subuse's submerged aquatic vegetation (SAV) acreage requirements. There is insufficient data to assess the water clarity acreage criteria.

The Chesapeake Bay TMDL was approved by the EPA on 12/29/2010. YRKMH is considered Category 4A.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAP-F14E_PMK07A04 / Pamunkey River / Mesohaline boundary to mouth YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.398
VAP-F14E_ZZZ03A06 / Unsegmented estuaries in F14 / Unsegmented portion of the watershed within YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.077
VAP-F25E_MPN06A04 / Mattaponi River / The Mattaponi mainstem within VDH advisory 049-004E, 7/15/2020. YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.209
VAP-F25E_MPN06B06 / Mattaponi River / Portion of VDH-DSS condemnation 049-004A, 7/15/2020 within Mattaponi River mainstem. YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.641
VAP-F25E_ZZZ03A06 / Unsegmented estuaries in F25 / Unsegmented portion of the watershed within SFC 049-004E, 7/15/2020. YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.031
VAT-F26E_ABD01A00 / Aberdeen Creek - Upper / Southeast of Clay Bank, south of Rt. 631. From the end of tidal waters downstream to the end of Shellfish Restricted area. Portion of CBP segment YRKMH. Portion of DSS shellfish direct harvesting condemnation # 047-078 A (effective 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.094
VAT-F26E_ABD01B08 / Aberdeen Creek - Mouth / Southeast of Clay Bank, south of Rt. 631. From the end of TMDL (07) coverage downstream to the mouth. Portion of CBP segment YRKMH. Conditionally Approved shellfish direct harvesting condemnation # 047-078S18 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.010

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_ABD02A20 / Aberdeen Creek - Upper / Southeast of Clay Bank, south of Rt. 631. From the end of tidal waters downstream to the start of Shellfish Admin-Cond. Portion of CBP segment YRKMH. Portion of DSS shellfish Admin-Condemn # 047-078 A (effective 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.011
VAT-F26E_ADM01A00 / Adams Creek-Upper / Eastern shore of York River near Purtan Island. CBP segment YRKMH. DSS shellfish restricted condemnation and Conditionally Approved # 048-128B (effective 07/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.116
VAT-F26E_ADM01B12 / Adams Creek / Eastern shore of York River near Purtan Island. CBP segment YRKMH. Portion of 1998 impairment open in DSS shellfish condemnation # 048-128 (effective 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.072
VAT-F26E_BAK01A00 / Bakers Creek / North shore York R SE of West Point Municipal Airport & NW of Hockley Cr. Estuarine portion of creek. CBP segment YRKMH. DSS Admin-Condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	0.039
VAT-F26E_BKS01A08 / Baker Creek / South shore trib to York R. S of Plum Pt. & E of Davis Pond. Estuarine portion of creek with York River. CBP segment YRKMH. DSS Cond 049-004A (20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	0.017
VAT-F26E_BND01A06 / Bland Creek / North shore York R west of Sassafas. Estuarine portion of creek, from the tidal limit to mouth. CBP segment YRKMH. Conditionally approved condemnation #048-128S90 20200715.	4A	Aquatic Plants (Macrophytes)	2006	L	0.051
VAT-F26E_CTC01A06 / Carter Creek / Located in York County near Skimino. From estuarine/riverine transition to mouth. CBP segment YRKMH. Portion of DSS Restricted condemnation # 050-087B, 20200815.	4A	Aquatic Plants (Macrophytes)	2006	L	0.025
VAT-F26E_FER01A08 / Ferry Creek / South shore trib to York R. SW of West Point. Estuarine portion of creek. From dam to confluence with York River. CBP segment YRKMH. Portion of DSS shellfish ADMIN condemnation # 049-004 A (effective 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.004
VAT-F26E_FOX01A06 / Fox Creek / North shore trib to York River. Located southeast of Allmondsville in Gloucester Co. From estuarine/riverine transition to mouth. CBP segment YRKMH. DSS condemnation # 047-072A (effective 20180815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.016
VAT-F26E_HCK01A04 / Hockley Creek / North shore York R NW of Belleview. Estuarine portion of creek. CBP segment YRKMH. Portion of DSS condemnation # 049-004C (effective 7/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.055

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_JNS01A00 / Jones Creek / NW of Clay Bank, between Rts 618 & 616. Portion of CBP segment YRKMH. Described in DSS shellfish direct harvesting condemnation # 047-072B (effective 20180815) and conditionally approved condemnation #047-072 (effective date 20180815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.051
VAT-F26E_PHB01A00 / Philbates Creek / South shore trib to York R. NW of Belleview. Estuarine portion of creek. From dam to confluence with York River. CBP segment YRKMH. VDH-DSS #049-009 shellfish Conditional Approval (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.013
VAT-F26E_PTK01A00 / Poropotank River / North shore of York River near Purtan Island. Forms boundary of King and Queen/Gloucester Co. From end of tidal waters downstream to end of DSS condemnation # 048-128A, 7/15/2020. CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.451
VAT-F26E_PTK02A08 / Morris Bay at mouth of Poropotank River / From end of the upstream DSS condemnation downstream to the mouth. CBP segment YRKMH. DSS shellfish direct harvesting OPEN condemnation # 048-128 (effective date 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.474
VAT-F26E_PTN01A08 / Purtan & Leigh Creeks / North shore of York River at Purtan Bay. Forms headwaters of Purtan Bay. CBP segment YRKMH. DSS shellfish Open condemnation # 048-128 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.098
VAT-F26E_PTN02A20 / Purtan Creek / North shore of York River at Purtan Bay. Forms headwaters of Purtan Bay just prior to the formation of the mouth. CBP segment YRKMH. DSS shellfish Conditionally Approved -Condemnation # 048-128 S164 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.089
VAT-F26E_QEN01A02 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of tidal waters (below dam at Waller Mill Res.) downstream to end of DSS shellfish condemnation # 051-035 A, 8/14/2018. CBP segment YRKMH. Split in 2012 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	0.296
VAT-F26E_QEN01B12 / Queen Creek / South shore York River, south of Camp Peary Naval Reservation. From end of DSS shellfish condemnation # 051-035 (20180814). downstream to mouth. CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.136
VAT-F26E_RBN01A08 / Robinson Creek / North shore York R SE of West Point Municipal Airport. Estuarine portion of creek. CBP segment YRKMH. Part of VDH-DSS Open condemnation 049-004 (effective 20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	0.012

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_SKM01A00 / Skimino Creek / North of Skimino Farms. Boundary of James City/York Co. From estuarine/riverine transition (dam at Barlows Pond, Rt 604) to mouth. CBP segment YRKMH. DSS shellfish condemnation # 050-087 A (effective 20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.174
VAT-F26E_SND01A08 / Sandy Creek / North shore York R near Allmondsville. Estuarine portion of creek, from the tidal limit to mouth. CBP segment YRKMH. DSS (OPEN) shellfish direct harvesting condemnation # 049-004, 20200715.	4A	Aquatic Plants (Macrophytes)	2006	L	0.007
VAT-F26E_TSK01A00 / Taskinas Creek / West of Purtan Island, south of Croaker Landing. From end of tidal waters downstream to mouth. CBP segment YRKMH. DSS shellfish condemnation # 050-073 B (effective 20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAT-F26E_WRE01A00 / Ware Creek / South of Terrapin Pt., W of Purtan Island. From end of tidal waters downstream to mouth; includes piece of York SF Cond, CBP segment YRKMH. DSS shellfish condemnation # 050-073 A (effective 20200815).	4A	Aquatic Plants (Macrophytes)	2006	L	0.133
VAT-F26E_YRK01A04 / York River / York River at Goalders Creek downstream to the boundary of DSS OPEN condemnation # 049-004 (effective 20200715). CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	3.962
VAT-F26E_YRK01B10 / York River / Start of York River at West Point (RM 32.0) downstream to the boundary of ADMIN COND # 049-004 A (effective 7/15/2020), approx. Goff Point . CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	1.086
VAT-F26E_YRK01C12 / York River-at Hockley Cr / York River segment at mouth of Hockley Cr within VDH DSS Condemnation 049-004 C, 7/15/2020. CB Seg - YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAT-F26E_YRK01D12 / York River / Portion of York River within VDH Seasonal Cond 0049-004 effective date 20200715 YRKMH	4A	Aquatic Plants (Macrophytes)	2006	L	0.042
VAT-F26E_YRK01E14 / York River / York River from Goff Point (end of Admin Cond) to the Conditional Approval condemnation. VDH new Restricted Condemnation 049-004 A 7/15/2020 . CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.457
VAT-F26E_YRK02A14 / York River (Lower Middle MSN) / Segment starts south of New Kent and James City Boundary and extends downstream to the MSN boundary near Mt. Folly/Poropotank Bay. CBP segment YRKMH. No DSS shellfish direct harvesting condemnation present.	4A	Aquatic Plants (Macrophytes)	2006	L	2.680

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F26E_YRK02E20 / York River (lower middle) / York River from Goff Point (end of Restricted-Condemnation) to Goalders Creek. VDH new Conditionally Approved condemnation 20200715. CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	2.125
VAT-F26E_YRK03A00 / York River (Lower Middle) / Segment starts at end of MSN boundary near Mt. Folly/Propotank Bay and extends downstream to the mesohaline/polyhaline boundary. CBP segment YRKMH. Open DSS shellfish direct harvesting condemnation present (effective date 20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	20.372
VAT-F26E_YRK03B12 / York River (Lower Middle) / Portion of York River at Carter Creek north of Camp Peary. Within VDH-DSS Open condemnation-type #049-004 , 20200715. CB segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.023
VAT-F26E_ZZZ01A00 / Unsegmented estuaries in F26E / Non-segmented areas of F26E (N shore York R. trib SW of Gressit) within MSN area. CBP segment YRKMH. DSS (OPEN) shellfish direct harvesting condemnation # 049-004 (effective 20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	0.008
VAT-F26E_ZZZ01B06 / Unsegmented estuaries in F26E / Non-segmented areas of F26E (N shore York R. tribs, upstream of Propotank R.) below MSN boundary. CBP segment YRKMH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.072
VAT-F26E_ZZZ02A06 / Unsegmented estuaries in F26E / Non-segmented areas within VDH-DSS OPEN condemnation 049-004 (effective 20200715). Includes Goalders Creek. CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.038
VAT-F26E_ZZZ02B18 / Unsegmented SF Condemned estuaries in F26E / Non-segmented areas within VDH-DSS Admin-Condemnation 049-004 A (effective 20200715). CBP segment YRKMH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.043

York Mesohaline

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
34.76		

York Mesohaline

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
34.76		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean

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Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source);
Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKPH-DO-BAY** Chesapeake Bay segment YRKPH

Cause Location: This cause encompasses the polyhaline portion of the York.

Cause City/County: Gloucester County; York County

Use(s): Aquatic Life; Deep-Water Aquatic Life; Open-Water Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4A

Cause Description: The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water. There is insufficient data to assess the remaining shorter-term dissolved oxygen criteria for these uses. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_CDB01A00 / Cedarbush Creek - Upper [TMDL-bact] / North shore York River, NW of Catlett Islands. From the end of tidal waters downstream to the end of TMDL (07) coverage. Portion of CBP segment YRKPH. DSS shellfish direct harvesting condemnation # 047-078 C (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.078
VAT-F27E_CDB02A00 / Cedarbush Creek - Mouth / North shore York River, NW of Catlett Islands. CBP segment YRKPH. Restricted DSS shellfish condemnation # 047-078 C (20200715)	4A	Dissolved Oxygen	2006	L	0.015
VAT-F27E_CDB03A16 / Cedarbush Creek (Mouth) / Mouth of Cedarbush Creek. CBP segment YRKPH. DSS OPEN condemnation # 047-078 (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.090
VAT-F27E_CDB04A18 / UT to Cedarbush Creek / UT at Mouth of Cedarbush Creek. CBP segment YRKPH. Open condemnation # 047-078 (effective 20200715).	4A	Dissolved Oxygen	2006	L	0.029
VAT-F27E_CRT01A00 / Carter Cr. (Gloucester Co.) - Upper portion [TMDL-bact] / North shore York River, north of Catlett Islands. From the end of tidal waters downstream to the end of DSS condemnation 047-078B, 20180815 . Portion of CBP segment YRKPH. Split in 2012 cycle	4A	Dissolved Oxygen	2006	L	0.180
VAT-F27E_CRT02A00 / Carter Cr. (Gloucester Co.) - Mouth / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS OPEN shellfish direct harvesting 047-078 (effective date 20200715).	4A	Dissolved Oxygen	2006	L	0.177
VAT-F27E_FEL01A00 / Felgates Creek / South of Pennimon Spit, within Naval Weapons Station. Segment extends from headwaters downstream to mouth. CBP segment YRKPH. DSS Admin condemnation # 051-035 D (effective 8/14/2018)	4A	Dissolved Oxygen	2006	L	0.236

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_IFC01A00 / Indian Field Creek / Southeast of Pennimon Spit, within Naval Weapons Station. CBP segment YRKPH. DSS condemnation (ADMINISTRATIVE) # 051-040 A (effective 20080618).	4A	Dissolved Oxygen	2006	L	0.108
VAT-F27E_KNG01A02 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to end of DSS condemnation # 051-035C, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Dissolved Oxygen	2006	L	0.128
VAT-F27E_KNG02A02 / King Creek - Mouth / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From boundary of (OPEN) condemnation # 051-035 (8/14/2018) to mouth. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.220
VAT-F27E_KNG03A20 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to halfway through DSS Open condemnation-type # 051-035, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Dissolved Oxygen	2006	L	0.072
VAT-F27E_POP01A16 / Poplar Creek / Entirety of Poplar Creek. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.146
VAT-F27E_PRN01A00 / Perrin River - Upper / North shore York River near Cuba Island. Described in DSS Restricted condemnation # 046-081 B and C (effective 20200915). CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.052
VAT-F27E_PRN01C12 / Perrin River - Upper / North shore York River near Cuba Island. Portion of DSS Restricted-Condemnation 046-081, 20180906. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.030
VAT-F27E_PRN02A00 / Perrin River - Lower / North shore York River near Cuba Island. CBP segment YRKPH. Shellfishing Use Not Applicable - Admin. Condemned - DSS Cond # 046-081A, 20200915	4A	Dissolved Oxygen	2006	L	0.057
VAT-F27E_PRN02B12 / Perrin River - Lower / North shore York River near Cuba Island. CBP segment YRKPH. Shellfishing Use Not Applicable - Admin. Condemned - DSS Cond # 046-081A, 20200915	4A	Dissolved Oxygen	2006	L	0.048
VAT-F27E_PRN03A22 / Eastern tributary of Perrin River / Eastern tributary of Perrin River, Shellfish Admin Restricted cond #046-081 (effective 20200915)	4A	Dissolved Oxygen	2006	L	0.050

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_SRH01A00 / Sarah Creek - Northeast Branch / Sarah Creek is a North shore trib to York River near Gloucester Point. Northeast branch of Sarah Creek near Guinea Neck. DSS OPEN #046-052 (20200915). CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.110
VAT-F27E_SRH01B10 / Sarah Creek - Northeast Branch, Upper / North shore trib to York River near Gloucester Point. Segment includes north branch off of the northeast branch of Sarah Creek. CBP segment YRKPH. Part of DSS condemnation # 046-052 B, 20200915.	4A	Dissolved Oxygen	2010	L	0.029
VAT-F27E_SRH01D14 / Sarah Creek / North shore trib of York River near Gloucester Point. Segment extends from end of Restricted SF Cond 046-052 to end of TMDL area near Rt 642. CBP segment YRKPH. DSS restricted condemnation # 046-052 A (effective 20200915).	4A	Dissolved Oxygen	2010	L	0.062
VAT-F27E_SRH02A08 / Sarah Creek - Lower / North shore trib to York River near Gloucester Point. End of TMDL study area to mouth. CBP segment YRKPH. DSS seasonal condemnation # 046-052 M1 (effective 20200915).	4A	Dissolved Oxygen	2008	L	0.026
VAT-F27E_SRH02B16 / Sarah Creek - Northeast Branch, Middle / North shore York River near Gloucester Point. Mainstem and tribs to the Northeast Branch. CBP segment YRKPH. DSS Open condemnation # 046-052 D (effective 09/15/2020).	4A	Dissolved Oxygen	2010	L	0.021
VAT-F27E_SRH03A20 / Sarah Creek - Northeast Branch / Sarah Creek is a North shore trib to York River near Gloucester Point. Northern branch of Sarah Creek near Guinea Neck. DSS Restricted-Condemnation #046-052 C (20200915). CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.003
VAT-F27E_SRW01A14 / Northwest Branch Sarah Creek / North shore York River near Gloucester Point. Segment extends from headwaters north of Rt 641 downstream to mouth of Northwest Br. DSS Restricted condemnation # 046-052 A (effective 20200915). CBP segment YRKPH.	4A	Dissolved Oxygen	2010	L	0.193
VAT-F27E_TMB01A00 / Timberneck Creek - Upper [TMDL-bact] / North shore York River, NE of Catlett Islands. From the end of tidal waters downstream to the end of VDH-DSS shellfish direct harvesting Restricted condemnation #047-003 A (effective 20200715) and conditionally approved #047-003 S16 (effective date 20200715).	4A	Dissolved Oxygen	2006	L	0.139

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_TMB01B12 / Timberneck Creek - Upper [TMDL-bact] / North shore York River, NE of Catlett Islands. From the end of DSS shellfish Open condemnation # 047-003 (effective 20200715). downstream to the end of TMDL (07) coverage. Portion of CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.077
VAT-F27E_TMB02A08 / Timberneck Creek - Middle / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS (OPEN) shellfish direct harvesting condemnation # 047-003 (effective 20200715).	4A	Dissolved Oxygen	2008	L	0.034
VAT-F27E_TMB03A08 / Timberneck Creek - Mouth / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation (effective date 20200715).	4A	Dissolved Oxygen	2008	L	0.188
VAT-F27E_WOR01A08 / Wormley Creek / South shore York River near Amoco facility southeast of Gloucester Point. CBP segment YRKPH. Upstream portion of DSS (ADMINISTRATIVE) condemnation # 052-006 A (effective 2018-05-03).	4A	Dissolved Oxygen	2008	L	0.283
VAT-F27E_YRK01A00 / York River - Lower Middle / The polyhaline boundary downstream to line from Roosevelt Pond N to Mumfort Islands at RM 7.49, excluding otherwise segmented DSS shellfish condemnation areas. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715). YRKPH	4A	Dissolved Oxygen	2006	L	10.393
VAT-F27E_YRK01B00 / York R - DSS AdminCond @ Cheatham Annex/Camp Peary / Segment adjacent to Cheatham Annex, VDH-DSS condemnation 051-035 B (effective 8/14/2018) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.260
VAT-F27E_YRK01C00 / York R - DSS AdminCond @ Naval Weapons Station / Segment adjacent to Yorktown Naval Weapons Sta., VDH-DSS condemnation 051-040 B (effective 20080618) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.236
VAT-F27E_YRK01D06 / York River - Yorktown Beach / Yorktown Beach VDH bathing area. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #052-006 (effective date 20180503).	4A	Dissolved Oxygen	2006	L	0.024
VAT-F27E_YRK01E06 / York River - Gloucester Point Beach / Gloucester Point Beach VDH bathing area. CBP segment YRKPH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 046-052 (effective 20200915).	4A	Dissolved Oxygen	2006	L	0.018

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_YRK02A00 / York River - Lower / Segment starts at line across river from Roosevelt Pond to Mumfort Islands (RM 7.49), downstream to mouth (RM 0.0) near Thoroughfare Creek. CBP segment YRKPH. No DSS shellfish condemnation.	4A	Dissolved Oxygen	2004	L	11.657
VAT-F27E_YRK02B00 / York R - DSS AdminCond @ HRSD York STP/Amoco / Described in VDH-DSS (ADMINISTRATIVE) shellfish condemnation 052-006 B&C (effective 20180503) adjacent Wormley Cr., HRSD STP & power plant and refinery. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	0.508
VAT-F27E_YRK02C00 / York River - DSS AdminCond @ Wormley to USCG / Segment on Yorktown side (south shore) of river. DSS (ADMINISTRATIVE) shellfish condemnation # 052-006 A (effective 2018-05-03) (portion in York R), from Wormley Cr. to USCG Station, S shore to mid-channel. CBP segment YRKPH.	4A	Dissolved Oxygen	2006	L	2.698
VAT-F27E_YRK02D12 / York River - Lower / Portion of York River within VDH-DSS seasonal condemnation 046-052M1, effective date 20200915. CBP segment YRKPH.	4A	Dissolved Oxygen	2004	L	0.139
VAT-F27E_ZZZ01A00 / Unsegmented estuaries in F27E / Non-segmented estuarine areas of F27E - Lower York River. Primarily north shore tribs between Cedarbush and Timberneck Creeks. CBP segment YRKPH. DSS shellfish harvesting Open condemnations 046-081 (effective date 20200915) and 049-004 (effective date 20200715)	4A	Dissolved Oxygen	2006	L	0.062

Chesapeake Bay segment YRKPH

Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
28.874		

Chesapeake Bay segment YRKPH

Deep-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
27.814		

Chesapeake Bay segment YRKPH

Open-Water Aquatic Life

Dissolved Oxygen - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
28.874		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKPH-EBEN-BAY** York River - BIBI YRKPHa segments

Cause Location: This cause encompasses the polyhaline BIBI segment YRKPHa portions of the mainstem York River.

Cause City/County: Gloucester County; York County

Use(s): Aquatic Life

Causes(s)/VA Category: Estuarine Bioassessments/5A

Cause Description: During the 2010 cycle, the York Polyhaline estuary failed the Aquatic Life Use due to the Chesapeake Bay B-IBI. The TMDL was due in 2022. The benthics are acceptable during the 2012 cycle, therefore it was delisted. There was insufficient data for benthics in 2014 and 2016. In the 2018/2020 IR cycle, the Benthic assessment was impaired for YRKPHa. YRKPHa is impaired for the 2022 IR cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_KNG02A02 / King Creek - Mouth / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From boundary of (OPEN) condemnation # 051-035 (8/14/2018) to mouth. CBP segment YRKPH.	5A	Estuarine Bioassessments	2010	L	0.220
VAT-F27E_PRN03A22 / Eastern tributary of Perrin River / Eastern tributary of Perrin River, Shellfish Admin Restricted cond #046-081 (effective 20200915)	5A	Estuarine Bioassessments	2022	L	0.050
VAT-F27E_SRH02A08 / Sarah Creek - Lower / North shore trib to York River near Gloucester Point. End of TMDL study area to mouth. CBP segment YRKPH. DSS seasonal condemnation # 046-052 M1 (effective 20200915).	5A	Estuarine Bioassessments	2022	L	0.026
VAT-F27E_TMB03A08 / Timberneck Creek - Mouth / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation (effective date 20200715).	5A	Estuarine Bioassessments	2010	L	0.188
VAT-F27E_YRK01A00 / York River - Lower Middle / The polyhaline boundary downstream to line from Roosevelt Pond N to Mumfort Islands at RM 7.49, excluding otherwise segmented DSS shellfish condemnation areas. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715). YRKPH	5A	Estuarine Bioassessments	2004	L	10.393
VAT-F27E_YRK01B00 / York R - DSS AdminCond @ Cheatham Annex/Camp Peary / Segment adjacent to Cheatham Annex, VDH-DSS condemnation 051-035 B (effective 8/14/2018) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	5A	Estuarine Bioassessments	2004	L	0.260

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_YRK01C00 / York R - DSS AdminCond @ Naval Weapons Station / Segment adjacent to Yorktown Naval Weapons Sta., VDH-DSS condemnation 051-040 B (effective 20080618) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	5A	Estuarine Bioassessments	2004	L	0.236
VAT-F27E_YRK01D06 / York River - Yorktown Beach / Yorktown Beach VDH bathing area. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #052-006 (effective date 20180503).	5A	Estuarine Bioassessments	2006	L	0.024
VAT-F27E_YRK01E06 / York River - Gloucester Point Beach / Gloucester Point Beach VDH bathing area. CBP segment YRKPH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 046-052 (effective 20200915).	5A	Estuarine Bioassessments	2006	L	0.018
VAT-F27E_YRK02A00 / York River - Lower / Segment starts at line across river from Roosevelt Pond to Mumfort Islands (RM 7.49), downstream to mouth (RM 0.0) near Thoroughfare Creek. CBP segment YRKPH. No DSS shellfish condemnation.	5A	Estuarine Bioassessments	2004	L	11.657
VAT-F27E_YRK02B00 / York R - DSS AdminCond @ HRSD York STP/Amoco / Described in VDH-DSS (ADMINISTRATIVE) shellfish condemnation 052-006 B&C (effective 20180503) adjacent Wormley Cr., HRSD STP & power plant and refinery. CBP segment YRKPH.	5A	Estuarine Bioassessments	2004	L	0.508
VAT-F27E_YRK02C00 / York River - DSS AdminCond @ Wormley to USCG / Segment on Yorktown side (south shore) of river. DSS (ADMINISTRATIVE) shellfish condemnation # 052-006 A (effective 2018-05-03) (portion in York R), from Wormley Cr. to USCG Station, S shore to mid-channel. CBP segment YRKPH.	5A	Estuarine Bioassessments	2004	L	2.698
VAT-F27E_YRK02D12 / York River - Lower / Portion of York River within VDH-DSS seasonal condemnation 046-052M1, effective date 20200915. CBP segment YRKPH.	5A	Estuarine Bioassessments	2018	L	0.139
VAT-F27E_ZZZ01A00 / Unsegmented estuaries in F27E / Non-segmented estuarine areas of F27E - Lower York River. Primarily north shore tribs between Cedarbush and Timberneck Creeks. CBP segment YRKPH. DSS shellfish harvesting Open condemnations 046-081 (effective date 20200915) and 049-004 (effective date 20200715)	5A	Estuarine Bioassessments	2018	L	0.062

York River - BIBI YRKPHa segments

Aquatic Life

Estuarine Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
26.478		

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Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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York River Basin

Cause Group Code: **YRKPH-SAV-BAY** Chesapeake Bay segment YRKPH

Cause Location: This cause encompasses the polyhaline portion of the York.

Cause City/County: Gloucester County; York County

Use(s): Aquatic Life; Shallow-Water Submerged Aquatic Vegetation

Causes(s)/VA Category: Aquatic Plants (Macrophytes)/4A

Cause Description: The Aquatic Life Use Aquatic Plants [Macrophytes] use is impaired for the 2016 cycle based on not meeting the SAV criteria. EPA approved Chesapeake Bay TMDL 12/29/2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_CDB01A00 / Cedarbush Creek - Upper [TMDL-bact] / North shore York River, NW of Catlett Islands. From the end of tidal waters downstream to the end of TMDL (07) coverage. Portion of CBP segment YRKPH. DSS shellfish direct harvesting condemnation # 047-078 C (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.078
VAT-F27E_CDB02A00 / Cedarbush Creek - Mouth / North shore York River, NW of Catlett Islands. CBP segment YRKPH. Restricted DSS shellfish condemnation # 047-078 C (20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	0.015
VAT-F27E_CDB03A16 / Cedarbush Creek (Mouth) / Mouth of Cedarbush Creek. CBP segment YRKPH. DSS OPEN condemnation # 047-078 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.090
VAT-F27E_CDB04A18 / UT to Cedarbush Creek / UT at Mouth of Cedarbush Creek. CBP segment YRKPH. Open condemnation # 047-078 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAT-F27E_CRT01A00 / Carter Cr. (Gloucester Co.) - Upper portion [TMDL-bact] / North shore York River, north of Catlett Islands. From the end of tidal waters downstream to the end of DSS condemnation 047-078B, 20180815 . Portion of CBP segment YRKPH. Split in 2012 cycle	4A	Aquatic Plants (Macrophytes)	2006	L	0.180
VAT-F27E_CRT02A00 / Carter Cr. (Gloucester Co.) - Mouth / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS OPEN shellfish direct harvesting 047-078 (effective date 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.177
VAT-F27E_FEL01A00 / Felgates Creek / South of Pennimon Spit, within Naval Weapons Station. Segment extends from headwaters downstream to mouth. CBP segment YRKPH. DSS Admin condemnation # 051-035 D (effective 8/14/2018)	4A	Aquatic Plants (Macrophytes)	2006	L	0.236
VAT-F27E_IFC01A00 / Indian Field Creek / Southeast of Pennimon Spit, within Naval Weapons Station. CBP segment YRKPH. DSS condemnation (ADMINISTRATIVE) # 051-040 A (effective 20080618).	4A	Aquatic Plants (Macrophytes)	2006	L	0.108

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_KNG01A02 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to end of DSS condemnation # 051-035C, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	0.128
VAT-F27E_KNG02A02 / King Creek - Mouth / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From boundary of (OPEN) condemnation # 051-035 (8/14/2018) to mouth. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.220
VAT-F27E_KNG03A20 / King Creek - Upper / South shore of York River. East of Pennimon Spit, within Naval Weapons Station facility. From end of tidal waters downstream to halfway through DSS Open condemnation-type # 051-035, 8/14/2018. CBP segment YRKPH. Shortened in 2012 cycle.	4A	Aquatic Plants (Macrophytes)	2006	L	0.072
VAT-F27E_POP01A16 / Poplar Creek / Entirety of Poplar Creek. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.146
VAT-F27E_PRN01A00 / Perrin River - Upper / North shore York River near Cuba Island. Described in DSS Restricted condemnation # 046-081 B and C (effective 20200915). CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.052
VAT-F27E_PRN01C12 / Perrin River - Upper / North shore York River near Cuba Island. Portion of DSS Restricted-Condemnation 046-081, 20180906. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.030
VAT-F27E_PRN02A00 / Perrin River - Lower / North shore York River near Cuba Island. CBP segment YRKPH. Shellfishing Use Not Applicable - Admin. Condemned - DSS Cond # 046-081A, 20200915	4A	Aquatic Plants (Macrophytes)	2006	L	0.057
VAT-F27E_PRN02B12 / Perrin River - Lower / North shore York River near Cuba Island. CBP segment YRKPH. Shellfishing Use Not Applicable - Admin. Condemned - DSS Cond # 046-081A, 20200915	4A	Aquatic Plants (Macrophytes)	2006	L	0.048
VAT-F27E_PRN03A22 / Eastern tributary of Perrin River / Eastern tributary of Perrin River, Shellfish Admin Restricted cond #046-081 (effective 20200915)	4A	Aquatic Plants (Macrophytes)	2006	L	0.050
VAT-F27E_SRH01A00 / Sarah Creek - Northeast Branch / Sarah Creek is a North shore trib to York River near Gloucester Point. Northeast branch of Sarah Creek near Guinea Neck. DSS OPEN #046-052 (20200915). CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.110

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_SRH01B10 / Sarah Creek - Northeast Branch, Upper / North shore trib to York River near Gloucester Point. Segment includes north branch off of the northeast branch of Sarah Creek. CBP segment YRKPH. Part of DSS condemnation # 046-052 B, 20200915.	4A	Aquatic Plants (Macrophytes)	2006	L	0.029
VAT-F27E_SRH01D14 / Sarah Creek / North shore trib of York River near Gloucester Point. Segment extends from end of Restricted SF Cond 046-052 to end of TMDL area near Rt 642. CBP segment YRKPH. DSS restricted condemnation # 046-052 A (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.062
VAT-F27E_SRH02A08 / Sarah Creek - Lower / North shore trib to York River near Gloucester Point. End of TMDL study area to mouth. CBP segment YRKPH. DSS seasonal condemnation # 046-052 M1 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.026
VAT-F27E_SRH02B16 / Sarah Creek - Northeast Branch, Middle / North shore York River near Gloucester Point. Mainstem and tribs to the Northeast Branch. CBP segment YRKPH. DSS Open condemnation # 046-052 D (effective 09/15/2020).	4A	Aquatic Plants (Macrophytes)	2006	L	0.021
VAT-F27E_SRH03A20 / Sarah Creek - Northeast Branch / Sarah Creek is a North shore trib to York River near Gloucester Point. Northern branch of Sarah Creek near Guinea Neck. DSS Restricted-Condemnation #046-052 C (20200915). CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.003
VAT-F27E_SRW01A14 / Northwest Branch Sarah Creek / North shore York River near Gloucester Point. Segment extends from headwaters north of Rt 641 downstream to mouth of Northwest Br. DSS Restricted condemnation # 046-052 A (effective 20200915). CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.193
VAT-F27E_TMB01A00 / Timberneck Creek - Upper [TMDL-bact] / North shore York River, NE of Catlett Islands. From the end of tidal waters downstream to the end of VDH-DSS shellfish direct harvesting Restricted condemnation #047-003 A (effective 20200715) and conditionally approved #047-003 S16 (effective date 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.139
VAT-F27E_TMB01B12 / Timberneck Creek - Upper [TMDL-bact] / North shore York River, NE of Catlett Islands. From the end of DSS shellfish Open condemnation # 047-003 (effective 20200715). downstream to the end of TMDL (07) coverage. Portion of CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.077

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_TMB02A08 / Timberneck Creek - Middle / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS (OPEN) shellfish direct harvesting condemnation # 047-003 (effective 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.034
VAT-F27E_TMB03A08 / Timberneck Creek - Mouth / North shore York River, north of Catlett Islands. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation (effective date 20200715).	4A	Aquatic Plants (Macrophytes)	2006	L	0.188
VAT-F27E_WOR01A08 / Wormley Creek / South shore York River near Amoco facility southeast of Gloucester Point. CBP segment YRKPH. Upstream portion of DSS (ADMINISTRATIVE) condemnation # 052-006 A (effective 2018-05-03).	4A	Aquatic Plants (Macrophytes)	2006	L	0.283
VAT-F27E_YRK01A00 / York River - Lower Middle / The polyhaline boundary downstream to line from Roosevelt Pond N to Mumfort Islands at RM 7.49, excluding otherwise segmented DSS shellfish condemnation areas. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #049-004 (effective date 20200715). YRKPH	4A	Aquatic Plants (Macrophytes)	2006	L	10.393
VAT-F27E_YRK01B00 / York R - DSS AdminCond @ Cheatham Annex/Camp Peary / Segment adjacent to Cheatham Annex, VDH-DSS condemnation 051-035 B (effective 8/14/2018) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.260
VAT-F27E_YRK01C00 / York R - DSS AdminCond @ Naval Weapons Station / Segment adjacent to Yorktown Naval Weapons Sta., VDH-DSS condemnation 051-040 B (effective 20080618) ADMINISTRATIVE condemnation due to National Security. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.236
VAT-F27E_YRK01D06 / York River - Yorktown Beach / Yorktown Beach VDH bathing area. CBP segment YRKPH. DSS shellfish direct harvesting Open condemnation #052-006 (effective date 20180503).	4A	Aquatic Plants (Macrophytes)	2006	L	0.024
VAT-F27E_YRK01E06 / York River - Gloucester Point Beach / Gloucester Point Beach VDH bathing area. CBP segment YRKPH. Portion of DSS (OPEN) shellfish direct harvesting condemnation # 046-052 (effective 20200915).	4A	Aquatic Plants (Macrophytes)	2006	L	0.018
VAT-F27E_YRK02A00 / York River - Lower / Segment starts at line across river from Roosevelt Pond to Mumfort Islands (RM 7.49), downstream to mouth (RM 0.0) near Thoroughfare Creek. CBP segment YRKPH. No DSS shellfish condemnation.	4A	Aquatic Plants (Macrophytes)	2006	L	11.657

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAT-F27E_YRK02B00 / York R - DSS AdminCond @ HRSD York STP/Amoco / Described in VDH-DSS (ADMINISTRATIVE) shellfish condemnation 052-006 B&C (effective 20180503) adjacent Wormley Cr., HRSD STP & power plant and refinery. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.508
VAT-F27E_YRK02C00 / York River - DSS AdminCond @ Wormley to USCG / Segment on Yorktown side (south shore) of river. DSS (ADMINISTRATIVE) shellfish condemnation # 052-006 A (effective 2018-05-03) (portion in York R), from Wormley Cr. to USCG Station, S shore to mid-channel. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	2.698
VAT-F27E_YRK02D12 / York River - Lower / Portion of York River within VDH-DSS seasonal condemnation 046-052M1, effective date 20200915. CBP segment YRKPH.	4A	Aquatic Plants (Macrophytes)	2006	L	0.139
VAT-F27E_ZZZ01A00 / Unsegmented estuaries in F27E / Non-segmented estuarine areas of F27E - Lower York River. Primarily north shore tribs between Cedarbush and Timberneck Creeks. CBP segment YRKPH. DSS shellfish harvesting Open condemnations 046-081 (effective date 20200915) and 049-004 (effective date 20200715)	4A	Aquatic Plants (Macrophytes)	2006	L	0.062

Chesapeake Bay segment YRKPH

Aquatic Life

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
28.874		

Chesapeake Bay segment YRKPH

Shallow-Water Submerged Aquatic Vegetation

Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
28.874		

Sources: Agriculture; Atmospheric Deposition - Nitrogen; Clean Sediments; Industrial Point Source Discharge; Internal Nutrient Recycling; Loss of Riparian Habitat; Municipal Point Source Discharges; Sediment Resuspension (Clean Sediment); Source Unknown; Sources Outside State Jurisdiction or Borders; Wet Weather Discharges (Non-Point Source); Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

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New River Basin

Cause Group Code: **N01R-02-BAC** Little Helton Creek

Cause Location: A tributary to Helton Creek. The segment extends from the Virginia state line upstream.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: The ambient water quality monitoring station 9-LHC001.92 had 2 or more STV hits in the same 90-day period with less than 10 samples during the 2018 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N01R_LHC01A02 / Little Helton Creek & tributaries / From Virginia state line upstream to Haw Orchard in Grayson Highlands State Park, a tributary to Helton Creek.	5A	Fecal Coliform	2004	L	6.31

Little Helton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			6.31

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N01R_LHC01A02 / Little Helton Creek & tributaries / From Virginia state line upstream to Haw Orchard in Grayson Highlands State Park, a tributary to Helton Creek.	5A	Escherichia coli (E. coli)	2010	L	6.31

Little Helton Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.31

Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N02R-01-TEMP** **Wilson Creek**

Cause Location: Wilson Creek mainstem from the New River confluence at Mouth of Wilson upstream 8.8 miles and from rivermile 8.8 upstream to the Quebec Branch confluence.

Cause City/County: Grayson County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Station 9-WLS001.78 had 2 of 11 temperature measurements exceed the water quality standard for Class VI natural trout waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_WLS01A04 / Wilson Creek / Middle segment of Wilson Creek from mile 8.8 near Rugby, upstream to Quebec Branch confluence.	5A	Temperature	2020	L	4.63
VAS-N02R_WLS01A98 / Wilson Creek / Wilson Creek mainstem from New River confluence at Mouth of Wilson upstream 8.8 miles. Parallel to Rt. 58, includes Volney.	5A	Temperature	2020	L	8.91

Wilson Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			13.54

Sources: Source Unknown

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New River Basin

Cause Group Code: **N02R-02-BAC** New River, Bridle Creek and Grassy Creek

Cause Location: This segment of the New River begins at the North Carolina state line, includes Fields Dam, and extends downstream to the confluence with Saddle Creek at the Route 601 bridge and from where the New River reenters VA from NC to the confluence with Peach Bottom Creek. Grassy Creek from the headwaters downstream to the North Carolina state line and Bridle Creek, a tributary of the New River west of Rt. 601.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: The AWQM stations located at 9-BRL000.04, 9-GRA003.36, 9-NEW187.46 had 2 STV or more hits in the same 90-day period with < 10 samples. Stations 9-NEW181.66 and 9-NEW171.94 had 1 STV hit in one or multiple 90-day periods but insufficient data to analyze geomean. 9-NEW172.45 had 16% and 9-NEW171.94 had a 13% of samples that exceeded the previous bacteria WQS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_BRL01A10 / Bridle Creek / Tributary of New River, west of Rt. 601, south of Rt. 58.	5A	Escherichia coli (E. coli)	2014	L	1.14
VAS-N02R_GRA01A10 / Grassy Creek / Headwaters to NC state line east of Quillen Ridge and parallel SR 725.	5A	Escherichia coli (E. coli)	2010	L	3.65
VAS-N02R_NEW01A98 / New River / Upper mainstem begins at the North Carolina state line at river mile 189.06, and extends downstream to the Wilson Creek confluence at Mouth of Wilson at river mile 188.46. Headwaters are in North Carolina.	5A	Escherichia coli (E. coli)	2010	L	0.74
VAS-N02R_NEW02A98 / New River / Mainstem from the Wilson Creek confluence downstream to the Fox Creek confluence near Fox.	5A	Escherichia coli (E. coli)	2010	L	2.50
VAS-N02R_NEW03C04 / New River / Mainstem from Fox Creek confluence downstream to the Bridle Creek confluence at SR 601 bridge north of Big Ridge.	5A	Escherichia coli (E. coli)	2010	L	4.23
VAS-N04R_NEW01A98 / New River / Mainstem from Brush Creek confluence downstream to Peach Bottom Creek confluence, parallel to North Carolina state line.	5A	Escherichia coli (E. coli)	2012	L	5.98
VAS-N04R_NEW01B02 / New River / New River mainstem north of Privett Knob, from Bridle Creek confluence downstream to Saddle Creek confluence.	5A	Escherichia coli (E. coli)	2010	L	1.48
VAS-N04R_NEW02B06 / New River / From NC state line downstream to Brush Creek confluence at Rt. 21/221 bridge.	5A	Escherichia coli (E. coli)	2020	L	0.43

New River, Bridle Creek and Grassy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		20.15

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_NEW01A98 / New River / Upper mainstem begins at the North Carolina state line at river mile 189.06, and extends downstream to the Wilson Creek confluence at Mouth of Wilson at river mile 188.46. Headwaters are in North Carolina.	5A	Fecal Coliform	2004	L	0.74
VAS-N02R_NEW02A98 / New River / Mainstem from the Wilson Creek confluence downstream to the Fox Creek confluence near Fox.	5A	Fecal Coliform	2004	L	2.50
VAS-N02R_NEW03C04 / New River / Mainstem from Fox Creek confluence downstream to the Bridle Creek confluence at SR 601 bridge north of Big Ridge.	5A	Fecal Coliform	2004	L	4.23
VAS-N04R_NEW01B02 / New River / New River mainstem north of Privett Knob, from Bridle Creek confluence downstream to Saddle Creek confluence.	5A	Fecal Coliform	2004	L	1.48

New River, Bridle Creek and Grassy Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			8.95

Sources: Grazing in Riparian or Shoreline Zones; Rural (Residential Areas); Source Unknown; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N02R-02-HG** **New River**

Cause Location: This segment begins at the upper mainstem at the North Carolina state line at river mile 189.06, and extends downstream to the Saddle Creek confluence, it includes the mainstem from the North Carolina line in N04 downstream to the confluence with Rock Creek and the mainstem from Buddle Branch downstream to the confluence with Reed Creek.

Cause City/County: Grayson County; Wythe County

Use(s): Fish Consumption

Causes(s)/VA Category: Mercury in Fish Tissue/5A

Cause Description: Fish tissue collected on 6/16/2004 at 9-NEW176.85 show exceedances of the tissue value for mercury in a smallmouth bass, flathead catfish, and white sucker. A second smallmouth exceeded the VDH level of concern. Fish tissue collected on 6/16/2004 at 9-NEW171.94 show exceedances of the tissue value in a smallmouth bass, flathead catfish and carp. Fish tissue collected on 6/17/2004 at 9-NEW158.54 show exceedances of the tissue value in a rock bass, smallmouth bass, and carp. Fish tissue collected on 7/15/2004 at 9-NEW117.47 show exceedances of the tissue value in largemouth bass, smallmouth bass, and carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_NEW01A98 / New River / Upper mainstem begins at the North Carolina state line at river mile 189.06, and extends downstream to the Wilson Creek confluence at Mouth of Wilson at river mile 188.46. Headwaters are in North Carolina.	5A	Mercury in Fish Tissue	2006	L	0.74
VAS-N02R_NEW02A98 / New River / Mainstem from the Wilson Creek confluence downstream to the Fox Creek confluence near Fox.	5A	Mercury in Fish Tissue	2006	L	2.50
VAS-N02R_NEW03C04 / New River / Mainstem from Fox Creek confluence downstream to the Bridle Creek confluence at SR 601 bridge north of Big Ridge.	5A	Mercury in Fish Tissue	2006	L	4.23
VAS-N04R_NEW01A98 / New River / Mainstem from Brush Creek confluence downstream to Peach Bottom Creek confluence, parallel to North Carolina state line.	5A	Mercury in Fish Tissue	2006	L	5.98
VAS-N04R_NEW01B02 / New River / New River mainstem north of Privett Knob, from Bridle Creek confluence downstream to Saddle Creek confluence.	5A	Mercury in Fish Tissue	2008	L	1.48
VAS-N04R_NEW01C02 / New River / Mainstem west of Baywood, from Little River confluence downstream to Rock Creek confluence.	5A	Mercury in Fish Tissue	2006	L	4.69
VAS-N04R_NEW02A06 / New River / From Peach Bottom Creek confluence downstream to Little River confluence.	5A	Mercury in Fish Tissue	2010	L	3.61
VAS-N04R_NEW02B06 / New River / From NC state line downstream to Brush Creek confluence at Rt. 21/221 bridge.	5A	Mercury in Fish Tissue	2006	L	0.43
VAS-N08R_NEW03A06 / New River / Mainstem from I-77 bridge downstream to Reed Creek confluence near Lone Ash.	5A	Mercury in Fish Tissue	2006	L	6.51

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Appendix 4 - Fact Sheets for
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New River

Fish Consumption

Mercury in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		30.17

Sources: Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N02R-03-BAC** **Wilson Creek and Little Wilson Creek**

Cause Location: This segment includes the Wilson Creek mainstem from the New River confluence upstream to the Quebec Branch confluence and Little Wilson Creek, a tributary to Wilson Creek north of Mink Ridge.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: The AWQM stations 9-LWL000.98 and 9-WLS002.57 had 2 or more STV hits in the same 90-day period with less 10 samples. 9-WLS001.78 had 1 STV hit in one or multiple 90-day periods but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_LWL01A20 / Little Wilson Creek / Tributary to Wilson Creek, north of Mink Ridge.	5A	Escherichia coli (E. coli)	2020	L	7.58
VAS-N02R_WLS01A04 / Wilson Creek / Middle segment of Wilson Creek from mile 8.8 near Rugby, upstream to Quebec Branch confluence.	5A	Escherichia coli (E. coli)	2018	L	4.63
VAS-N02R_WLS01A98 / Wilson Creek / Wilson Creek mainstem from New River confluence at Mouth of Wilson upstream 8.8 miles. Parallel to Rt. 58, includes Volney.	5A	Escherichia coli (E. coli)	2010	L	8.91

Wilson Creek and Little Wilson Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		21.12

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N02R_WLS01A98 / Wilson Creek / Wilson Creek mainstem from New River confluence at Mouth of Wilson upstream 8.8 miles. Parallel to Rt. 58, includes Volney.	5A	Fecal Coliform	2004	L	8.91

Wilson Creek and Little Wilson Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.91

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Source Unknown

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N03R-01-BAC** **Fox Creek and Tributaries**

Cause Location: The mainstem of Fox Creek from the Mill Creek confluence to the New River confluence, Middle Fox Creek from the Fox Creek confluence upstream 4.1 miles, Mill Creek from the confluence with Fox Creek upstream to the headwaters, and Little Fox Creek from the Fox Creek confluence upstream 2.2 miles.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: AWQM station 9-FXC000.84 had 1 STV hit in 1 90-day period and station 9-FXC003.35 had no STV hits with insufficient data to analyze geomean. Station 9-LFX000.06 had 2 STV hits in the same 90-day period with less than 10 samples. Stations 9-MFX000.13 and 9-MIR000.28 had 3 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N03R_FXC01A98 / Fox Creek / Mainstem of Fox Creek from Mill Creek confluence north of Grant to the New River confluence near Fox.	5A	Escherichia coli (E. coli)	2010	L	7.66
VAS-N03R_LFX01A10 / Little Fox Creek / A Fox Creek tributary downstream to confluence with Fox Creek, WQS Section 2, South of Grubbs Chapel, parallels Rt. 680 (NE06)	5A	Escherichia coli (E. coli)	2010	L	2.29
VAS-N03R_MFX02A02 / Middle Fox Creek / From Fox Creek confluence upstream 4.4 miles, west of Buck Mountain.	5A	Escherichia coli (E. coli)	2010	L	4.61
VAS-N03R_MIR01A02 / Mill Creek / From Fox Creek confluence north of Grant, upstream to origin on Pine Mountain, parallels Rt. 739.	5A	Escherichia coli (E. coli)	2010	L	4.57

Fox Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.13

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N03R_FXC01A98 / Fox Creek / Mainstem of Fox Creek from Mill Creek confluence north of Grant to the New River confluence near Fox.	5A	Fecal Coliform	2004	L	7.66

Fox Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			7.66

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Source Unknown

Virginia Department of Environmental Quality
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New River Basin

Cause Group Code: **N04R-01-BEN** **Brush Creek**

Cause Location: Brush Creek mainstem from the headwaters near the intersection of Rt. 703 and Rt. 58 to the confluence with the New River, southwest of Bald Hill.

Cause City/County: Grayson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station 9-BUH003.23 had VSCI scores of 51.9 and 60.7 in the 2019 monitoring season. The habitat this location is poor and has been impacted by agricultural uses.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N04R_BUH01A22 / Brush Creek / Brush Creek mainstem from the headwaters near the intersection of Rt. 703 and Rt. 58 to the confluence with the New River, southwest of Bald Hill.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	4.62

Brush Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.62

Sources: Agriculture

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N04R-02-BAC** **Little River**

Cause Location: This segment includes the Little River mainstem from NC state line, river mile 5.20, to the confluence at New River.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station, 9-LVR001.34, had a 25% exceedance of the fecal coliform water quality standard in the 2004 WQA. The station was moved to 9-NEW002.65 in 2003 and had a 16% exceedance of the E. coli water quality standard.

During the 2018 monitoring season, station 9-LRV002.65 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N04R_LVR01A98 / Little River / Little River mainstem east of Peach Bottom, from NC state line, river mile 5.20, to the confluence of New River.	5A	Escherichia coli (E. coli)	2012	L	6.55

Little River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.55

Sources: Rural (Residential Areas)

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

New River Basin

Cause Group Code: **N04R-03-BAC** **Peach Bottom Creek and Rock Creek**

Cause Location: This segment includes the mainstem from the headwaters downstream to the confluence with the New River. This also includes Rock Creek from the U.S. 21 crossing to the confluence with the New River.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: Stations 9-PBC001.12, 9-PBC008.61, and 9-RCK000.50 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N04R_PBC01A98 / Peach Bottom Creek / Mainstem from Beaverdam Creek confluence downstream to New River confluence parallel to SR 697.	5A	Fecal Coliform	2004	L	2.81

Peach Bottom Creek and Rock Creek

Recreation

Estuary (Sq. Miles)
Reservoir (Acres)
River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 2.81

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N04R_PBC01A98 / Peach Bottom Creek / Mainstem from Beaverdam Creek confluence downstream to New River confluence parallel to SR 697.	5A	Escherichia coli (E. coli)	2006	L	2.81
VAS-N04R_PBC01B02 / Peach Bottom Creek / Peach Bottom Creek headwaters north of Buck Mountain, downstream to confluence of Little Peach Bottom Creek north of Independence.	5A	Escherichia coli (E. coli)	2012	L	8.87
VAS-N04R_PBC01C04 / Peach Bottom Creek / East of Independence from Beaverdam Creek confluence, upstream to Little Peach Bottom Creek confluence.	5A	Escherichia coli (E. coli)	2016	L	5.34
VAS-N04R_RCK01A12 / Rock Creek / New River tributary from SR 654 near Chestnut Hill School downstream, northeast of Independence.	5A	Escherichia coli (E. coli)	2012	L	5.01

Peach Bottom Creek and Rock Creek

Recreation

Estuary (Sq. Miles)
Reservoir (Acres)
River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 22.03

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N04R-07-BAC** Saddle Creek

Cause Location: This segment includes the mainstem from the New River confluence upstream 3.09 miles, west of Independence.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station, 9-SDL000.05 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N04R_SDL01A06 / Saddle Creek / A New River tributary west of Independence.	5A	Escherichia coli (E. coli)	2006	L	3.17

Saddle Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.17

Sources: Animal Feeding Operations (NPS); Livestock (Grazing or Feeding Operations)

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N05R-01-BAC** **Elk Creek and Tributaries**

Cause Location: This segment includes Elk Creek from the Comers Rock Branch confluence downstream to the New River confluence, including 4.31 miles of Knob Fork and Middle Branch Elk Creek, west of Bennington Mill. It also includes the headwaters of Turkey Fork near Dry Run Gap on Iron Mountain.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM stations, 9-EKC000.11, 9-EKC003.78, 9-EKC010.47, 9-EKC012.13, 9-EKC017.51 and 9-KNB000.03 had exceedances of the E. coli water quality standard that ranged from 26-66%. Stations 9-ECM001.01 had a 75% exceedance and 9-TKY001.55 had a 100% exceedance of the E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N05R_EKC01A00 / Elk Creek / Lower Elk Creek from the Knob Fork confluence, north of Lundy Knob, downstream to the New River confluence.	4A	Fecal Coliform	2002	L	3.32
VAS-N05R_EKC02A00 / Elk Creek / Upper Elk Creek from the Turkey Fork confluence, north of Poor Knob, downstream to Knob Fork confluence.	4A	Fecal Coliform	2002	L	7.59

Elk Creek and Tributaries

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 10.91

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N05R_ECM01A14 / Middle Branch Elk Creek / Elk Creek tributary west of Bennington Mill.	4A	Escherichia coli (E. coli)	2016	L	3.06
VAS-N05R_EKC01A00 / Elk Creek / Lower Elk Creek from the Knob Fork confluence, north of Lundy Knob, downstream to the New River confluence.	4A	Escherichia coli (E. coli)	2006	L	3.32
VAS-N05R_EKC02A00 / Elk Creek / Upper Elk Creek from the Turkey Fork confluence, north of Poor Knob, downstream to Knob Fork confluence.	4A	Escherichia coli (E. coli)	2006	L	7.59
VAS-N05R_EKC03A02 / Elk Creek / Mainstem from confluence of Comers Rock Branch near Bennington Mill, downstream to Turkey Fork confluence.	4A	Escherichia coli (E. coli)	2006	L	9.38
VAS-N05R_KNB01A06 / Knob Fork / Elk Creek tributary upstream to Farmers Branch, at The Pilot, NE of Briarpatch Mountain.	4A	Escherichia coli (E. coli)	2006	L	4.61
VAS-N05R_TKY01A02 / Turkey Fork / Headwaters near Dry Run Gap on Iron Mountain in Jefferson National Forest.	4A	Escherichia coli (E. coli)	2018	L	6.00

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Appendix 4 - Fact Sheets for
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Elk Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			33.96

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Septage Disposal; Sewage Discharges in Unsewered Areas; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N05R-01-BEN** Elk Creek and Turkey Fork

Cause Location: This segment includes the mainstem from the confluence of Comers Rock Branch downstream to Turkey Fork. It also includes the headwaters of Turkey Fork near Dry Run Gap on Iron Mountain.

Cause City/County: Grayson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 9-EKC013.81 was impaired based on VSCI scores of 47 and 45 in 2016. Monitoring station 9-TKY001.55 was impaired based on VSCI scores of 40 and 39 in 2015.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N05R_EKC03A02 / Elk Creek / Mainstem from confluence of Comers Rock Branch near Bennington Mill, downstream to Turkey Fork confluence.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	9.38
VAS-N05R_TKY01A02 / Turkey Fork / Headwaters near Dry Run Gap on Iron Mountain in Jefferson National Forest.	5A	Benthic Macroinvertebrates Bioassessments	2018	H	6.00

Elk Creek and Turkey Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.38

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N06R-01-BAC** **Chestnut Creek and Tributaries**

Cause Location: This segment of Chestnut Creek extends from the confluence with Coal Creek downstream to river mile 14.27 at the Galax raw water intake and from river mile 14.27 downstream to the Allied-Signal Gossan mine discharge at river mile 8.06. Lower Chestnut Creek from the Skunk Branch confluence at the Allied Gossan mine, river mile 8.06, downstream to the confluence with New River. Coal Creek, a Chestnut Creek tributary from Coby Knob downstream to the Blue Ridge Parkway. The middle segment of Chestnut Creek East Fork near McKnights Mill.

Cause City/County: Carroll County; Galax; Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 9-CST0016.82, had a 20% exceedance of the E.coli water quality standard. Stations 9-CST002.64 and 9-CST012.75 had 2 or more STV hits in the same 90-day period with less than 10 samples. Stations 9-CCR002.92 and 9-CEF002.79 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N06R_CCR01A02 / Coal Creek / A Chestnut Creek tributary from Coby Knob downstream to Blue Ridge Parkway, SE of Galax.	4A	Escherichia coli (E. coli)	2022	L	6.02
VAS-N06R_CEF02A22 / Chestnut Creek East Fork / Middle section of East Fork Chestnut Creek, near McKnights Mill.	4A	Escherichia coli (E. coli)	2022	L	4.71
VAS-N06R_CST01A94 / Chestnut Creek / Lower Chestnut Creek from Skunk Branch confluence at Allied Gossan mine, river mile 8.06, downstream to the confluence with New River.	4A	Escherichia coli (E. coli)	2014	L	8.69
VAS-N06R_CST02A94 / Chestnut Creek / Segment extends from the City of Galax Water Treatment Plant intake, river mile 14.27, downstream to the Allied-Signal Gossan mine discharge, river mile 8.06.	4A	Escherichia coli (E. coli)	2016	L	5.69
VAS-N06R_CST03A94 / Chestnut Creek / Segment extends from the southern Route 89 bridge, river mile 15.00, near the upstream Galax City limit, downstream to river mile 14.27, the Galax raw water intake.	4A	Escherichia coli (E. coli)	2004	L	1.10
VAS-N06R_CST04A98 / Chestnut Creek / This is an upstream continuation of the public water supply segment for the City of Galax raw water intake extending upstream to Cox Mill.	4A	Escherichia coli (E. coli)	2004	L	2.11

Chestnut Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28.32

Sources: Agriculture; Animal Feeding Operations (NPS); Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Rural

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(Residential Areas)

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New River Basin

Cause Group Code: **N06R-01-BEN** **Chestnut Creek**

Cause Location: This segment includes the mainstem of Chestnut Creek from the Skunk Branch confluence downstream to the confluence with New River.

Cause City/County: Carroll County; Galax; Grayson County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Station 9-CST005.73 had VSCI scores of 37.4 and 66.7 and station 9-CST012.63 had VSCI scores of 41.8 and 69.5 during the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N06R_CST01A94 / Chestnut Creek / Lower Chestnut Creek from Skunk Branch confluence at Allied Gossan mine, river mile 8.06, downstream to the confluence with New River.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	8.69
VAS-N06R_CST02A94 / Chestnut Creek / Segment extends from the City of Galax Water Treatment Plant intake, river mile 14.27, downstream to the Allied-Signal Gossan mine discharge, river mile 8.06.	4A	Benthic Macroinvertebrates Bioassessments	2004	L	5.69

Chestnut Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		14.38

Sources: Acid Mine Drainage; Crop Production (Crop Land or Dry Land); Grazing in Riparian or Shoreline Zones; Mine Tailings; Silviculture Activities; Unrestricted Cattle Access; Urban Runoff/Storm Sewers

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New River Basin

Cause Group Code: **N06R-03-BAC** Meadow Creek and New River

Cause Location: Meadow Creek and its tributaries and the New River from Elk Creek confluence downstream to Eagle Bottom Creek confluence.

Cause City/County: Grayson County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM stations located at 9-MCR000.20 and 9-NEW148.23 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N06R_MCR01A02 / Meadow Creek & tributaries / Meadow Creek from confluence with New River upstream to headwaters and tributaries, south west of Galax.	5A	Escherichia coli (E. coli)	2010	L	10.54
VAS-N06R_NEW01A00 / New River / Mainstem from the Elk Creek confluence near Riverside to five miles above Fries Dam.	5A	Escherichia coli (E. coli)	2004	L	5.38
VAS-N06R_NEW02A02 / New River / New River mainstem from Fries Dam, five miles upstream.	5A	Escherichia coli (E. coli)	2014	L	5.03

Meadow Creek and New River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.95

Sources: Livestock (Grazing or Feeding Operations); Rural (Residential Areas); Source Unknown; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N07R-01-BAC** **Crooked Creek**

Cause Location: This segment extends from the headwaters of Crooked Creek downstream to the confluence with New River at Byllesby.

Cause City/County: Carroll County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: The AWQM station, 9-CRK020.79, had a 25% exceedance of the E. coli water quality standard. Station 9-CRK015.69 had a 50% exceedance of the E.coli water quality standard. 9-CRK003.00 has 33% exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N07R_CRK01A04 / Crooked Creek / From headwaters near Pipers Gap to Beaverdam Creek confluence south of Woodlawn.	5A	Escherichia coli (E. coli)	2010	L	11.45
VAS-N07R_CRK01A98 / Crooked Creek / From confluence of Cranberry Creek east of SR 635, downstream to New River at Byllesby.	5A	Escherichia coli (E. coli)	2010	L	12.10
VAS-N07R_CRK02A04 / Crooked Creek / From Beaverdam Creek confluence, south of Woodlawn, to Cranberry Creek confluence, WQS Section 2 (NE20).	5A	Escherichia coli (E. coli)	2010	L	4.36

Crooked Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 27.91

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N07R_CRK01A04 / Crooked Creek / From headwaters near Pipers Gap to Beaverdam Creek confluence south of Woodlawn.	5A	Fecal Coliform	2004	L	11.45
VAS-N07R_CRK01A98 / Crooked Creek / From confluence of Cranberry Creek east of SR 635, downstream to New River at Byllesby.	5A	Fecal Coliform	2004	L	12.10

Crooked Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 23.55

Sources: Grazing in Riparian or Shoreline Zones; Source Unknown; Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N08R-01-BAC** **New River, Mill Creek, and Pine Run**

Cause Location: This segment includes the tributaries of the New River from the Reed Creek confluence downstream to the Big Reed Island Creek confluence including Pine Run and Mill Creek. This bacteria impaired section of the New River mainstem is between the Big Reed Island Creek confluence, near Route 100, and the backwaters of Claytor Lake near the Wythe/Pulaski county line.

Cause City/County: Carroll County; Pulaski County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: 9-NEW107.51 (Allisonia USGS Gage) and 9-NEW127.49 (Ivanhoe USGS Gage) had 2 or more STV hits in the same 90-day period with less than 10 samples.

9-PRN000.84 had a 41% (5 of 12) exceedance of the previous E. coli water quality standard. 9-MRN000.31 had a 58% (7 of 12) exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_MRN01A04 / Mill Creek / Enters New River from north, upper end is near SR 606 near New Jersey Zinc.	5A	Escherichia coli (E. coli)	2010	L	4.38
VAS-N08R_NEW01A02 / New River / Mainstem, north of Barren Springs, from Reed Creek confluence downstream to Big Reed Island Creek confluence.	5A	Escherichia coli (E. coli)	2016	L	5.71
VAS-N08R_NEW01B98 / New River / From Mill Creek confluence near Austinville, downstream to the confluence of unnamed tributary west of Flatwood.	5A	Escherichia coli (E. coli)	2016	L	1.44
VAS-N08R_NEW01L98 / New River at Byllesby / New River mainstem in Carroll County. This is a run-of-River power generating facility with limited public access that extends from Buck Dam upstream to Byllesby Dam (NE21).	5A	Escherichia coli (E. coli)	2008	L	3.06
VAS-N08R_NEW02B00 / New River / Mainstem public water supply segment for Austinville from Buck Dam tailwaters downstream to the Mill Creek confluence, WQS Section 2I (NE21).	5A	Escherichia coli (E. coli)	2016	L	5.01
VAS-N08R_NEW03B98 / New River / From Buck Dam, to tailwaters, five miles upstream of Austinville raw water intake, section 2 (NE21).	5A	Escherichia coli (E. coli)	2016	L	0.93
VAS-N08R_PNR01A10 / Pine Run / At the Wythe/Pulaski County line, New River tributary from Pine Run Church downstream.	5A	Escherichia coli (E. coli)	2010	L	1.44
VAW-N16R_NEW01A00 / New River / This section of the New River extends from the mouth of Big Reed Island Creek downstream to the backwaters of Claytor Lake Class IV sec. 2c (NE43).	5A	Escherichia coli (E. coli)	2006	L	0.61

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New River, Mill Creek, and Pine Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			22.58

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_MRN01A04 / Mill Creek / Enters New River from north, upper end is near SR 606 near New Jersey Zinc.	5A	Fecal Coliform	2004	L	4.38

New River, Mill Creek, and Pine Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			4.38

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Source Unknown; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N08R-02-BEN** **Shorts Creek**

Cause Location: Headwaters of Shorts Creek, south of Poplar Camp Mountain, downstream to the confluence of the New River at Jackson Ferry

Cause City/County: Carroll County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Station 9-SRT000.12 had inconclusive VSCI scores of 43.5 and 64.7 in 2018.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_SRT01A04 / Shorts Creek / Headwaters, south of Poplar Camp Mountain.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	3.31
VAS-N08R_SRT01B04 / Shorts Creek / The lower reach of Shorts Creek, enters New River at Jackson Ferry.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	7.08

Shorts Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		10.39

Sources: Source Unknown

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New River Basin

Cause Group Code: **N08R-03-BAC** **Shorts Creek and Unnamed Tributary**

Cause Location: This segment includes Shorts Creek and continues until it enters New River at Jackson Ferry. This segment also includes an unnamed tributary to Shorts Creek that enters at Jackson Ferry and flows west from Rackettown.

Cause City/County: Carroll County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: Station 9-SRT000.12, had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_SRT01B04 / Shorts Creek / The lower reach of Shorts Creek, enters New River at Jackson Ferry.	5A	Fecal Coliform	2004	L	7.08
VAS-N08R_XEE01A06 / Shorts Creek unnamed tributary / Flows west from Rackettown and enters Shorts Creek above Jackson Ferry.	5A	Fecal Coliform	2006	L	3.89

Shorts Creek and Unnamed Tributary

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 10.97

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_SRT01A04 / Shorts Creek / Headwaters, south of Poplar Camp Mountain.	5A	Escherichia coli (E. coli)	2012	L	3.31
VAS-N08R_SRT01B04 / Shorts Creek / The lower reach of Shorts Creek, enters New River at Jackson Ferry.	5A	Escherichia coli (E. coli)	2010	L	7.08
VAS-N08R_XEE01A06 / Shorts Creek unnamed tributary / Flows west from Rackettown and enters Shorts Creek above Jackson Ferry.	5A	Escherichia coli (E. coli)	2010	L	3.89

Shorts Creek and Unnamed Tributary

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Escherichia coli (E. coli) - Total Impaired Size by Water Type: 14.28

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N09R-01-BAC** **Cripple Creek and Crigger Creek**

Cause Location: This segment includes the mainstem from the confluence with Dry Run, downstream to the Francis Mill Creek confluence as well as the lower segment of the mainstem from the New River confluence upstream to the Dean Branch confluence. It also includes Crigger Creek from the confluence with Cripple Creek upstream to the confluence with Middle Creek.

Cause City/County: Smyth County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: AWQM station 9-CGG000.35 had 2 STV hits in the same 90-day period with less than 10 samples and station 9-CPL003.10 has 1 STV hit. Stations, 9-CPL018.47 and 9-CPL022.99, both had a 45% exceedance of the prior E. coli water quality standard and station 9-CPL0001.03 had a 25% exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N09R_CPL01B04 / Cripple Creek / Lower segment of mainstem from the New River confluence upstream to the Dean Branch confluence at Porter Crossroads.	4A	Fecal Coliform	2004	L	3.18
VAS-N09R_CPL02A98 / Cripple Creek / From the Dry Run confluence near Speedwell downstream to the Francis Mill Creek confluence.	4A	Fecal Coliform	2004	L	6.49

Cripple Creek and Crigger Creek

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)
 Fecal Coliform - Total Impaired Size by Water Type: 9.67

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N09R_CGG01B04 / Crigger Creek / From confluence with Cripple Creek upstream to Middle Creek confluence.	4A	Escherichia coli (E. coli)	2018	L	4.20
VAS-N09R_CPL01A98 / Cripple Creek / Extends from Dean Branch confluence upstream to Francis Mill Creek confluence	4A	Escherichia coli (E. coli)	2018	L	11.69
VAS-N09R_CPL01B04 / Cripple Creek / Lower segment of mainstem from the New River confluence upstream to the Dean Branch confluence at Porter Crossroads.	4A	Escherichia coli (E. coli)	2010	L	3.18
VAS-N09R_CPL02A98 / Cripple Creek / From the Dry Run confluence near Speedwell downstream to the Francis Mill Creek confluence.	4A	Escherichia coli (E. coli)	2010	L	6.49
VAS-N09R_CPL02B04 / Cripple Creek / Mainstem from Blue Spring Creek confluence downstream to the Dry Run confluence near Speedwell.	4A	Escherichia coli (E. coli)	2010	L	6.44

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Cripple Creek and Crigger Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			32

Sources: Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N09R-03-BAC** **Slate Spring Branch and Dean Branch**

Cause Location: This segment includes Slate Spring Branch from the Cripple Creek confluence up stream to the headwaters and Dean Branch from the confluence with Cripple Creek upstream 1.7 miles.

Cause City/County: Smyth County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station, 9-SPB000.10, had a 100% exceedance of the prior E.coli water quality standard. Station 9-DEN000.03 had a 25% exceedance prior E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N09R_DEN01A10 / Dean Branch / Cripple Creek tributary at Porters Crossroads.	4A	Escherichia coli (E. coli)	2010	L	1.92
VAS-N09R_SPB01A04 / Slate Spring Branch / From Cripple Creek confluence at Eagle Cliff upstream to headwaters at Matney Flat.	4A	Escherichia coli (E. coli)	2010	L	6.14

Slate Spring Branch and Dean Branch

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

Escherichia coli (E. coli) - Total Impaired Size by Water Type: 8.06

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N09R_SPB01A04 / Slate Spring Branch / From Cripple Creek confluence at Eagle Cliff upstream to headwaters at Matney Flat.	4A	Fecal Coliform	2004	L	6.14

Slate Spring Branch and Dean Branch

Recreation

Estuary (Sq. Miles) Reservoir (Acres) River (Miles)

Fecal Coliform - Total Impaired Size by Water Type: 6.14

Sources: Animal Feeding Operations (NPS); Non-Point Source; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N09R-03-BEN** **Dean Branch**

Cause Location: A Cripple Creek tributary at Porters Crossroads.

Cause City/County: Smyth County; Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The freshwater probabilistic monitoring station at 9-DEN000.39 was impaired based on VSCI scores of 54.7 and 57.5 in 2013.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N09R_DEN01A10 / Dean Branch / Cripple Creek tributary at Porters Crossroads.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	1.92

Dean Branch

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		1.92

Sources: Animal Feeding Operations (NPS); Livestock (Grazing or Feeding Operations); Non-Point Source

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New River Basin

Cause Group Code: **N10R-01-TEMP** Reed Creek and Mill Creek

Cause Location: Reed Creek mainstem from Venrick Run upstream to South Fork and Mill Creek from its headwaters west of Rural Retreat to the Reed Creek confluence east of Blacklick.

Cause City/County: Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: Water temperature was exceeded for Class VI WQS at 9-RDC033.94 in 2 of 9 measurements. Station 9-MCE000.37 had 2 of 12 temperature measurements exceed the WQS for Class VI waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_MCE01A02 / Mill Creek / From headwaters west of Rural Retreat to Reed Creek confluence east of Blacklick.	5A	Temperature	2020	L	6.39
VAS-N10R_RDC01A00 / Reed Creek / Reed Creek mainstem parallel to SR 659 from Venrick Run upstream to South Fork confluence south of Petunia.	5A	Temperature	2012	L	1.44

Reed Creek and Mill Creek

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.83

Sources: Grazing in Riparian or Shoreline Zones; Loss of Riparian Habitat; Source Unknown

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New River Basin

Cause Group Code: **N10R-02-BAC** **South Fork Reed Creek and Mill Creek**

Cause Location: This segment includes the mainstem of South Fork Reed Creek downstream to the Reed Creek confluence as well as the mainstem of Mill Creek to the confluence with Reed Creek. It also includes Hubble Branch, north of I81 near Rural Retreat.

Cause City/County: Smyth County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: Station 9-MCE000.37, had 2 or more STV hits in the same 90-day period with less than 10 samples. Station 9- RSF000.08 & 9-RSF006.78 had a 67% exceedance of the E.coli water quality standard. 9-HOL000.74 had 66% E.coli exceedance rate.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_HOL01A12 / Huddle Branch / A Mill Creek tributary from the Monkey Run confluence parallel SR 617 North of I81 at Staley Crossroads (NE26).	4A	Escherichia coli (E. coli)	2012	L	1.48
VAS-N10R_MCE01A02 / Mill Creek / From headwaters west of Rural Retreat to Reed Creek confluence east of Blacklick.	4A	Escherichia coli (E. coli)	2006	L	6.39
VAS-N10R_RSF01A00 / South Fork Reed Creek / Mainstem from river mile 6.8 near Groseclose, downstream to the Reed Creek confluence parallel and south of I-81.	4A	Escherichia coli (E. coli)	2006	L	6.78
VAS-N10R_RSF01A02 / South Fork Reed Creek / Mainstem in headwaters near Fairview and through Groseclose.	4A	Escherichia coli (E. coli)	2012	L	13.35

South Fork Reed Creek and Mill Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			28

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N10R-02-BEN** Mill Creek

Cause Location: From the headwaters, west of Rural Retreat, to the confluence with Reed Creek, east of Blacklick.

Cause City/County: Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The probabilistic monitoring station at 9-MCE000.27 was impaired based on VSCI scores of 58.5 and 51.4 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_MCE01A02 / Mill Creek / From headwaters west of Rural Retreat to Reed Creek confluence east of Blacklick.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	6.39

Mill Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.39

Sources: Grazing in Riparian or Shoreline Zones; Loss of Riparian Habitat; Source Unknown

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New River Basin

Cause Group Code: **N10R-03-BAC** **Stony Fork**

Cause Location: This segment includes the headwaters downstream to the Reed Creek confluence.

Cause City/County: Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 9-SFK000.28, had 2 or more STV hits in the same 90-day period with less than 10 samples. In a previous cycle, station 9-SFK001.51 had a 50% (6 of 12 samples) exceedance of the E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_SFK01A02 / Stony Fork / At Favonia downstream to Reed Creek confluence.	4A	Escherichia coli (E. coli)	2006	L	1.90
VAS-N10R_SFK01A12 / Stony Fork / Headwaters in Jefferson National Forest south of Walker Mountain downstream to Class V waters at Favonia.	4A	Escherichia coli (E. coli)	2012	L	4.74

Stony Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			6.64

Sources: Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N10R-04-BAC** **Tate Run**

Cause Location: This segment begins at the Stuffle Run confluence and extends downstream to Reed Creek.

Cause City/County: Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 9-TAT000.46, had a 58% (7 of 12 samples) exceedance of the E. coli water quality standard in a previous cycle.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_TAT01A06 / Tate Run / From Stuffle Run confluence downstream to Reed Creek.	4A	Escherichia coli (E. coli)	2006	L	0.56

Tate Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			0.56

Sources: Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N11R-01-BAC** **Reed Creek and Pine Run**

Cause Location: This segment begins at the Gullion Fork confluence and extends downstream to the Venrick Run confluence. It also includes the lower mainstem of Reed Creek from its confluence with an unnamed tributary East of Route 21 to the confluence with Miller Creek and from the New River confluence near Lone Ash, upstream to the Glade Creek confluence. Pine Run, a Reed Creek tributary north of I-81 and south of Pine Ridge.

Cause City/County: Smyth County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station, 9-RDC046.65, had a 33% exceedance of the prior E.coli water quality standard. Stations 9-RDC038.01 and 9-RDC049.82 had a 25% exceedance of the prior E. coli standard and station 9-RDC033.94 had a 11% exceedance. Station 9-RDC023.24 had a 27% exceedance of the prior E.coli water quality standard. Station 9-RDC009.00 had 2 or more STV hits in the same 90-day period with less than 10 samples and station 9-PRN000.04 had a 67% exceedance of the prior WQS.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_PRN01A12 / Pine Run / Reed Creek tributary north of I81 and south of Pine Ridge.	4A	Escherichia coli (E. coli)	2012	L	4.14
VAS-N10R_RDC01A00 / Reed Creek / Reed Creek mainstem parallel to SR 659 from Venrick Run upstream to South Fork confluence south of Petunia.	4A	Escherichia coli (E. coli)	2008	L	1.44
VAS-N10R_RDC01A02 / Reed Creek / From South Fork Reed Creek confluence upstream to Stony Fork confluence west of Petunia.	4A	Escherichia coli (E. coli)	2006	L	5.24
VAS-N10R_RDC01B00 / Reed Creek / Mainstem from the Stony Fork confluence south of Favonia, upstream to the Gullion Fork confluence.	4A	Escherichia coli (E. coli)	2006	L	9.86
VAS-N10R_RDC01C02 / Reed Creek / Headwaters of Reed Creek from Redding Gap in Jefferson National Forest downstream to Gullion Fork confluence.	4A	Escherichia coli (E. coli)	2012	L	6.84
VAS-N11R_RDC01B00 / Reed Creek / Lower mainstem from Muskrat Branch confluence downstream to Rt. 52 bridge south of Max Meadows.	4A	Escherichia coli (E. coli)	2006	L	5.85
VAS-N11R_RDC01C02 / Reed Creek / Segment begins at confluence of unnamed tributary east of Rt. 21 bridge and extends downstream to the Muskrat Branch confluence, north of Rt. 11.	4A	Escherichia coli (E. coli)	2010	L	6.21
VAS-N11R_RDC03B04 / Reed Creek / From New River confluence near Lone Ash, upstream to the Glade Creek confluence near Boiling Spring.	4A	Escherichia coli (E. coli)	2004	L	9.88

Reed Creek and Pine Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		49.46

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N10R_RDC01A00 / Reed Creek / Reed Creek mainstem parallel to SR 659 from Venrick Run upstream to South Fork confluence south of Petunia.	4A	Fecal Coliform	2002	L	1.44

Reed Creek and Pine Run

Recreation

Fecal Coliform - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			1.44

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N11R-02-BAC** Miller Creek

Cause Location: This segment includes the mainstem from the Beaverdam confluence at Max Meadows downstream to Reed Creek and from the West Fork confluence downstream to Max Meadows.

Cause City/County: Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 9-MER000.09, had a 45% exceedance and station 9-MER000.85 had a 20% of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N11R_MER01A06 / Miller Creek / From Beaverdam confluence in the community of Max Meadows downstream to Reed Creek.	4A	Escherichia coli (E. coli)	2006	L	0.43
VAS-N11R_MER02A10 / Miller Creek / A Reed Creek tributary From West Fork confluence on Brushy Ridge downstream to Max Meadows.	4A	Escherichia coli (E. coli)	2012	L	3.64

Miller Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.07

Sources: Rural (Residential Areas); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N11R-02-BEN** **Reed Creek tributary**

Cause Location: This segment includes an unnamed tributary of Reed Creek that drains the Wytheville Community College at the east end of the town of Wytheville.

Cause City/County: Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Freshwater probabilistic monitoring station 9-XES000.94 is impaired based on VSCI scores of 51 and 41 in the 2008 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N11R_XES01A10 / Reed Creek tributaries / Tributary that drains location of Wytheville Community College at east end of Wytheville, WQS Section 2 (NE29).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.68

Reed Creek tributary

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		2.68

Sources: Grazing in Riparian or Shoreline Zones; Rural (Residential Areas); Streambank Modifications/Destabilization; Urban Runoff/Storm Sewers

Virginia Department of Environmental Quality
Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N11R-03-BAC** McGavock Creek

Cause Location: A Reed Creek tributary east of Grahams Forge, parallel to Route 618.

Cause City/County: Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM Station located at 9-MGV000.37 has a 18% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N11R_MGV01A12 / McGavock Creek / Reed Creek tributary west of Grahams Forge and parallel to SR 618.	4A	Escherichia coli (E. coli)	2012	L	2.58

McGavock Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			2.58

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations)

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N12R-01-BAC** **Cove Creek and St. Lukes Fork**

Cause Location: This segment includes the lower Cove Creek mainstem from St. Lukes Fork downstream to the confluence with Reed Creek. This segment also includes St. Lukes Fork from the Cove Creek confluence upstream 1.4 miles, north of Queens Knob.

Cause City/County: Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station, 9-CVR003.88, had a 45% exceedance of the previous E.coli water quality standard. In the 2020 monitoring season, station 9-CVR004.86 had Insufficient Information, there were no STV exceedances but insufficient data to analyze geomean. Station 9-SLK001.24 had a 82% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N12R_CVR01A00 / Cove Creek / Lower Cove Creek from St. Lukes Fork confluence, near Queens Knob, downstream to the confluence with Reed Creek, east of Wytheville, WQS Section 2 (NE30).	4A	Escherichia coli (E. coli)	2006	L	9.93
VAS-N12R_SLK01A04 / St. Lukes Fork / From Cove Creek confluence upstream 1.4 miles, north of Queens Knob.	4A	Escherichia coli (E. coli)	2016	L	1.78

Cove Creek and St. Lukes Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.71

Sources: Livestock (Grazing or Feeding Operations); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N13R-01-BAC** **Big Reed Island Creek**

Cause Location: This segment begins at the headwaters of Big Reed Island Creek and continues downstream to the confluence with Pine Creek.

Cause City/County: Carroll County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 9-RIC039.71 had a 33% exceedance of the previous water quality standard. Sampling in 2016 indicated station 9-RIC049.29 had 2 STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N13R_RIC01A00 / Big Reed Island Creek / North of Crooked Oak from Pine Creek confluence to Snake Creek confluence.	5A	Escherichia coli (E. coli)	2018	H	6.65
VAS-N13R_RIC01B04 / Big Reed Island Creek / From headwaters on Hurricane Knob downstream to Pine Creek confluence near Crooked Oak.	5A	Escherichia coli (E. coli)	2008	H	19.85

Big Reed Island Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			26.5

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones

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New River Basin

Cause Group Code: **N13R-01-BEN** **Big Reed Island Creek**

Cause Location: This segment begins at the headwaters of Big Reed Island Creek and continues downstream to the confluence with Pine Creek.

Cause City/County: Carroll County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Monitoring station located at 9-RIC051.80 was impaired based on the VSCI scores of 70.2 and 46.4 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N13R_RIC01B04 / Big Reed Island Creek / From headwaters on Hurricane Knob downstream to Pine Creek confluence near Crooked Oak.	5A	Benthic Macroinvertebrates Bioassessments	2008	H	19.85

Big Reed Island Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			19.85

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N13R-01-TEMP** **Big Reed Island Creek**

Cause Location: From the headwaters on Hurricane Knob downstream to the Pine Creek confluence near Crooked Oak and from North of Crooked Oak from the Pine Creek confluence to the Snake Creek confluence.

Cause City/County: Carroll County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: AWQM station located 9-RIC039.71 had a 25% exceedance and station 9-RIC049.29 had a 25% exceedance of the WQS for Class IV waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N13R_RIC01A00 / Big Reed Island Creek / North of Crooked Oak from Pine Creek confluence to Snake Creek confluence.	5A	Temperature	2018	H	6.65
VAS-N13R_RIC01B04 / Big Reed Island Creek / From headwaters on Hurricane Knob downstream to Pine Creek confluence near Crooked Oak.	5A	Temperature	2020	H	19.85

Big Reed Island Creek

Aquatic Life

Temperature - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		26.5

Sources: Animal Feeding Operations (NPS); Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N13R-02-BAC** Snake Creek

Cause Location: From the Big Reed Island confluence upstream 3.5 miles to near the Macey Branch confluence.

Cause City/County: Carroll County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 9-SKE000.98 had 2 or more STV hits in the same 90-day window with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N13R_SKE01A04 / Snake Creek / From Big Reed Island Creek confluence upstream 3.5 miles to near Macey Branch confluence.	5A	Escherichia coli (E. coli)	2014	L	3.55

Snake Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.55

Sources: Source Unknown

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Impaired (Category 4 or 5) Waters in 2022

New River Basin

Cause Group Code: **N14R-01-BAC** **Big Reed Island Creek**

Cause Location: This segment includes the mainstem of Big Reed Island Creek from the confluence of Snake Creek downstream to the confluence with Bobbitt Creek, from Bobbitt Creek to the Greasy Creek confluence, and from the Island Creek confluence downstream to the Big Branch confluence.

Cause City/County: Carroll County; Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A; Fecal Coliform/5A

Cause Description: The AWQM station, 9-RIC029.23, had 2 or more STV hits in the same 90-day period with < 10 samples. Station 9-RIC018.90 had 1 STV hit but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N14R_RIC01A00 / Big Reed Island Creek / Big Reed Island Creek east of Red Hill, from Bobbitt Creek confluence upstream to Snake Creek confluence.	5A	Escherichia coli (E. coli)	2018	H	7.55
VAS-N14R_RIC01B04 / Big Reed Island Creek / Big Reed Island Creek from Bobbitt Creek confluence south of Witcher Knob to Greasy Creek confluence.	5A	Escherichia coli (E. coli)	2010	H	13.82

Big Reed Island Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		21.37

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N14R_RIC01A00 / Big Reed Island Creek / Big Reed Island Creek east of Red Hill, from Bobbitt Creek confluence upstream to Snake Creek confluence.	5A	Fecal Coliform	2004	H	7.55
VAS-N14R_RIC01B04 / Big Reed Island Creek / Big Reed Island Creek from Bobbitt Creek confluence south of Witcher Knob to Greasy Creek confluence.	5A	Fecal Coliform	2014	H	13.82

Big Reed Island Creek

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		21.37

Sources: Source Unknown

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New River Basin

Cause Group Code: **N14R-01-TEMP** **Big Reed Island Creek**

Cause Location: Big Reed Island Creek east of Red Hill, from the Bobbitt Creek confluence upstream to the Snake Creek confluence.

Cause City/County: Carroll County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: AWQM station located 9-RIC029.23 had a 25% exceedance of the WQS for Class IV waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N14R_RIC01A00 / Big Reed Island Creek / Big Reed Island Creek east of Red Hill, from Bobbitt Creek confluence upstream to Snake Creek confluence.	5A	Temperature	2018	H	7.55

Big Reed Island Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.55

Sources: Loss of Riparian Habitat

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New River Basin

Cause Group Code: **N14R-02-BAC** Greasy Creek

Cause Location: This segment begins at the Carroll county line and continues downstream to the confluence with Big Reed Island Creek.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 9-GSC000.03 had Insufficient Information; one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N14R_GSC01A08 / Greasy Creek / From Carroll/Floyd County line downstream to Big Reed Island Creek confluence south of Macks Mountain.	5A	Escherichia coli (E. coli)	2008	H	13.64

Greasy Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			13.64

Sources: Grazing in Riparian or Shoreline Zones

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New River Basin

Cause Group Code: **N14R-03-BAC** Island Creek

Cause Location: A Big Reed Island Creek tributary northeast of Hillsville from its headwaters near Huffman Knob.

Cause City/County: Carroll County; Floyd County; Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 9-ISL003.05 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N14R_ISL01A12 / Island Creek & tributaries / Big Reed Island Creek tributary northeast of Hillsville from headwaters near Huffman Knob.	5A	Escherichia coli (E. coli)	2018	L	13.35

Island Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			13.35

Sources: Source Unknown

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New River Basin

Cause Group Code: **N15R-01-BAC** Little Reed Island Creek

Cause Location: This segment begins 5 miles above the Hillsville public water intake and extends downstream to the confluence with Big Reed Island Creek.

Cause City/County: Carroll County; Pulaski County; Wythe County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: AWQM stations 9-LRI001.62, 9-LRI009.11, 9-LRI017.64, 9-LRI020.76 and 9-LRI031.58 had one STV exceedance but insufficient data to analyze geomean.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N15R_LRI01A98 / Little Reed Island Creek / Little Reed Island Creek mainstem from confluence with Big Reed Island Creek upstream to Rock Creek confluence in Carroll County.	5A	Escherichia coli (E. coli)	2008	H	11.00
VAS-N15R_LRI01B98 / East Fork Little Reed Island Creek / From Hillsville PWS intake south of Rt. 58, upstream five miles.	5A	Escherichia coli (E. coli)	2008	H	5.28
VAS-N15R_LRI02A08 / Little Reed Island Creek / Segment extends from Rock Creek confluence upstream to Hillsville PWS intake west of Rt. 100.	5A	Escherichia coli (E. coli)	2008	H	19.71

Little Reed Island Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			35.99

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste

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New River Basin

Cause Group Code: **N15R-01-TEMP** Little Reed Island Creek

Cause Location: This segment begins approximately 1 mile below the Hillsville water intake and continues downstream to the Big Reed Island Creek confluence and from the Hillsville PWS intake south of Rt. 58, upstream 5 miles.

Cause City/County: Carroll County; Pulaski County; Wythe County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: AWQM station 9-LRI017.64 had a 25% exceedance of the Class VI natural trout waters criteria. In addition, stations 9-LRI020.76 had a 21% exceedance and station 9-LRI031.58 had 17% of temperature measurements exceeded the Class VI natural trout waters criteria.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N15R_LRI01B98 / East Fork Little Reed Island Creek / From Hillsville PWS intake south of Rt. 58, upstream five miles.	5A	Temperature	2020	H	5.28
VAS-N15R_LRI02A08 / Little Reed Island Creek / Segment extends from Rock Creek confluence upstream to Hillsville PWS intake west of Rt. 100.	5A	Temperature	2008	H	19.71

Little Reed Island Creek

Aquatic Life

Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			24.99

Sources: Loss of Riparian Habitat

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New River Basin

Cause Group Code: **N16L-01-BAC** **Claytor Lake**

Cause Location: Claytor Lake from the confluence of Peak Creek upstream to the backwaters of Claytor Lake at Allisonia.

Cause City/County: Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Station ID: 9-NEW098.32 E.coli: Impaired - 2 or more STV exceedances in the same 90 day period with <10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N16L_NEW03A02 / Claytor Lake (New River) / Claytor Lake from the confluence of Peak Creek upstream to the end of the WQS public water supply (PWS) designation. The segment ends five miles upstream of the former Burlington Industries intake.	5A	Escherichia coli (E. coli)	2022	L	671.89
VAW-N16L_NEW04A02 / Claytor Lake (New River) / Claytor Lake from the end of the Burlington WQS public water supply (PWS) designation upstream to the Pulaski County PSA intake.	5A	Escherichia coli (E. coli)	2022	L	447.80
VAW-N16L_NEW05A02 / Claytor Lake (New River) / Claytor Lake from the Pulaski County PSA intake upstream to the end of the WQS public water supply (PWS) designation. Five miles upstream from the Pulaski County PSA intake.	5A	Escherichia coli (E. coli)	2022	L	660.27
VAW-N16L_NEW06A02 / Claytor Lake (New River) / Claytor Lake from the upstream end of the Pulaski County PSA WQS public water supply (PWS) designation upstream to the backwaters of Claytor Lake at Allisonia.	5A	Escherichia coli (E. coli)	2022	L	152.14

Claytor Lake

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		1932.1	

Sources: Source Unknown

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New River Basin

Cause Group Code: **N16L-01-DO** **Claytor Lake - New River**

Cause Location: Claytor Lake - New River mainstem from the mouth of Peak Creek downstream to Claytor Dam (Dublin and Radford South Quads).

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: A portion of Claytor Lake, 1,799.25 acres, is originally 2002 303(d) Listed for excursions of the Class IV Water Quality Standard (WQS) dissolved oxygen minimum criterion of 4.0 mg/l. The impairment is categorized as natural (4C) in past assessment cycles where no excursions of the Claytor Lake criterion for chlorophyll a (25 mcg/L) or total phosphorus (20 mcg/L algaeicides applied) occur from stations 9-NEW089.34 or 9-NEW087.14 (Lacustrine zone). Virginia’s Lake Nutrient Criteria (9 VAC 25-260-187) states the nutrient criteria apply only in the epilimnion for lacustrine waters during thermal stratification for control of nutrient enrichment. Guidance Memo No. 09-2005 “Monitoring and Assessment of Lakes and Reservoirs” outlines criteria for evaluating dissolved oxygen during periods of thermal stratification. Data from the following stations find the waters not supporting the Aquatic Life Use in the epilimnion from dissolved oxygen exceedances of the minimum 4.0 mg/l criterion.

9-NEW092.66- (Dublin Water Works) 2020 epilimnion dissolved oxygen (DO) measurements are 105 of 710 exceeding values. 2020 epilimnion dissolved oxygen (DO) measurements are 117 of 710 exceeding values. 2018 epilimnion dissolved oxygen (DO) measurements are 113 of 635 exceeding values. 2016 epilimnion dissolved oxygen (DO) measurements are 68 of 851 exceeding values. However these data are not deemed sufficient for delisting these waters. 2014 data window reports 88 of 787 DO total measurements exceed the minimum 4.0 mg/l criterion. 2012 data reveal 118 of 807 DO measurements exceeding the 4.0 mg/l minimum criterion. 2010 assessment reports 101 epilimnion dissolved oxygen (DO) measurements exceeding the 4.0 mg/l minimum from 806 measurements. 2008 results find 154 exceed from 656 total observations.

9-NEW089.34- (Line Between Beach and Inlet) 2022 epilimnion DO measurements are 167 of 654 measurements. 2020 epilimnion DO measurements are 160 of 676 measurements. 2018 epilimnion DO measurements are 161 of 624 measurements. 2016 epilimnion DO measurements are 58 of 806 indicating support of the minimum DO criterion. However these data alone are not sufficient to delist this section of the Lake. 2014 epilimnion DO measurements are 59 of 747 measurements. 2012 data exceed in 82 of 798 total measurements. 2010 assessment finds 99 of 857 epilimnion DO measurements in excess of the minimum criterion. 2008 results find 121 exceed from 637 total observations.

9-NEW087.14- (Under Power Lines above Dam) 2020 epilimnion DO measurements are 177 exceeding of 568 measurements 2020 epilimnion DO measurements are 155 exceeding of 632 measurements. 2018 epilimnion DO measurements are 164 exceeding of 664 measurements. 2016 epilimnion DO measurements are 58 of 806 indicating support of the minimum DO criterion. However these data alone are not sufficient to delist this section of the Lake. 2012 measurements of DO in the epilimnion are 93 of 804 exceeding the 4.0 minimum criterion. 2010 DO exceeds the minimum criterion in 99 of 830 epilimnion measurements. 2008 results find 115 exceed from 695 total observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N16L_NEW01A02 / Claytor Lake (New River) / Claytor Lake from its impounding structure upstream to the Claytor State Park Cabins.	4C	Dissolved Oxygen	NA	NA	1196.92
VAW-N16L_NEW01B14 / Claytor Lake (New River) / Claytor Lake from the Claytor State Park Cabins upstream to the former Burlington Industries water intake.	4C	Dissolved Oxygen	NA	NA	602.03

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N16L_NEW02A02 / Claytor Lake (New River) / Claytor Lake from the Claytor State Park Cabins upstream to the confluence of Peak Creek	4C	Dissolved Oxygen	NA	NA	278.52

Claytor Lake - New River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		2077.47	

Sources: Natural Sources

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New River Basin

Cause Group Code: **N16L-02-DO** **Claytor Lake - Peak Creek**

Cause Location: Peak Creek from its confluence with the New River upstream to the end of the WQS public water supply (PWS) designation (Dublin Quad).

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Dissolved Oxygen/4C

Cause Description: A portion of Claytor Lake in the Peak Creek (Lower) (216.86 acres) arm is originally 2002 303(d) Listed for excursions of the Class IV Water Quality Standard (WQS) dissolved oxygen minimum criterion of 4.0 mg/l. The impairment is categorized as natural (4C) as there are no excursions of the Claytor Lake criterion for chlorophyll a (25 mcg/L) or total phosphorus (20 mcg/L algaeicides applied) from stations 9-NEW089.34 or 9-NEW087.14 (Lacustrine zone). Virginia’s Lake Nutrient Criteria (9 VAC 25-260-187) states the nutrient criteria apply only in the epilimnion for lacustrine waters during thermal stratification for control of nutrient enrichment. Guidance Memo No. 09-2005 “Monitoring and Assessment of Lakes and Reservoirs” outlines criteria for evaluating dissolved oxygen during periods of thermal stratification. Data from station 9-PKC000.00 finds the waters not supporting the Aquatic Life Use in the epilimnion from dissolved oxygen exceedances of the minimum 4.0 mg/l criterion.

9-PKC000.00 (Mouth of Peak Cr.)- 2022 integrated Report (IR) finds 160 of 628 dissolved oxygen (DO) measurements exceed the 4.0 mg/l minimum criterion in the epilimnion. 2020 integrated Report (IR) finds 157 of 687 dissolved oxygen (DO) measurements exceed the 4.0 mg/l minimum criterion in the epilimnion. The 2018 integrated Report (IR) finds 212 of 723 dissolved oxygen (DO) measurements exceed the 4.0 mg/l minimum criterion in the epilimnion. The 2016 integrated Report (IR) finds 116 of 791 dissolved oxygen (DO) measurements exceed the 4.0 mg/l minimum criterion in the epilimnion. 2014 data report 123 of 725 DO measurements exceed the 4.0 mg/l minimum criterion in the epilimnion. 2012 DO measurements find 93 of 673 measurements in excess of the 4.0 mg/l minimum criterion. The 2010 assessment reports 69 epilimnion DO measurements exceeding the 4.0 mg/l minimum from 633 measurements. 2008 results find 131 exceed from 618 total observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17L_PKC01A10 / Claytor Lake (Peak Creek) / Peak Creek from its confluence with the New River upstream to the end of the WQS public water supply (PWS) designation.	4C	Dissolved Oxygen	NA	NA	216.87

Claytor Lake - Peak Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		216.87	

Sources: Natural Sources

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New River Basin

Cause Group Code: **N17R-01-BAC** **Peak Creek and Tract Fork**

Cause Location: The bacteria impairment extends from the mouth of Hogan Creek downstream to the backwaters of Claytor Lake. Tract Fork mainstem from its confluence with Peak Creek upstream to the mouth of Pondlick Branch.

Cause City/County: Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Peak Creek Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 8/30/2004 [Fed. ID 7824] and SWCB approval on 12/02/2004. These waters are 1996 303(d) Listed originally for fecal coliform bacteria for 3.49 miles (4.65 mi. pre-NHD) and extended upstream in subsequent assessment cycles for a total 6.49 miles. The Recreational Use remains impaired. Tract Fork is a 2012 nested impairment within the overall Bacteria TMDL watershed. The TMDL Study can be viewed at <http://www.deq.virginia.gov>. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-PKC011.11 (Commerce St. Bridge) Two of 11 E.coli observations exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2016 data window. There are no additional E.coli data within the 2014 data window or beyond the 2008 IR. None of the three remaining samples within the 2012 data window exceed the instantaneous criterion. Data within the 2008 and 2010 data windows find two of 10 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion with exceeding values the same as in 2008. Both exceedances are 500 and 640 cfu/100 ml. E.coli results in 2006 find two of seven samples in excess of the 235 cfu/100 ml criterion; exceedances are the same as in 2008.

9-PKC009.29 (Near Radio Tower) There are no additional data beyond the 2008 IR. One exceeding value occurs within the 2012 data window at 500 cfu/100 ml of the reaming three observations. E.coli data within the 2010 data window reveal 12 exceeding values from 21 samples. The 2008 IR finds E.coli exceeds the instantaneous criterion in 12 of 23 samples. Exceeding values for both 2010 and 2008 data windows range from 240 cfu/100 ml. to 10,000. E.coli exceeds the instantaneous criterion in 11 of 18 samples in 2006 with the same range of exceedance.

9-PKC007.80 (Rt. 99 bridge) The 2022 data window carries the impairment and applies new criterion resulting in one STV exceedance in one or multiple 90-day periods but insufficient data to analyze geomean (insufficient data to assess). Eleven of 25 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window.

9-TCK000.50 (Rt. 674 Bridge)- E.coli data within the 2012 and 2014 data windows reveal seven of 12 samples in excess of the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 250 to 880 cfu/100 ml. There are no additional bacteria data within the 2016 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	Escherichia coli (E. coli)	2006	L	1.83
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	Escherichia coli (E. coli)	2006	L	1.66

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Impaired (Category 4 or 5) Waters in 2022

(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC03A00 / Peak Creek / This portion of Peak Creek extends from the mouth of Tract Fork to downstream of the Washington Ave. Bridge (~0.20 miles) (NE46).	4A	Escherichia coli (E. coli)	2006	L	0.51
VAW-N17R_PKC03A06 / Peak Creek / This portion of Peak Creek extends from the Magnox, Inc. outfall on downstream to the mouth of Tract Fork (NE44).	4A	Escherichia coli (E. coli)	2006	L	0.40
VAW-N17R_PKC04A00 / Peak Creek / The segment extends from the mouth of Hogan Creek downstream to just above the Magnox. Inc. outfall on Peak Creek (NE44).	4A	Escherichia coli (E. coli)	2006	L	2.11
VAW-N17R_TCK01A00 / Tract Fork / Tract Fork mainstem from its confluence with Peak Creek upstream to the mouth of Pondlick Branch (NE45).	4A	Escherichia coli (E. coli)	2012	L	1.25

Peak Creek and Tract Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.76

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Sanitary Sewer Overflows (Collection System Failures); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N17R-01-BEN** **Peak Creek**

Cause Location: Benthic impaired waters begin downstream of the Washington Ave. Bridge (~0.20 miles) on downstream to the inundation of Peak Creek in Claytor Lake.

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Peak Creek General Standard - Benthic (Metals) Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/30/04 [Fed ID 7823/7822] and SWCB approval on 12/02/04. The TMDL finds copper (Cu) and zinc (Zn) as stressors for 3.49 miles to this 1996 (4.65 mi. pre-NHD) Listed benthic impairment. The TMDL allocations require reductions in zinc and copper from non-point sources.

9-PKC009.29 (Near Radio Tower) Bio 'IM' There are no additional data beyond the 2014 data window. Two 2011 Virginia Stream Condition Index (VSCI) surveys within the 2014 and 2016 data windows produce spring and fall scores of 31.6 and 37.4. 2011 samples show low diversity of taxa and several pollution tolerant taxa dominating the samples. Filter, collector and scraper feeding type taxa were the dominant functional feeding groups. There are no additional data within the 2010 or 2012 data windows. The 2008 IR reports four Virginia Stream Condition Index (VSCI) surveys (2002, 2003 & 2006) have an average score of 47.9. The spring 2003 sample had high diversity and numbers of mayflies compared to other samples collected in this assessment period. High flows in 2003 potentially contributed to these higher numbers. The samples with low scores show low diversity of taxa and several pollution tolerant taxa dominating the samples. Filter, collector and scraper feeding taxa were the dominant functional feeding groups. Habitat in this reach has been impacted by loss of riparian vegetation and in stream cover, and increased sedimentation.

9-PKC007.80 (Rt. 99 Bridge) Bio 'IM' Four Virginia Stream Condition Index (VSCI) surveys (2011 & 2014) within the 2016 and 2018 data windows produce an average score of 48.4. 2014 data window report impairment from two 2011 surveys. The VSCI scores are spring 33.8 and fall 58.3. Benthic community data show several pollution tolerant taxa were dominant. Mayflies typically had low abundance and other sensitive taxa such as stoneflies and caddisflies were very rare in samples. Habitat in this reach has been impacted by the loss of riparian vegetation. There are no additional data within either the 2010 or 2012 data windows. The 2008 data window reports four VSCI surveys (2002, 2003 & 2006) with an average score of 47.6. These collections reveal several pollution tolerant taxa are dominant. Habitat in this reach has been impacted by the loss of riparian vegetation.

9-PKC005.95 (Upstream of I-81 crossing)- A 2004 Probabilistic site. Two VSCI surveys, spring (62.5) and fall (58.4) result in an average score of 60.5. near the lower limit for reference conditions. Impacts from sediment deposition were noted during the spring survey. Other habitat parameters scored in the optimal to sub-optimal range. Approximately 5% of the land cover upstream of this station is urban. The TMDL study found the impairment cause to be heavy metals in sediments and storm runoff. Both samples at this station were dominated by organisms tolerant of nutrient enrichment. Since this station is within a known impaired segment and VSCI scores are near the Impaired/Non-impaired cutoff, best professional judgment designates the station as impaired.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.83

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.66

Peak Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		3.49

Sources: Contaminated Sediments; Industrial/Commercial Site Stormwater Discharge (Permitted); Sediment Resuspension (Contaminated Sediment)

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New River Basin

Cause Group Code: **N17R-01-CU** **Peak Creek**

Cause Location: Impairment begins downstream of the Washington Ave. Bridge (~0.20 miles) and continues downstream to the inundation of Peak Creek in Claytor Lake.

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Copper/4A

Cause Description: The Peak Creek General Standard - Benthic (Metals) Total Maximum Daily Load (TMDL) received U.S. EPA approval on 8/30/04 [Fed ID 7823/7822] and SWCB approval on 12/02/04.

The TMDL finds copper (Cu) and zinc (Zn) as stressors for 3.49 miles to this 1996 (4.65 mi. pre-NHD) Listed benthic impairment. The likelihood of dissolved metals reaching acute levels of toxicity in the water column during low-flow and storm events was assessed. The impact of point source discharges of Cu and Zn during low flow was analyzed and determined that the concentrations of Cu and Zn would not likely approach the acute criteria for aquatic life (i.e., 13 ug/l and 120 ug/l for Cu and Zn, respectively). It was anticipated that acidic runoff from historic industrial sites may leach significant levels of dissolved Cu and Zn to the stream during storm events. The weight of evidence at this time, including site observations and collected data, points to soils at or from the Allied Signal site as the main source of contamination.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	Copper	2006	L	1.83
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	Copper	2006	L	1.66

Peak Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:			3.49

Sources: Contaminated Sediments; Industrial/Commercial Site Stormwater Discharge (Permitted); Sediment Resuspension (Contaminated Sediment)

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New River Basin

Cause Group Code: **N17R-01-ZN** **Peak Creek**

Cause Location: Impairment begins downstream of the Washington Ave. Bridge (~0.20 miles) and continues downstream to the inundation of Peak Creek in Claytor Lake.

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Zinc/4A

Cause Description: The Peak Creek General Standard - Benthic (Metals) Total Maximum Daily Load (TMDL) received U.S. EPA approval on 8/30/2004 [Fed ID 7823/7822] and SWCB approval on 12/02/2004.

The TMDL finds copper (Cu) and zinc (Zn) as stressors for 3.49 miles to this 1996 (4.65 mi. pre-NHD) Listed benthic impairment. The likelihood of dissolved metals reaching acute levels of toxicity in the water column during low-flow and storm events was assessed. The impact of point source discharges of Cu and Zn during low flow was analyzed and determined that the concentrations of Cu and Zn would not likely approach the acute criteria for aquatic life (i.e., 13 ug/l and 120 ug/l for Cu and Zn, respectively). It was anticipated that acidic runoff from historic industrial sites may leach significant levels of dissolved Cu and Zn to the stream during storm events. The weight of evidence at this time, including site observations and collected data, points to soils at or from the Allied Signal site as the main source of contamination.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	Zinc	2006	L	1.83
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	Zinc	2006	L	1.66

Peak Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:			3.49

Sources: Contaminated Sediments; Industrial/Commercial Site Stormwater Discharge (Permitted); Sediment Resuspension (Contaminated Sediment)

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New River Basin

Cause Group Code: **N18R-01-BAC** **Crab Creek**

Cause Location: The upstream limit is the Crab Creek headwaters on the Ironto Quad. The downstream limit is at the Crab Creek mouth on the New River about 1.5 mi upstream of the Rt. 114 Bridge and downstream of Radford, Virginia (Riner, Blacksburg and Radford North Quads).

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Crab Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/10/04 [Fed ID 18594 / 23405] and SWCB approved 12/02/04 (formerly VAW-N18R-01). The waters are initially 303(d) Listed with the 2002 Assessment for fecal coliform (FC) bacteria causing non-support of the Recreational Use for 12.36 miles. The TMDL Study and allocations can be viewed at <http://www.deq.virginia.gov>. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-CBC009.81 (Rt. 111 Bridge) There are no additional data beyond the 2010 IR where the 2010 data window finds four of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 250 to greater than 2000 cfu/100 ml. Three non-exceeding E.coli observations remain within the 2012 data window. The 2008 assessment finds six of 18 E.coli samples exceed the instantaneous criterion and six of 15 exceed in 2006.

9-CBC006.35 (Rt. 661 Bridge) Both the 2010 and 2012 data windows find four of 12 E.coli samples exceeding the instantaneous criterion. The range of exceedance is from 380 to 950 cfu/100 ml. E.coli data within the 2008 data window are three of six exceeding values. The 2006 assessment reports E.coli exceeds the WQS instantaneous criterion of 235 cfu/100 ml in eight of 16 observations. Exceeding values range from 250 to >800 cfu/100 ml. This station is located upstream of the former Christiansburg outfall.

9-CBC004.38 (Rt. 660 Bridge) There are no additional data beyond the 2010 data window. Five of 15 remaining escherichia coli (E.coli) observations in 2012 exceed the 235 cfu/100 ml instantaneous criterion ranging from 250 to 1200 cfu/100 ml. Data within the 2010 data window find exceedances ranging from 250 to 1200 cfu/100 ml in 14 of 35 observations. E.coli exceeds the 235 cfu/100 ml WQS instantaneous criterion in 16 of 33 observations within the 2008 data window. Exceeding values range from 280 to greater than 800 cfu/100 ml. 2006 E.coli results find 22 of 40 observations in excess of the instantaneous criterion and the same range of exceedance.

9-CBC001.00 (Route 663 Bridge near Walton) The 2020 data window finds five of 12 excursions. There are no additional data beyond the 2014 IR where six of 24 E.coli observations exceed the instantaneous criterion ranging from 250 to greater than 2000 cfu/100 ml. There were no additional data within the 2010 and 2012 data windows. Two of 15 remaining E.coli observations in 2012 exceed the instantaneous criterion at 250 and 1300 cfu/100 ml. 2010 values exceeding the instantaneous criterion range from 250 to 1300 cfu/100 ml in 10 of 35 samples. Nine of 27 E.coli samples exceed the instantaneous criterion in 2008. The 2006 Integrated Report (IR) finds nine of 23 E.coli samples exceed the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N18R_CBC01A00 / Crab Creek / This section of the mainstem Crab Creek extends from its mouth on the New River on upstream of the Walton community (NE58).	4A	Escherichia coli (E. coli)	2004	L	2.16
VAW-N18R_CBC02A00 / Crab Creek / These mainstem waters of Crab Creek extend from upstream of the Walton community to upstream of the Vicker community. The end of the WQS public water supply (PWS) designation (NE58).	4A	Escherichia coli (E. coli)	2004	L	1.19

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N18R_CBC03A00 / Crab Creek / These waters are the Crab Creek mainstem from upstream of the Vicker community on upstream to the former Christiansburg STP outfall on Crab Creek (NE58).	4A	Escherichia coli (E. coli)	2004	L	1.10
VAW-N18R_CBC04A00 / Crab Creek / These mainstem waters extend from the former Christiansburg STP outfall upstream to Crab Creek's headwaters (NE58).	4A	Escherichia coli (E. coli)	2004	L	7.94

Crab Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			12.39

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N18R-01-BEN** Crab Creek

Cause Location: The upstream limit is the Crab Creek headwaters on the Ironto Quad. The downstream limit is at the Crab Creek mouth on the New River about 1.5 mi upstream of the Rt. 114 Bridge and downstream of Radford, Virginia (Riner, Blacksburg and Radford North Quads).

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 1996 303(d) Listing of the Crab Creek General Standard (Benthic) Total Maximum Daily Load (TMDL) Study is U.S. EPA approved 8/10/04 [Sediment- Fed ID 18595 / 23406]. The SWCB approved the TMDL on 12/02/04 (formerly VAW-N18R-01). The TMDL identifies sediment to be the primary stressor with organic matter and nutrient enrichment as additional stressors. The waters remain impaired for the aquatic life use for 12.36 miles.

Natural seasonal effects are noted at the sites below. Agricultural and urban NPS runoff impact Crab Creek. Habitat impacts to this reach result in fine sediment deposition causing stream substrates to become embedded from bank erosion, altered hydrology, and degraded riparian buffers due to residences, roads, and railroad tracks. An apparent nutrient rich environment all contribute to the benthic impairment.

9-CBC007.55- Bio 'IN' with one sample collected in 2013 to evaluate effect of tributary stream restoration. Virginia Stream Condition Index (VSCI) score of 37.2.

9-CBC006.35- Bio 'IM' from two 2020 VSCI scores: 32.6 (Spring) and 43.4 (Fall). Tolerant filterer and collector taxa (Cheumatopsyche, Hydropsyche, and Chironomidae) dominated the benthic community of this section of Crab Creek. According to the 2019 Mid-Atlantic Regional BCG Attribute Report, these taxa become more abundant in nutrient rich and impervious watersheds. Two 2008 VSCI surveys with an average score of 39.36 are within the 2012 and 2014 data windows. Three VSCI surveys (2003 & 2008) result in an average VSCI score of 43.33 are within the 2010 data window. Moderately pollution tolerant to pollution tolerant organisms (oligochaetes, chironomidae, hydropsychidae, and elmidae) are dominant in both seasons. The 2008 IR reports five RBP II surveys scoring- 2000 spring 47.83, fall- 34.78; 2002 spring- 52.17, fall- 59.09 and 2003 spring- 65.22. Seasonal 5 year Spring score 55.07 and Fall score 46.94.

9-CBC004.38- Bio 'IM' from two 2020 VSCI scores: 47.3 (Spring) and 59.7 (Fall). This station is located near the town of Christiansburg's STP. The fall VSCI score increased due to greater taxa richness and greater abundance of taxa from the scraper functional feeding group along with an increase in total taxa. Low chironomidae abundance also increased the fall VSCI score. Low EPT taxa richness was observed during both seasons. Two 2008 VSCI surveys lie within the 2012 and 2014 data window with an average score of 53.0. Three VSCI surveys (2003 & 2008) with an average score of 52.28 are produced within the 2010 data window. There is some difference in the biological condition scores between seasons. Fall samples showed an increase of %mayflies over the spring samples. Five RBP II surveys scoring- 2000 spring- 39.13, fall- 34.78; 2002 spring- 65.22, fall- 59.09 and 2003 spring- 69.57. Seasonal 5 year Spring score 57.97; Fall score 46.94 are reported in the 2008 IR.

9-CBC001.00- Bio 'IM' from two 2020 VSCI scores: 39.6 (Spring) and 60.15 (Fall). Tolerant taxa from the family Chironomidae dominated the spring 2020 sample. Greater EPT taxa abundance and richness along with a significant decrease in Chironomidae abundance improved fall scores. Bio 'IM' The 2012 and 2014 data windows find an average score of 55 from two surveys (2008). The 2010 IR finds impairment remains from three VSCI surveys (2003 & 2008) with an average score of 60. The moderately pollution tolerant midge family Chironomidae is dominant in both seasons. Impacts to the benthos and stream habitat are the same as noted at 9-CBC004.38. The 2008 IR reports three VSCI surveys (2002-2003) with an average score of 58. Pollution tolerant families are dominant in spring and fall, the midge family Chironomidae in spring and the caddisfly family Hydropsychidae in fall.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N18R_CBC01A00 / Crab Creek / This section of the mainstem Crab Creek extends from its mouth on the New River on upstream of the Walton community (NE58).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	2.16
VAW-N18R_CBC02A00 / Crab Creek / These mainstem waters of Crab Creek extend from upstream of the Walton community to upstream of the Vicker community. The end of the WQS public water supply (PWS) designation (NE58).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.19
VAW-N18R_CBC03A00 / Crab Creek / These waters are the Crab Creek mainstem from upstream of the Vicker community on upstream to the former Christiansburg STP outfall on Crab Creek (NE58).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.10
VAW-N18R_CBC04A00 / Crab Creek / These mainstem waters extend from the former Christiansburg STP outfall upstream to Crab Creek's headwaters (NE58).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	7.94

Crab Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			12.39

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Post-development Erosion and Sedimentation; Sediment Resuspension (Clean Sediment); Sediment Resuspension (Contaminated Sediment); Streambank Modifications/Destabilization

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New River Basin

Cause Group Code: **N18R-02-BAC** **Connellys Run**

Cause Location: Bacteria impairment begins near the headwaters of Connellys Run at an unnamed tributary (37°07'04" / 80°32'16") downstream to its mouth on the New River.

Cause City/County: Radford

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Fecal coliform (FC) bacteria excursions of the former WQS 400 cfu/100 ml instantaneous criterion cause non-support of the Recreational Use for 2.85 miles. The impairment for the 2004 303(d) Listed water remains. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-CNL000.01 (Bissett Park Bridge, Radford) One of six E.coli excursions reported during the 2020 data window. There are no additional data since the 2014 IR where escherichia coli (E.coli) data exceed the 235 cfu/100 ml instantaneous criterion in five of 24 samples. Excessive values range from 790 to greater than 2000 cfu/100 ml. 2012 and 2010 E.coli data exceed the 235 cfu/100 ml instantaneous criterion in four of 12 samples. Excessive values range from 260 to 1260 cfu/100 ml. The 2006 assessment finds FC exceedances of the former WQS instantaneous criterion of 400 cfu/100 ml in three of 11 observations. The range of excursions is from 500 to 1900 cfu/100 ml. The initial 2004 303(d) Listing is based on FC exceedances of the former WQS instantaneous criterion of 400 cfu/100 ml in three of nine observations with the range of exceedance the same as 2006.

9-CNL000.06 - This station is not the 303(d) listing station but reports three of 6 E.coli excursions during the 2020 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N18R_CNL01A02 / Connellys Run / Connellys Run from an unnamed tributary @37°07'23" / 80°33'21"; 1.57 miles upstream of the Connellys Run mouth downstream to its confluence on the New River (NE57).	5A	Escherichia coli (E. coli)	2010	L	1.60
VAW-N18R_CNL02A02 / Connellys Run / Connellys Run from near Rt. 611 @37°07'04" / 80°32'16"; 2.76 miles upstream of Connellys Run mouth downstream to the confluence of an unnamed tributary @37°07'23" / 80°33'21"; 1.57 miles upstream of the Connellys Run mouth on the New River (NE57).	5A	Escherichia coli (E. coli)	2010	L	1.25

Connellys Run

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.85

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N19R-01-BAC Little River (Upper)**

Cause Location: The bacteria impaired waters begin in the headwaters of Little River and extend downstream to the mouth of the West Fork of Little River (Check, Endicott and Floyd Quads).

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The original 2004 fecal coliform (FC) bacteria 303(d) Listing is extended downstream and upstream based on escherichia coli (E.coli) bacteria collections within the 2006 data window. The waters are impaired for 34.67 miles for failure to support the Recreational Use. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-LRV069.88 (Rt. 641 Bridge) There are no additional data beyond the 2008 Integrated Report (IR) where four of 12 E.coli observations exceed the 235 cfu/100 ml instantaneous criterion within the 2008 and 2010 data windows. Values in excess of the criterion range from 500 to 1500 cfu/100 ml. The 2006 IR reports three of nine E.coli observations exceed the instantaneous criterion. Values in excess of the criterion range from 350 to 1500 cfu/100 ml.

9-LRV065.57 (Rt. 639 Bridge) Seven of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Excursions range from 266 to 805 cfu/100 ml. The 2012 data window finds E.coli exceeds the instantaneous criterion in seven of 15 samples. Exceeding values range from 350 to 1800 cfu/100 ml. Both the 2008 and 2010 data windows find escherichia coli (E.coli) exceeds the instantaneous criterion in four of 11 samples. Exceeding values range from 430 to 800 cfu/100 ml.

9-LRV056.74 (Rt. 221 Bridge) There are no additional data beyond the 2008 IR where four of 12 E.coli observations exceed the 235 cfu/100 ml instantaneous criterion. Maximum values exceeding the criterion range from 400 cfu/100 ml to greater than 2000. The 2006 assessment finds three of nine E.coli observations exceed the instantaneous criterion with the same range of exceedance as 2008. The original 2004 303(d) Listing is based on exceedance of the former fecal coliform bacteria 400 cfu/100 ml instantaneous criterion where two observations exceed from 11 samples. 2004 IR FC values exceeding the standard are 500 and 1400 cfu/100 ml.

9-LRV044.49 (Rt. 615 Bridge) The 2022 data window applies new criterion and finds E.coli with no STV exceedances but insufficient data to analyze geomean. 2020 data window: one of 12 excursions. There are no additional data beyond the 2014 data window where E.coli exceedances are found in four of 12 observations. There are no additional data within the 2010 and 2012 data windows. The 2008 IR reports E.coli exceedances are found in three of 11 observations. Two of eight E.coli exceedances are found in 2006 at 380 and 450 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_LRV01A00 / Little River / Little River mainstem waters from the West Fork Little River confluence upstream to the mouth of Oldfield Creek (NE49).	4A	Escherichia coli (E. coli)	2006	L	8.74
VAW-N19R_LRV02A00 / Little River / Little River mainstem waters from the mouth of Oldfield Creek upstream to the mouth of Beaverdam Creek (NE49).	4A	Escherichia coli (E. coli)	2006	L	7.60
VAW-N19R_LRV03A00 / Little River / Little River mainstem waters from the mouth of Beaverdam Creek upstream to near its headwaters (NE48).	4A	Escherichia coli (E. coli)	2006	L	18.35

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

Little River (Upper)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			34.69

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N19R-01-TEMP** Little River

Cause Location: Little River mainstem waters from the mouth of the West Fork Little River upstream to the mouth of Payne Creek.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study U.S. EPA approved on 3/14/12 and State Water Control Board (SWCB) approved 3/25/13. The 303(d) Listed natural trout water temperature impairment is extended both upstream and downstream in 2008 from the original impairment defined by station 9-LRV056.74 in 2002. The upstream extension is based on station 9-LRV065.57. And the downstream extension on station 9-LRV044.49. Total non-support of the Aquatic Life Use is 34.67 miles.

9-LRV065.57- (Rt. 639 Bridge) The Class VI 20°C criterion is exceeded within the 2018 data window at 23.4°C (6/22/15) and 22.3°C (9/2/15). The 2012 data window reports temperature exceedances in two of 19 measurements. Excursions are 20.4 °C on 6/29/2005 and 23.7°C on 8/5/2010. Temperature exceedances are found in two of 12 measurements in 2008 and 2010. Each are in excess of the WQS Class VI natural trout water criterion of 20°C. Excursions are both at 20.4 °C on 8/02/2004 and 6/29/2005.

9-LRV056.74- (Rt. 221 Bridge) Temperature data within the 2014 data window are insufficient to de-list these waters (0/4 samples). The temperature impairment remains. The 2008 IR reports temperature exceedances of the natural trout water criterion occur in two of 12 measurements. The excursions occur on 8/02/2004 at 21.4 °C and 6/29/2005 at 21.3°C within the 2008 data window. The 2006 Integrated Report (IR) records two of 12 temperature measurements exceeding the criterion with excursions in May of 2000 (at 21.2°C) and August of 2004 (at 21.4 °C). Two of 11 measurements exceed in 2004. The exceedances occur in July 1998 (at 25.7°C) and May of 2000 (at 21.2°C). The 2002 assessment found temperature exceeds in three of 16 measurements occurring in July 1997 and 1998 (2) and one in May of 2000.

9-LRV044.49- (Rt. 615 Bridge) Temp exceeds in 3/12 at 21°C (6/13/17), 23°C (7/24/17), 23°C (8/17/17) during the 2020 and 2022 data windows. There are no additional data beyond the 2014 data window. Three temperature measurements exceed the 20°C natural trout criterion at 26.2°C (7/21/2011), 20.5°C (9/13/2011) and 23.9°C (8/29/2012) from 12 measurements within the 2014 data window. There were no additional data within the 2010 and 2012 data windows. The 2008 IR reports two temperature measurements exceed the Class VI 20 °C natural trout criterion at 23.3 °C (8/02/2004) and 22.8°C (6/29/2005) from 12 measurements.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_LRV01A00 / Little River / Little River mainstem waters from the West Fork Little River confluence upstream to the mouth of Oldfield Creek (NE49).	4A	Temperature	2008	L	8.74
VAW-N19R_LRV02A00 / Little River / Little River mainstem waters from the mouth of Oldfield Creek upstream to the mouth of Beaverdam Creek (NE49).	4A	Temperature	2002	L	7.60
VAW-N19R_LRV03A00 / Little River / Little River mainstem waters from the mouth of Beaverdam Creek upstream to near its headwaters (NE48).	4A	Temperature	2008	L	18.35

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Little River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			34.69

Sources: Loss of Riparian Habitat; Natural Sources

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Impaired (Category 4 or 5) Waters in 2022

New River Basin

Cause Group Code: **N19R-02-BAC** **Meadow Run**

Cause Location: Meadow Run (MDR) from its headwaters downstream to its confluence with Little River.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Recreational Use remains impaired for 4.00 miles for the original 2006 303(d) Listing. The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013.

9-MDR000.34 (Rt. 641 Bridge) There are no additional data beyond the 2012 Integrated Report (IR) where nine of 15 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values range from 400 to 1200 cfu/100 ml. The 2008 and 2010 IRs report four of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values range from 630 to greater than 2000 cfu/100 ml. The 2006 range of exceedance is the same from three of nine E.coli observations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_MDR01A04 / Meadow Run / Meadow Run from its headwaters downstream to its confluence with Little River (NE48).	4A	Escherichia coli (E. coli)	2006	L	4.01

Meadow Run

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.01

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N19R-02-BEN** **Meadow Run**

Cause Location: Meadow Run (MDR) from its headwaters downstream to its confluence with Little River.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Little River Benthic (Sediment Fed ID: 41517) TMDL Study is U.S. EPA approved on 3/14/12 and State Water Control Board (SWCB) approved 3/25/13. The original 2008 assessment finds the Aquatic Life Use impaired for 4.00 miles from the results of Virginia Stream Condition Index (VSCI) surveys.

9-MDR003.60 (Off Rt. 610) Bio 'IM' There are no additional data beyond the 2008 IR where two 2001 VSCI surveys with an average score of 45.8 are reported. The benthic community was considerably better in the fall (score 60.6) although taxa richness and percentage of stoneflies-caddisflies (Hydropsychidae) were still low. The station is located downstream and adjacent to residences with mowed lawns, a driveway and a horse pasture that impact bank vegetation and the riparian zone in this reach. The stream substrate is impacted by sediment deposition.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_MDR01A04 / Meadow Run / Meadow Run from its headwaters downstream to its confluence with Little River (NE48).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	4.01

Meadow Run

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.01

Sources: Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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New River Basin

Cause Group Code: **N19R-03-BAC** Pine Creek

Cause Location: Pine Creek mainstem from its mouth on Little River upstream to the impounding structure of a pond.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The waters remain impaired for non-support of the Recreational Use. Bacteria exceedances cause the 2006 303(d) Listing for 3.91 miles.

9-PNC000.69 (Rt. 682 Bridge) There are no additional data beyond the 2008 IR where escherichia coli (E.coli) exceed the 235 cfu/100 ml instantaneous criterion in three of 11 samples in 2008. Excursions range from 380 to 1000 cfu/100 ml. 2006 E.coli exceedances are three of eight with the same range of exceedance found in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_PNC01A06 / Pine Creek / Pine Creek mainstem from its mouth on Little River upstream to just above the intersection of Sandy Flats Road (Rt. 690) (NE49).	4A	Escherichia coli (E. coli)	2006	L	3.92

Pine Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			3.92

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N19R-03-TEMP** Pine Creek

Cause Location: Pine Creek mainstem from its mouth on Little River upstream to the impounding structure of a pond.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The Aquatic Life Use is not supported due to temperature exceedances of the WQS Class VI natural trout water criterion. The impairment extends 3.91 miles.

9-PNC000.69- There are no additional data beyond the 2008 IR. Two of 12 temperature measurements exceed the natural trout water criterion of 20°C. Each excursion is 20.5 °C on 8/02/2004 and 21.3°C on 6/29/2005.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N19R_PNC01A06 / Pine Creek / Pine Creek mainstem from its mouth on Little River upstream to just above the intersection of Sandy Flats Road (Rt. 690) (NE49).	4A	Temperature	2008	L	3.92

Pine Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			3.92

Sources: Loss of Riparian Habitat; Natural Sources

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New River Basin

Cause Group Code: **N20R-01-BAC** **Dodd Creek and West Fork Dodd Creek**

Cause Location: Dodd Creek: The upper limit extends from the junction of Routes 710 and 714 downstream to the Dodd Creek mouth on the West Fork Little River (Woolwine and Floyd Quads). West Fork Dodd Creek and unnamed tributary XDC: Mainstem extends from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located at 36°52'33" / 80°19'43". West Fork Little River: West Fork Little River waters from its mouth on Little River upstream to the mouth of Dodd Creek on the West Fork Little River.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Dodd Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/11/2002 [Fed ID 9456/23407] and SWCB approved 6/17/2004 (formerly VAW-N20R-01). The Bacteria Implementation Plan (IP) received SWCB approval 6/27/2007. The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved 3/14/2012 and SWCB approved 3/25/2013. The waters were originally 1998 303(d) listed based on the former fecal coliform (FC) WQS instantaneous criterion of 1000 cfu/100 ml and 200 geometric mean (8.90 mi). Escherichia coli (E.coli) replaces FC bacteria as the indicator as per WQS [9 VAC 25-260-170. Bacteria; other waters]. Additional bacteria sampling above and below the 1998 303(d) Dodd Creek Impaired waters have extended the original size. Tributary additions include West Fork Dodd Creek (7.04 mi) and an unnamed tributary (XDC) in 2002 to the West Fork (0.53 mi).

Dodd Creek: 9DDD-1-NCNR- Citizen Lv. 2 data for E.coli find a 'High' probability of adverse conditions from 5/8 samples ranging from 350-1400 cfu/100 ml. There are no additional data beyond the 2012 IR.

9-DDD004.64 (Rt. 720 Br above Floyd STP) No additional data beyond 2008 IR:2/9 at 280 & 1200 cfu/100 ml. 2004: 3/11 FC samples exceed the former WQS 400 cfu/100 ml instantaneous criterion.

9-DDD002.62 (Rt. 696 Br below Floyd STP) No additional data beyond 2014 IR: 21/36 E.coli samples exceed ranging from 250 to >2,000 cfu/100 ml. 2012: 21/33, 2010: 15/21 and 2008: 6/9 with same exceedance range as 2014.

9-DDD001.00 (Rt. 8 Br below Floyd STP) The 2020 data window finds 3 exceedances out of 12 E.coli samples. 2014 IR:16/36 from 250 to >2,000 cfu/100 ml. 2012: 13/33 from 250 to >2,000 cfu/100 ml. 2010: 9/21 from 350 to >2,000 cfu/100 ml. 2008: 2/9 at 350 and 1,900 cfu/100 ml.

9-DDD008.20- No additional data beyond 2004 IR: 3/3 FC exceedances of the former 400 cfu/100 ml WQS instantaneous criterion (max. 1700); 1 FC geomean calc results in the exceedance of the former 200 cfu/100 ml standard. No E.coli samples collected.

West Fork Dodd Creek: 9-DDW004.02 (Rt. 714 Br) No additional data beyond 2004 IR: 4/4 FC exceedances of the former WQS 400 cfu/100 ml instantaneous criterion (max. 9200).

9-DDW000.02- (Rt. 8 Br) No additional data beyond 2014 IR: 20/36 E.coli samples exceed. 2012 IR: 12/24 from 250-1800 cfu/100 ml. 2010: 7/12 from 250-1600 cfu/100 ml.

Unnamed Tributary XDC: (The unnamed tributary portion extends from just upstream of the Rt. 8 crossing downstream to its confluence with West Fork Dodd Creek - Floyd Quad.) 9-XDC000.48 (Rt. 807 Br) No additional data beyond 2004 IR: 4/4 FC exceedances of the former WQS 400 cfu/100 ml instantaneous criterion (max. 6400).

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_DDD01A00 / Dodd Creek / Dodd Creek mainstem waters from its mouth on the West Fork of Little River upstream to the Floyd/Floyd County PSA outfall on Dodd Creek (NE51).	4A	Escherichia coli (E. coli)	2008	L	3.84
VAW-N20R_DDD02A00 / Dodd Creek / Dodd Creek mainstem waters from the Floyd/Floyd County PSA outfall on Dodd Creek upstream to the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge (NE51).	4A	Escherichia coli (E. coli)	2008	L	2.61
VAW-N20R_DDW01A02 / West Fork Dodd Creek / West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43" (NE51).	4A	Escherichia coli (E. coli)	2010	L	1.31

Dodd Creek and West Fork Dodd Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.76

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_DDD03A02 / Dodd Creek / Dodd Creek mainstem from the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge on upstream near the junction of Routes 710 and 714 near the Blue Ridge Parkway (NE51).	4A	Fecal Coliform	1998	L	2.46
VAW-N20R_DDW02A02 / West Fork Dodd Creek / West Fork Dodd Creek mainstem from the confluence of an unnamed tributary (XDC) upstream to its headwaters. The mouth of the unnamed tributary is located @36°52'33" / 80°19'43" (NE51).	4A	Fecal Coliform	1998	L	5.73
VAW-N20R_XDC01A02 / West Fork Dodd Creek, UT (XDC) / An unnamed tributary (XDC) to the West Fork Dodd Creek from its confluence upstream to its headwaters. The mouth of the unnamed tributary is located @36°52'33" / 80°19'43" (NE51).	4A	Fecal Coliform	2002	L	0.54

Dodd Creek and West Fork Dodd Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			8.73

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N20R-01-TEMP** West Fork Dodd Creek

Cause Location: West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43".

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013.

9-DDW000.02 (Rt. 807 Bridge) There are no additional data beyond the 2014 data window. 2014 data reveal five of 36 temperature measurements in excess of the WQS Class VI 20°C criterion. Temperature exceedances in addition to those within the 2012 IR are 24.6°C on 7/21/2011 and 22.2°C on 8/29/2012. 2012 Class VI temperature exceedances are found in three of 24 measurements occurring on 7/18/2007 at 20.9°C: 9/11/2007 at 22.3°C and 24.3°C on 8/5/2010. Temperature exceedances within the 2010 data window are found in two of 12 measurements that occur on 7/18/2007 at 20.9°C and 9/11/2007 at 22.3°C. 2002 IR reports temperature exceeds the 20° natural trout criterion in two of two measurements. Exceeding values are 23.3°C on 7/28/99 and 20.1°C on 6/28/00. The 2002 Temperature 303(d) Listing remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_DDW01A02 / West Fork Dodd Creek / West Fork Dodd Creek mainstem from its confluence with Dodd Creek upstream to the mouth of an unnamed tributary (XDC). The mouth of the unnamed tributary is located @36°52'33" / 80°19'43" (NE51).	4A	Temperature	2002	L	1.31

West Fork Dodd Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			1.31

Sources: Natural Sources

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New River Basin

Cause Group Code: **N20R-02-TEMP** **Dodd Creek**

Cause Location: Dodd Creek from it's confluence with the West Fork Little River upstream to the mouth of the West Fork of Dodd Creek

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: There are no additional Dodd Creek data beyond the 2014 assessment. The 2012 assessment finds the Aquatic Life Use is impaired for 8.90 miles due to temperature exceedances of these Class V (21°C) stockable trout waters criterion. The impairment is extended upstream 2.19 miles with citizen data from station 9DDD-1-NCNR in the 2010 assessment. The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013.

Dodd Creek (Lower): Length 3.84 miles. 9-DDD002.62- (Route 696 Bridge below Floyd STP) The 2014 Integrated Report (IR) finds the 21°C stockable trout water criterion exceeds in four of 36 measurements at 21.7°C on 9/11/2007; 23.9°C on 8/5/2010; 23.9°C on 7/21/2011 and 21.6°C on 8/29/2012. The 21°C Class V criterion exceeds in four of 33 measurements at 22.2°C on 8/10/2005; 21.6°C on 8/14/2006; 21.7°C on 9/11/2007 and 23.9°C on 8/5/2010 within the 2012 data window. The 2010 IR finds three of 21 measurements at 22.2°C on 8/10/2005; 21.6°C on 8/14/2006; and 21.7°C on 9/11/2007. 2008 results report two of nine measurements at 22.2°C on 8/10/2005 and 21.6°C on 8/14/2006.

9-DDD001.00- (Route 8 Bridge below Floyd STP) - Temp exceeds at 23°C (7/24/17) and 22°C (8/17/17) during the 2020 and 2022 IRs. The 2014 IR finds the stockable trout water criterion exceeds in four of 36 measurements at 21.1°C on 9/11/2007; 23.7°C on 8/5/2010; 24.4°C on 7/21/2011 and 21.9°C on 8/29/2012. The 2012 IR reports the Class V criterion exceeds in four of 33 measurements at 22.0 on 8/10/2005; 22.1°C on 8/14/2006; 21.1°C on 9/11/2007 and 23.7°C on 8/5/2010. The 2010 assessment finds the stockable trout water criterion exceeds in three of 21 measurements at 22.0 on 8/10/2005; 22.1°C on 8/14/2006; and 21.1°C on 9/11/2007. The 2008 IR found two of nine temperature measurements exceed the Class V criterion at 22.0 on 8/10/2005 and 22.1°C on 8/14/2006.

Dodd Creek (Upper) Length 5.06 miles. 9DDD-1-NCNR (Rt. 710 Bridge) There are no additional data beyond the 2012 IR where Citizen Level 3 data finds three of 14 temperature measurements exceed the Class V criterion of 21°C. Excessive values are 25°C on 6/8/2008; 22.5°C on 8/10/2008; and 22.5°C on 9/14/2008. The 2010 data window reveals three of eight temperature measurements exceeding the criterion on the same dates in 2010. These data extended the temperature impairment upstream 2.19 miles in 2010.

Single measurement exceedances of the Class V criterion occur upstream in 2008 and 2010. There are no additional data reported for Station 9-DDD004.64 (Rt. 720 Bridge above Floyd STP) where one temperature exceedance from nine measurements is found at 22.4°C on 8/10/2005 within the 2008, 2010 and 2012 data windows.

Historically stations 9-DDD006.27 (Rt. 8 Bridge), 9-DDD004.75 (Rt. 720 Bridge) and 9-DDD004.64 (Route 720 Bridge above Floyd STP) have recorded temperature excursions upstream albeit in drought conditions.

9-DDD006.27 21.6°C on 7/28/99 - One of two temperature measurements exceed the 21°C criterion. 9-DDD004.75 records one excursion at 21.9°C on 7/28/99. The extension of the impairment to the mouth of the West Fork of Dodd Creek is in recognition of these data and temperature exceedances on the West Fork of Dodd Creek.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_DDD01A00 / Dodd Creek / Dodd Creek mainstem waters from its mouth on the West Fork of Little River upstream to the Floyd/Floyd County PSA outfall on Dodd Creek (NE51).	4A	Temperature	2008	L	3.84

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_DDD02A00 / Dodd Creek / Dodd Creek mainstem waters from the Floyd/Floyd County PSA outfall on Dodd Creek upstream to the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge (NE51).	4A	Temperature	2008	L	2.61
VAW-N20R_DDD03A02 / Dodd Creek / Dodd Creek mainstem from the West Fork of Dodd Creek mouth on Dodd Creek, just upstream of the Rt. 8 Bridge on upstream near the junction of Routes 710 and 714 near the Blue Ridge Parkway (NE51).	4A	Temperature	2010	L	2.46

Dodd Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			8.91

Sources: Natural Sources

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New River Basin

Cause Group Code: **N20R-03-TEMP** **West Fork Little River**

Cause Location: West Fork Little River waters from its mouth on Little River upstream to the mouth of Dodd Creek on the West Fork Little River (NE51).

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The initial 2018 listing for exceedances of the Class VI (20°C) Natural Trout Waters criterion applies to 4.53 miles of the West Fork Little River. The West Fork Little River Aquatic Life Use impairment is nested in the Little River Temperature (Fed ID: 41518) TMDL Study.

West Fork Little River: Length 4.53 miles.

9-LWF004.55 (Rt. 8 Bridge North of Floyd) - The 2018 data window finds four of 12 temperature measurements exceeding the Class VI Natural Trout Waters 20°C criterion. Excursions are found on the following sampling dates and temperature measurements: 6/22/15 at 23.4°C, 7/23/15 at 21.2°C, 8/20/15 at 21.3°C, and 9/2/15 at 21.9°C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_LWF01A00 / West Fork Little River / West Fork Little River waters from its mouth on Little River upstream to the mouth of Dodd Creek on the West Fork Little River (NE51).	4A	Temperature	2018	L	4.53

West Fork Little River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			4.53

Sources: Natural Sources

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New River Basin

Cause Group Code: **N20R-04-BEN** **Dodd Creek, Unnamed Tributary (XEM)**

Cause Location: Unnamed tributary XEM from its mouth on Unnamed tributary XEL upstream to its headwaters (NE51).

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: This initial 0.71 mile 2018 data window Aquatic Life Use listing is based on Virginia Stream Condition Index scores collected as part of a special study.

9-XEM000.36 (Unnamed tributary (XEL) to Dodd Cr., UT)- Bio 'J' (Reserve Judgement) from VSCI avg of 60.6 from 4 samples (2016-17). Two 2016 VSCI scores define the Aquatic Life Use Impairment: Spring 39.0, Fall 63.9. This stream originates downslope of the Floyd County landfill (landfill was built on top of the original stream channel). Approximately 0.18 miles upstream of the sample station (9-XEM000.36), the stream surfaces from a spring box and is impacted by growths of iron bacteria and Sphaerotilus (sewage fungus). The spring 2016 sediment discharge appears to be affecting the benthic community. Certain stonefly taxa are tolerant of iron precipitate and can thrive in streams moderately impacted by landfills and mines.

9-XEM000.30 (Unnamed tributary (XEL) to Dodd Cr., UT) - Bio 'J' 2020 IR finds four VSCIs avg 59.1 (2016-17). Three VSCI spring surveys (2011-2012, 2016) report an average score of 58.2. The stream surfaces from the Floyd landfill in a spring box and is impacted by growths of iron bacteria and sphaerotilus (sewage fungus). The stream substrate was too impacted by bacterial growth to sample for benthic macroinvertebrates; A May 2011 habitat survey shows most parameters are in the optimal range. Sediment deposition was the only parameter found to be in the marginal range. During the 2012 habitat survey, scores for sediment deposition and several other parameters had declined, some were due to lower stream flow. The 2011 sample is dominated by mayflies, stoneflies and other generally pollution-sensitive taxa. The dominant mayfly taxa, Ephemerellidae (50% of all organisms) is somewhat tolerant of excessive sediment and several stonefly taxa present are known to be tolerant of iron precipitate and organic enrichment. The June 2012 sample finds the number of mayflies very low but stoneflies (51%) are numerous.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_XEM01A08 / Unnamed Tributary (XEM) / Unnamed tributary XEM from its mouth on Unnamed tributary XEL upstream to its headwaters (NE51).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	0.71

Dodd Creek, Unnamed Tributary (XEM)

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		0.71

Sources: Natural Sources

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New River Basin

Cause Group Code: **N21R-01-BAC Little River (Lower)**

Cause Location: The upper limit begins at the confluence of Dodd Creek (N19R) extending downstream to the Little River mouth on the New River (N21R).

Cause City/County: Floyd County; Montgomery County; Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved 3/14/12 and SWCB approved 3/25/13. Exceedances of the former WQS fecal coliform (FC) bacteria instantaneous criterion of 1000 cfu/100 ml required the initial 2002 bacteria 303(d) Listing based on data from USGS station 03170000 where 2 of 14 observations exceed the criterion. Application of the revised 400 cfu/100 ml instantaneous criterion would result in 4 of 14 exceedances above the former criterion ranging from 420-14,900 cfu/100 ml. Due to the 2002 1.39 mi 303(d) Listing from Meadow Creek confluence downstream to the backwaters of Little River Reservoir and 2004 bacteria results from 9-LRV000.34 the impairment is extended 0.49 mi downstream. The 2012 Integrated Report (IR) extends the upper limit to the confluence of Dodd Creek incorporating the West Fork of Little River. The West Fork of Little River is nested within the overall Little River Bacteria TMDL. The impounded waters (60.44 ac) of Little River Reservoir are now bacteria impaired and were incorporated with the 2008 IR.

The 2004 IR establishes a 13.41 mi bacteria impairment at 9-LRV032.72 where 3/8 FC observations exceed the former WQS 400 cfu/100 ml instantaneous criterion. Exceedances range from 600-1100 cfu/100 ml. The impaired extent is from the end of Rt. 706 downstream to the confluence of Sidney Creek. This portion of Little River is separate from the original 2002 bacteria 303(d) Listing because of hydrology and the lack of bacteria data between the two initial listings on the mainstem of Little River.

Additional bacteria sample collection within the 2008 and 2010 data windows define the entire 44.22 mi impairment below. Escherichia coli (E.coli) bacteria replaces FC as the indicator per WQS [9 VAC 25-260-170. Bacteria; other waters].

West Fork Little River (Nested): 9-LWF004.55 (Rt 8 Br, N of Floyd) No new data since 2018 IR: 4/12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. 2012 IR: 5/12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion.

Little River: 9-LRV044.49 (Rt. 615 Br) One E.coli sample exceeds the 235 cfu/100 ml at 256 cfu/100 ml (5/3/17) during the 2020 cycle. 2008 IR: 3/11 within the 2008 & 2010 data windows w/exceeding values from 380 to >2000 cfu/100 ml. 2006: 2/8 at 380 & 450 cfu/100 ml.

9-LRV032.72 (Rt. 617 Br) No additional data beyond the 2006 IR: 4/11 from 600-3300 cfu/100 ml. 2008: same as 2006 IR. 2010: remaining FC data = 1/3 samples in excess of the former instantaneous criterion at 3300 cfu/100 ml & no E.coli is available to assess.

9-LRV016.68 (Rt. 787 Br) 2018: 1/12 at 512 cfu/100 ml. 2012 & 2014: 2/12 at 380 & 1200 cfu/100 ml. 2010: 1/2 at >8000 cfu/100 ml. 2006 & 2008: 2/10 at 900 & > 8000 cfu/100 ml. There are no additional beyond the 2006 IR.

9-LRV012.58 (Rt. 787 pull off) 2016: 3/12 from 275-1075 cfu/100 ml.

9-LRV009.11 (Route 693 Bridge at Graysontown) 2020 IR: 9/36 E.coli samples exceed. 2018: 11/36; 2016: 10/36; 2014: 5/24 each cycle shows exceedances from 400 to >2000 cfu/100 ml. 2012: 2/12 at 400 & 1000 cfu/100 ml. 2010: 1/3 at 500 cfu/100 ml. 2006 & 2008 IRs: FC exceeds the former instantaneous criterion in 2/11 samples at 500 & 600 cfu/100 ml. Note: USGS 03170000 (Little R. at Graysontown) an original 2002 listing station is at the same location.

9-LRV000.44 (Above Little River Dam) No additional data beyond the 2010 IR: 2/7 at 420 & 1000 cfu/100 ml.

9-LRV000.34 (Rt. 605 Br- below Little River Dam) 2012 & 2010: 3/12 from 250 to >2000 cfu/100 ml. 2008 & 2006: 4/14 FC samples in excess of the former 400 cfu/100 ml criterion from 500-7300 cfu/100 ml. No additional data available beyond the 2012 IR.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N20R_LWF01A00 / West Fork Little River / West Fork Little River waters from its mouth on Little River upstream to the mouth of Dodd Creek on the West Fork Little River (NE51).	4A	Escherichia coli (E. coli)	2012	L	4.53
VAW-N21L_LRV01A02 / Little River Reservoir / Little River Reservoir from its impounding structure upstream to its backwaters.	4A	Escherichia coli (E. coli)	2008	L	60.45
VAW-N21R_LRV01A00 / Little River / The mainstem waters of Little River from its mouth on the New River upstream to the Little River Reservoir Dam (NE56).	4A	Escherichia coli (E. coli)	2010	L	0.49
VAW-N21R_LRV03A00 / Little River / Mainstem Little River from the backwaters of Little River Reservoir upstream to the end of the designated PWS section from the Radford City intake (NE56).	4A	Escherichia coli (E. coli)	2012	L	0.69
VAW-N21R_LRV04A00 / Little River / Mainstem Little River from the PWS designated end upstream to the mouth of Meadow Creek (NE56).	4A	Escherichia coli (E. coli)	2012	L	0.70
VAW-N21R_LRV05A00 / Little River / The Little River mainstem waters from the mouth of Meadow Creek upstream to the mouth of Big Indian Creek (NE55).	4A	Escherichia coli (E. coli)	2012	L	12.34
VAW-N21R_LRV06A00 / Little River / The Little River mainstem from the mouth of Big Indian Creek upstream to the WQS designated natural trout water section (NE53).	4A	Escherichia coli (E. coli)	2014	L	8.37
VAW-N21R_LRV07A00 / Little River / Little River mainstem from the WQS designated natural trout waters upstream to the mouth of the West Fork of Little River (NE52).	4A	Escherichia coli (E. coli)	2006	L	3.71

Little River (Lower)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	60.45	30.83

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_LRV06A04 / Little River / Little River from the Brush Creek mouth downstream to the confluence of Sidney Creek (NE53).	4A	Fecal Coliform	2004	L	8.80
VAW-N21R_LRV06A14 / Little River / Little River from the end of Rt. 706 downstream to the confluence of Brush Creek (NE52).	4A	Fecal Coliform	2004	L	4.63

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Little River (Lower)

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			13.43

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-02-BAC** Meadow Creek

Cause Location: The Meadow Creek mainstem from the Mill Creek confluence downstream to the Meadow Creek mouth on Little River (Radford South Quad).

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/12 and State Water Control Board (SWCB) approved 3/25/13.

Fecal coliform (FC) excursions of the former 1000 cfu/100 ml instantaneous criterion found in 2002 results in the initial 303(d) Listing of these waters for 4.49 miles. Exceedances are found in three of four observations and one geometric mean calculation exceedance is recorded in excess of the former 2002 criterion of 200 cfu/100 ml. Additional sample collections within the 2004 IR data window also produce exceedances of the former 400 cfu/100 ml instantaneous criterion in seven of 12 observations with one geometric mean excursion of the former criterion. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-MDW004.62- There are no new data. The 2014, 2012 and 2010 data windows produce six exceeding values from 12 observations of the escherichia coli (E.coli) 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 280 to greater than 2000 cfu/100 ml. The 2006 IR finds FC exceedances of the former WQS 400 cfu/100 ml instantaneous criterion in six of 11 observations. The range of exceeding values is from 700 to greater than 8000 cfu/100 ml. FC exceedances and total observations within the 2008 data window are the same.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_MDW01A00 / Meadow Creek / The Meadow Creek mainstem from its confluence with Little River upstream to the mouth of Mill Creek on Meadow Creek (NE56).	4A	Escherichia coli (E. coli)	2010	L	4.65

Meadow Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			4.65

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-03-BAC** Mill Creek, Poplar Branch, Mill Creek UTs (XDE and XDF)

Cause Location: The upper limit begins at the headwaters of Mill Creek on the Riner Quad and extends downstream to the Mill Creek confluence with Meadow Creek at the Rt. 600 Bridge on the Radford South Quad (7.04 miles). This impairment also includes Poplar Branch and its tributaries from its mouth on Mill Creek to its headwaters as well as to unnamed tributaries to Mill Creek (XDE & XDF).

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The Mill Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/5/02 [Fed ID 9453/19986] and SWCB approved 6/17/04 (formerly VAW-N21R-03). The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved 3/14/12 and SWCB approved 3/25/13. The Mill Creek Bacteria Implementation Plan (IP) received SWCB approval 6/27/07; Little River 3/25/13. The 1996/2002/2004 impaired waters now extend to the headwaters of Mill Creek (7.60 mi). 2002 tributary additions include Poplar Branch and 2 unnamed tributaries. The waters are impaired for a total of 15.92 mi.

The waters are originally 303(d) Listed based on the former fecal coliform (FC) WQS instantaneous criterion of 1000 cfu/100 ml and 200 geometric mean. The 2004 Integrated Report (IR) records exceedances of both the former FC 400 cfu/100 ml instantaneous criterion and geometric mean criterion of 200 cfu/100 ml. Listed below are the monitored sites showing FC instantaneous excursions / total sample collections; (maximum) and geomean calculation exceedances / total calculations, where applicable. Instantaneous Escherichia coli (E. coli) single observations from the 2008 IR are listed next (value). Each exceed the WQS instantaneous criterion of 235 cfu/100 ml. E.coli replaces FC bacteria as the indicator as per WQS [9 VAC 25-260-170. Bacteria; other waters].

9-MLC005.44- There are no new data since the 2014 IR: 18/36 from 250 to >2000 cfu/100 ml. 2012: 11/24 from 280-600 cfu/100 ml. 2010: 4/12 from 250-580 cfu/100 ml.

9-MLC002.59 (Rt. 669 Bridge) There are no new data since the 2014 IR: 23/36. 2014: 16/24 from 280 to >2000 cfu/100 ml. 2012: 14/24 from 280 to >2000 cfu/100 ml. 2010: 7/12 from 580 to >2000 cfu/100 ml.

9-MLC001.53 (Rt. 693, Childress) 2020 IR: 8/12 E.coli samples exceed. 2014 IR: 14/36 from 250 to >2000 cfu/100 ml. 2012: 8/24 from 250-1100 cfu/100 ml. 2010: 3/12 from 300-1100 cfu/100 ml.

Data below reflect the 2004, 2006 and 2008 data windows as there were no additional data beyond the 2006 IR. Two ambient fixed sites 9-MLC005.44 & 9-MLC001.53 are included with the non-fixed sites below.

2004 IR results: Mill Creek 9-MLC000.17 (Rt. 600 Bridge) - 3/5; (3900); 1/1 geomean; E.coli- 1/1 (800).

9-MLC001.31 (Rt. 693 Bridge) - 3/5; (2300); 1/1 geomean; E.coli- 1/1 (800). 9-MLC001.53 (Rt. 693, Childress) - 3/6; (2300). 9-MLC002.74 (Private Road off Rt. 616) - 4/5; (>8000); 1/1 geomean; E.coli- 1/1 (800).

9-MLC005.44 (Rt. 8 Bridge-above Riner STP) - 18/25; (2500); E.coli- 1/1 (800). 9-MLC006.00 (Private road Rt. 616) - 2/5; (>8000); 0/1 geomean; E.coli- 1/1 (>800).

Poplar Branch 9-PPL000.01 (Private Road at mouth) - 1/1; (>8000). 9-PPL001.27 (Rt. 616 Bridge) - 2/2 (2800).

Mill Creek Unnamed Tributaries 9-XDE000.95 (Rt. 678 Bridge) - 4/5; (>8000); 1/1 geomean; E.coli- 1/1 (>800). 9-XDF000.11 (Private road Rt. 669) - 4/5;(2600); 1/1 geomean; E.coli- 1/1 (>800).

2006 IR results for 2006 stations within the data window: Mill Creek 9-MLC005.44- 2006 FC exceeds the 400 cfu/100 ml instantaneous criterion in 10/15 obs ranging from 600-2000 cfu/100 ml. 2008: 8/11. 9-MLC002.74- 2006 FC exceeds in 10/12 obs (max. > 8000 and min. 500 cfu/100 ml). 2008: 9/11. 9-MLC001.53- 2006 FC exceeds in 5/8 (max. 2300 cfu/100 ml). 2008: 5/8.

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_MLC01A00 / Mill Creek / Mill Creek mainstem waters from its mouth on Meadow Creek upstream to the Montgomery County PSA Riner STP outfall (NE56).	4A	Escherichia coli (E. coli)	2010	L	5.49
VAW-N21R_MLC02A00 / Mill Creek / Mill Creek mainstem waters from the Montgomery County PSA Riner STP outfall upstream to its headwaters (NE56).	4A	Escherichia coli (E. coli)	2010	L	2.11

Mill Creek, Poplar Branch, Mill Creek UTs (XDE and XDF)

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.6

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_PPL01A02 / Poplar Branch & Tributaries / Poplar Branch mainstem and tributaries from its confluence with Mill Creek upstream to its headwaters (NE56).	4A	Fecal Coliform	2002	L	4.63
VAW-N21R_XDE01A02 / Mill Creek, UT (XDE) / An unnamed tributary (XDE) to Mill Creek from its mouth upstream. The stream is located in the headwaters of Mill Creek flowing to VAW-N21R_MLC02A00 (NE56).	4A	Fecal Coliform	2002	L	1.76
VAW-N21R_XDF01A02 / Mill Creek, UT (XDF) / An unnamed tributary (XDF) to Mill Creek from its mouth upstream. The stream is located in the headwaters of Mill Creek flowing to VAW-N21R_MLC01A00 (NE56).	4A	Fecal Coliform	2002	L	1.96

Mill Creek, Poplar Branch, Mill Creek UTs (XDE and XDF)

Recreation

Fecal Coliform - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.35

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-05-BAC** **Brush Creek**

Cause Location: Brush Creek from the first bridge on Route 617 south of the junction of Routes 617 and 601 downstream to the Brush Creek mouth on Little River.

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013.

The 2004 Recreational Use impairment continues for 5.94 miles originally due to fecal coliform (FC) bacteria exceedances of the former instantaneous criterion of 400 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-BSH000.05 (Rt. 617 Bridge) Four of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Excursions range from 473 to greater than 1100 cfu/100 ml. The 2012 Integrated Report (IR) found six of 11 escherichia coli (E.coli) observations exceed the 235 cfu/100 ml instantaneous criterion. Excessive values range from 250 to greater than 2000 cfu/100 ml. These waters were initially Listed for fecal coliform (FC) in 2004 with three of eight FC samples exceeding the former WQS instantaneous criterion of 400 cfu/10 ml. The 2010 data window finds two of two samples exceeding the former instantaneous criterion at 800 and 1100 cfu/100 ml. The 2004, 2006 and 2008 data windows find five of 10 FC samples exceeding the former instantaneous criterion. The maximum exceedance range is from 700 to 1300 cfu/100 ml. There were no E.coli data to assess at that time.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BSH01A04 / Brush Creek / Brush Creek from the first bridge on Route 617 south of the junction of Routes 617 and 601 downstream to the Brush Creek mouth on Little River (NE52).	4A	Escherichia coli (E. coli)	2012	L	5.95

Brush Creek

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.95

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-06-BAC** Laurel Creek

Cause Location: Laurel Creek mainstem from its headwaters NW of the Routes 608 and 673 intersection downstream to its confluence with Little River.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/12 and State Water Control Board (SWCB) approved 3/25/13.

Fecal coliform (FC) bacteria exceedances cause this initial 2004 303(d) Listed water to not support the Recreational Use for 3.44 miles. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-LLL000.05- There are no additional data beyond the 2012 Integrated Report (IR) where five of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceeding values is 380 to 1200 cfu/10 ml. FC data within the 2010 data window find one of two samples in excess of the former criterion. The single exceedance is 1000 cfu/100 ml. Both the 2006 and 2008 Integrated Reports (IR) find FC exceeds the former WQS 400 cfu/100 ml instantaneous criterion in five of 10 samples. The exceedances range from 600 to 2800 cfu/100 ml. FC data within the 2010 data window find one of two samples in excess of the former criterion. The single exceedance is 1000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_LLL01A04 / Laurel Creek / Laurel Creek from its headwaters (Class VI) NW of Rts. 608 and 673 intersection downstream to its confluence with Little River (NE52).	4A	Escherichia coli (E. coli)	2012	L	3.45

Laurel Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			3.45

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-07-BAC** **Big Indian Creek**

Cause Location: Big Indian Creek from approximately 0.5 miles upstream of the West Fork Big Indian Creek mouth downstream to the Big Indian Creek confluence with Little River.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The 2010 Integrated Report initially 303(d) Lists these waters.

9-BIC000.14 (Rt. 787 Bridge)- The 2020 data window finds three E.coli excursions out of 12 samples. There is no additional bacteria data collected within the 2018 or 2016 data windows. 2014 data window reveals 10 of 24 escherichia coli (E.coli) observations in excess of the 235 cfu/100 ml instantaneous criterion. Excursions range from 300 to 950 cfu/100 ml. There are no additional data within the 2012 data window. The 2010 initial Listing is based on E.coli exceedances from four of 12 samples in excess of the instantaneous criterion with excursions ranging from 350 to 950 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BIC01A02 / Big Indian Creek / Big Indian Creek mainstem from approximately 0.5 miles upstream of the West Fork Big Indian Creek mouth downstream to the Big Indian Creek confluence with Little River (NE54).	4A	Escherichia coli (E. coli)	2010	L	7.84

Big Indian Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.84

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-07-TEMP** **Big Indian Creek**

Cause Location: Big Indian Creek from approximately 0.5 miles upstream of the West Fork Big Indian Creek mouth downstream to the Big Indian Creek confluence with Little River.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved on 3/25/2013. These waters were initially 303(d) Listed with the 2004 assessment and subsequently delisted with the 2010 assessment. The waters return to an impaired status with the 2014 assessment. Big Indian Creek is addressed by the Little River Temperature TMDL and is category 4A.

9-BIC000.14- (Rt. 787 Bridge, Indian Valley Rd.) Temp excursions of the WQS stockable trout water criterion of 21°C occur in two of 14 measurements: 23°C (7/24/17) and 23°C (8/17/17). No new data was collected within the 2018 data window. The 2016 data windows finds no new temperature exceedances. The 2014 data window records three of 24 temperature measurements in excess of the Class V stockable trout water criterion of 21°C.

Exceedances occur on 7/18/2007 at 21.7°C; 7/21/2011 at 24.1°C and 8/29/2012 at 21.6°C. The 2012 data window reveals one exceeding value at 21.7°C on 7/18/2007 from 12 measurements with no additional data. The waters were delisted based on data within the 2010 window where one exceedance (7/18/2007) is recorded from 15 measurements. The temperature original 2004 303(d) Listing continued through the 2008 Cycle. 2006 and 2008 IRs record two of 11 exceedances each. The excursions are 23.9 °C on 7/11/01 and 23.2 °C on 7/10/02 during some of the driest years on record. The original 303(d) Listing in 2004 is based on two of eight temperature measurements exceeding the 21°C criterion as recorded for 2006 and 2008 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BIC01A02 / Big Indian Creek / Big Indian Creek mainstem from approximately 0.5 miles upstream of the West Fork Big Indian Creek mouth downstream to the Big Indian Creek confluence with Little River (NE54).	4A	Temperature	2004	L	7.84

Big Indian Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.84

Sources: Natural Sources

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New River Basin

Cause Group Code: **N21R-08-BAC** Beaver Creek

Cause Location: Beaver Creek from its mouth on Little River to its headwaters.

Cause City/County: Floyd County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The Little River Bacteria (Fed ID: 41519) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved 3/25/2013. The 2020 Integrated Report initially 303(d) Lists these waters. Beaver Creek is Nested in the aforementioned TMDL Study.

9-BVR001.84 (Rt. 705 Bridge, Floyd Co.) - The 2020 data window finds seven of 12 Escherichia coli (E.coli) samples in exceedance of the 235 cfu/100 ml instantaneous criterion. The minimum excursion was 327 cfu/100 ml (9/25/18) and maximum 2,481 cfu/100 ml (6/21/18).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BVR01A20 / Beaver Creek / Beaver Creek from its mouth on Little River to its headwaters (NE52).	4A	Escherichia coli (E. coli)	2020	L	7.11

Beaver Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.11

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N21R-08-BEN** Beaver Creek

Cause Location: Beaver Creek from its mouth on Little River to its headwaters.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Little River Sediment (Fed ID: 41517) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved on 3/25/2013. These waters are initially 303(d) Listed with the 2020 assessment. Beaver Creek is nested in the Little River Sediment TMDL and is category 4A.

9-BVR001.70 (Off Rt. 705 / Beaver Cr. Rd.) - Bio 'IM' from two 2018 VSCI Scores of 48.3 (S) and 58.3 (F). This station was surveyed as part of the Probabilistic monitoring program in 2018. The benthic macroinvertebrate community had good diversity but was comprised of an even mix of both pollution tolerant and sensitive taxa.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BVR01A20 / Beaver Creek / Beaver Creek from its mouth on Little River to its headwaters (NE52).	4A	Benthic Macroinvertebrates Bioassessments	2020	L	7.11

Beaver Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.11

Sources: Erosion from Derelict Land (Barren Land); Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Non-Point Source; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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New River Basin

Cause Group Code: **N21R-08-TEMP** Beaver Creek

Cause Location: Beaver Creek from its mouth on Little River to its headwaters.

Cause City/County: Floyd County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/4A

Cause Description: The Little River Temperature (Fed ID: 41518) TMDL Study is U.S. EPA approved on 3/14/2012 and State Water Control Board (SWCB) approved on 3/25/2013. These waters are initially 303(d) Listed with the 2020 assessment and are nested in the Little River Temperature TMDL (Category 4A).

9-BVR001.84 (Rt. 705 Bridge, Floyd Co.) - The 2020 data window finds three of 12 temperature measurements in exceedance of the 20°C Class VI Natural Trout Waters Criteria. Excursions are: 21°C (6/21/18), 21°C (7/23/18), and 22°C (8/13/18).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N21R_BVR01A20 / Beaver Creek / Beaver Creek from its mouth on Little River to its headwaters (NE52).	4A	Temperature	2020	L	7.11

Beaver Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.11

Sources: Erosion from Derelict Land (Barren Land); Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat; Non-Point Source; Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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New River Basin

Cause Group Code: **N22R-02-BAC** **Stroubles Creek**

Cause Location: The upstream end is at the Duck Pond dam on the southwest end of the VPI&SU campus on the Blacksburg Quad. The downstream end is at the Slate Branch mouth on Stroubles Creek.

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: Fecal coliform (FC) bacteria exceedances of the former 1000 cfu/100 ml WQS instantaneous criterion in 2002 cause impairment of the Recreational Use. Three of 23 observations exceed the former criterion at station 9-STE002.41 (Rt. 705 Bridge (Coal Hollow Road)) The 2004 IR at 9-STE002.41 records four exceedances from 35 samples in excess of the current 400 cfu/100 ml WQS instantaneous criterion. Escherichia coli (E.coli) bacteria replaced fecal coliform (FC) in 2006 as the indicator as required by Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 2008 results find E.coli exceedances at 9-STE002.41 are three of 31 samples and resulted in 2.11 miles delisted with the 2008 IR. This 2.11 mile delisted portion (partial - length) returned with the 2010 303(d) Listing.

9-STE002.41- The 2022 data window applies new E.coli criterion and finds impairment from 2 or more STV hits in the same 90-day period with < 10 samples. Nine of 36 excursions are reported during the 2020 data window. The 2018 and 2016 data windows find eleven of 36 E.coli samples that exceed the 235 cfu/100 ml instantaneous criterion. Twelve of 36 samples exceeded that criterion in 2014. Values in excess of the instantaneous criterion range from 250 to greater than 2000 cfu/100 ml within the 2014 and 2016 data windows. The 2012 data window finds eight of 36 observations exceeding the 235 cfu/100 ml instantaneous criterion. 2010 E.coli samples find eight exceed the 235 cfu/100 ml instantaneous criterion from a total of 32 samples with the same range of exceedance.

9-STE007.29 (Rt. 657 Bridge below old B'Burg STP) E.coli exceeds in seven of 11 during the 2020 data window. There is no new data within the 2016 data window. E. coli samples find eight exceed the 235 cfu/100 ml instantaneous criterion from a total of 24 samples. Exceeding values range from 280 to greater than 2000 cfu/100 ml within the 2014 data window. The 2012 IR reports eight E.coli samples exceed the instantaneous criterion from a total of 33. Exceeding values range from 280 to greater than 2000 cfu/100 ml. 2010 results find eight exceed from a total of 32 samples with the same range of exceedance as 2012. 2008 E.coli results exceed in five of 25 samples. The 2008 exceedance range is from 300 to greater than 2000 cfu/100 ml. 2006 E.coli samples reveal five exceed the instantaneous criterion from a total of 16.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_STE03A00 / Stroubles Creek / These mainstem waters extend from the Slate Branch mouth on Stroubles Creek upstream to the mouth of Walls Branch (NE59).	5A	Escherichia coli (E. coli)	2010	L	2.12
VAW-N22R_STE04A00 / Stroubles Creek / These mainstem waters extend from the Walls Branch mouth upstream to the Duck Pond located on the VPI&SU Campus (NE59).	5A	Escherichia coli (E. coli)	2006	L	5.09

Stroubles Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			7.21

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Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N22R-02-BEN** **Stroubles Creek**

Cause Location: These mainstem waters extend from the Walls Branch mouth upstream to the Duck Pond located on the VPI&SU Campus.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The Stroubles Creek General Standard (Benthic- Sediment) Total Maximum Daily Load (TMDL) is U.S. EPA approved on 1/28/04 [Fed ID: 21904]. The SWCB approved the Study on 6/17/04. The Benthic (Sediment) Implementation Plan (IP) is SWCB approved (9/27/06) (formerly VAW-N22R-02). The 1996 original 303(d) Listed waters remain impaired for contravention of the General Standard (Benthic).

9-STE007.29 - (Rt. 657 Bridge below old Blacksburg STP) Bio 'IM' from six VSCI scores (2015-17) averaging 57.9. The 2018 data window includes six VSCI scores averaging 54.6 (2012, 2015-2016). The Spring 2016 score indicated improvement from Spring 2015 and the Fall 2016 score maintained a Non-Impaired status. While overall the VSCI scores indicate an impaired community, the scores improved during this assessment period. The 2014 assessment found nine Virginia Stream Condition Index (VSCI) surveys (2007-2010 & 2012) are 'IM' with an average score of 46.82. Impairment is found from nine surveys (2006 - 2010) with an average score of 46.82 in 2012. The 2010 assessment found impairment from seven VSCI surveys (2003 & 2006 - 2008) with an average score of 45.6. An average score of 45.6 is also found in 2008 from six VSCI surveys (2001 - 2003 & 2006).

The moderately pollution tolerant caddisfly family Hydropsychidae and fly family Chironomidae were the second most common macroinvertebrates during these surveys. This community indicates the benthic community is exposed to moderate level of pollution, possibly a nutrient source that provides the Hydropsychidae the opportunity to be second most dominant. Thus, this stream reach shows evidence of year long pollution. Habitat condition at this station is suboptimal, impacted by sediment and poor riparian vegetation zones. The mostly open canopy allows for increased water temperatures and primary production resulting in large mats of algae and bacteria on the stream substrate during the summer and fall.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_STE04A00 / Stroubles Creek / These mainstem waters extend from the Walls Branch mouth upstream to the Duck Pond located on the VPI&SU Campus (NE59).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.09

Stroubles Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.09

Sources: Discharges from Municipal Separate Storm Sewer Systems (MS4); Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment)

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New River Basin

Cause Group Code: **N22R-03-BAC** **Back Creek**

Cause Location: The waters extend from 0.70 miles below the Rt. 636 Bridge crossing downstream to Back Creek's mouth on the New River.

Cause City/County: Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The 1996 303(d) Listed Back Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 6/21/2004 [Fed ID 24564] and SWCB approval on 12/02/04. The Bacteria/Benthic Implementation Plan (IP) is SWCB approved 7/31/2008 (formerly VAW-N22R-03). 1996 fecal coliform (FC) exceedances are found in seven of seven observations at 9-BCK009.47; 2002 records 17 of 23 samples exceeding the former fecal coliform bacteria instantaneous criterion of 1000 cfu/100 ml. The 2004 Integrated Report (IR) records 19 of 21 samples exceeding the former WQS fecal coliform bacteria instantaneous criterion of 400 cfu/100 ml at 9-BCK009.47. The excursions range from 900 to >8000 cfu/100 ml. Escherichia coli (E.coli) bacteria replaced fecal coliform in 2006 as the indicator as required by Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The waters remain impaired for 17.53 miles with the 2014 and 2016 Assessments.

9-BCK015.98 (Rt. 636 Bridge, Black Hollow Road) Nine of 11 excursions reported at 9-BCK015.88 during the 2020 data window. Six of seven E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Prior to 2018, there are no additional data beyond the 2012 assessment where E.coli samples exceeded the WQS instantaneous criterion of 235 cfu/100 ml in 24 of 36 total samples. Values in excess of the criterion range from 300 to greater than 2000 cfu/100 ml. 2010 E.coli samples exceed the instantaneous criterion in 25 of 35 samples. Values in excess of the criterion range from 300 to greater than 2000 cfu/100 ml. The 2008 assessment finds E.coli exceeds the instantaneous criterion in 19 of 26 samples. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml. In 2006 E.coli samples exceed the instantaneous criterion in 11 of 14 samples with the same exceedance range.

9-BCK009.47 (Rt. 100 Bridge) There are no additional data beyond the 2012 Integrated Report (IR) where E.coli exceeds the 235 cfu/100 ml criterion in 34 of 36 samples. The range of exceedance is from 320 to greater than 2000 cfu/100 ml. 2010 E. coli exceedances of the instantaneous criterion are found in 39 of 42 samples. The range of exceeding values is from 310 cfu/100 ml to 18,000. E.coli exceeds the instantaneous criterion in 32 of 35 samples in 2008. The range of exceeding values is from 310 cfu/100 ml to 18,000. Two of two geometric mean calculations exceed the 126 cfu/100 ml criterion based on the former WQS frequency of collection. The 2006 assessment found E.coli exceeds the instantaneous criterion in 20 of 21 samples with the same exceedance range.

9-BCK000.74 (Rt. 600 Bridge) There are no additional data beyond the 2012 IR where 20 of 36 E.coli exceedances occur ranging from 250 to greater than 2000 cfu/100 ml. E.coli exceedances are found in 29 of 43 samples within the 2010 data window. Exceedances range from 250 cfu/100 ml to 9000. The 2008 assessment finds E.coli exceeds the instantaneous criterion in 23 of 36 samples with exceedances ranging from 290 cfu/100 ml to greater than 2000. Three of three geometric mean calculations exceed the 126 cfu/100 ml criterion based on the former WQS frequency of collection. The exceedance range in 2006 is the same as 2008 where E.coli exceeds in 15 of 22 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_BCK01A00 / Back Creek / Back Creek mainstem waters from the mouth of Shuffle Branch downstream to Back Creek's mouth on the New River (NE61).	4A	Escherichia coli (E. coli)	2006	L	5.76
VAW-N22R_BCK02A08 / Back Creek / Back Creek from 0.70 miles downstream of the Rt. 636 crossing on downstream to the confluence of Shuffle Branch (NE61).	4A	Escherichia coli (E. coli)	2006	L	11.77

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Back Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.53

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N22R-03-BEN** **Back Creek**

Cause Location: The waters extend from 0.70 miles below the Rt. 636 Bridge crossing downstream to Back Creek’s mouth on the New River.

Cause City/County: Pulaski County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The 2002 303(d) Listed Back Creek General Standard (Benthic- Sediment) Total Maximum Daily Load (TMDL) is U.S. EPA approved on 6/21/2004 [Fed ID 24565]. The SWCB approved the Study on 12/02/04. The Benthic/Bacteria Implementation Plan (IP) is SWCB approved 7/31/08.

The TMDL identifies sediment as the primary stressor for the aquatic life use (benthic) impairment. The 2002 severe RBP II score of 37.50 produces the initial 17.53 mile listing of the benthic impairment. The 2008 assessment finds via station 9-BCK000.74 that a single Virginia Stream Condition Index (VSCI) score indicates full support. A potential delisting could occur for the lower end of Back Creek should additional surveys produce scores at 60 or above in succeeding assessment cycles.

9-BCK015.98- (Rt. 636 Bridge, Black Hollow Road) The 2018 data window finds Bio ‘IM’ from six VSCI scores. The addition of 2016 spring and fall data results in a VSCI averaging 44.7. Bio ‘IM’ Four Virginia Stream Condition Index (VSCI) surveys (2011-2012) within the 2016 and 2014 data windows produce an average score of 42.9. And two 2006 VSCI surveys with an average score of 42.8 are reported within previous Integrated Reports (IR). The habitat surveys indicate the stream is impacted by sediment deposition, riparian vegetation removal, channel alteration (straightening of the stream), and destabilized stream banks. Additionally, the water in Back Creek is often turbid from cattle disturbance of stream banks and in-stream sediments. These impacts result in stream substrate and water that limits colonization of benthic macroinvertebrates and fish.

9-BCK009.47 (Rt. 100 Bridge) Bio- ‘IM’; The 2012 Integrated Report (IR) reveals four VSCI surveys (2006 & 2010) with an average score of 41.0 The remaining two surveys within the 2014 and 2016 data windows produce an average score of 32.6. The benthic community is dominated by taxa that are tolerant of nutrient/organic enrichment. Late summer of 2006 a fish kill occurred that was the probable cause for the decline in the benthic community for the Fall sample. The community recovered between Fall of 2006 and Spring of 2010, however a decline is noted in the Fall 2010 score. NPS pollution from agricultural sources upstream from Rt. 100 has impacted the stream. Habitat at this site has been impacted by the agricultural land use in the watershed, resulting in sedimentation and excessive algal growth on the substrate. The 2008 and 2010 assessments report three VSCI surveys (2003 & 2006) with an average score of 41.0 as well.

9-BCK000.74- (Rt. 600 Bridge) Bio- ‘FS’ There are no additional surveys beyond the 2006 IR. One fall 2003 VSCI survey scoring 67.2. This AU would be a candidate for delisting should additional surveys find scores above 60. The reach appears to have habitat that would suit a diverse benthic community and was surveyed to determine if it was a recovery zone from upstream impairments. However, this station had a low abundance of sensitive EPTs. The high dominance of Elmidae (53.3%) is possibly due to slight nutrient enrichment and the subsequent abundance of periphyton, which is the predominant food of riffle beetles. This station is slightly impacted by sediment deposition. The banks and riparian zones are impacted by altered hydrology and human activities. However, the substrate size, frequency of riffles, flow, velocity, and channel gradient have a positive effect on the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_BCK01A00 / Back Creek / Back Creek mainstem waters from the mouth of Shuffle Branch downstream to Back Creek’s mouth on the New River (NE61).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	5.76

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_BCK02A08 / Back Creek / Back Creek from 0.70 miles downstream of the Rt. 636 crossing on downstream to the confluence of Shuffle Branch (NE61).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	11.77

Back Creek

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			17.53

Sources: Channelization; Loss of Riparian Habitat; Sediment Resuspension (Clean Sediment)

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New River Basin

Cause Group Code: **N22R-04-BAC** **Toms Creek**

Cause Location: Toms Creek mainstem waters just below the Poverty Creek confluence upstream to its headwaters.

Cause City/County: Montgomery County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: This initial 2014 Listing is a result of bacteria data showing impairment of the Recreational Use. The 2020 data window extends this impairment downstream 5.71 miles due to E.coli data collections at 9-TOM005.32.

9-TOM012.78- (Lower bike path off Deerfield Drive) Three of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2014 data window. Exceeding values range from 275 to 950 cfu/100 ml. Note: Level 2 Citizen data indicates the impairment extends downstream to the Toms Creek confluence with the New River. There was no additional data collected since the 2014 data window.

9-TOM005.32 (Rt. 725 Bridge [Poverty Cr Road]) - E.coli 'IM' from five excursions of the 235 cfu/100 ml instantaneous criterion from 12 samples during the 2020 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_TOM02A00 / Toms Creek / Toms Creek mainstem waters just below the Poverty Creek confluence upstream to the mouth of Big Run. These waters are not within the WQS public water supply (PWS) designation (NE60).	5A	Escherichia coli (E. coli)	2020	L	5.71
VAW-N22R_TOM03A08 / Toms Creek / Toms Creek from the mouth of Big Run upstream to its headwaters (NE60).	5A	Escherichia coli (E. coli)	2014	L	6.14

Toms Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			11.85

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); Non-Point Source; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N22R-04-TEMP** Toms Creek

Cause Location: Toms Creek mainstem waters from its mouth on the New River upstream to its headwaters.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The initial 2008 5.71 mile impairment is extends upstream 6.13 miles (2012) and downstream 4.56 miles (2014) with data provided by the National Committee for the New River (NCNR). The Aquatic Life Use is impaired for a total of 16.40 miles based on the initial 2008 temperature exceedances and 2012 / 2014 Citizen temperature measurements of the Class V 21°C stockable trout water criterion.

9TOM-1-NCNR (Off Glade Rd. at Heritage Park Trail Lv. 3) Seven temperature measurements exceed the Class V 21°C criterion ranging from at 21.5°C to 26.1°C from 32 measurements within the 2016 and 2014 data windows. Excursions occur during the summer months Lv. 3 [IM]. Two temperature measurements exceed the Class V 21°C criterion at 24.5°C on 7/19/2010 and 24.0°C on 8/19/2010 from 10 measurements for 2012.

9-TOM005.32- (Rt. 725 Bridge upstream of Poverty Creek) One temperature exceedance at 22 C (7/13/17). Temp impairment remains due to upstream and downstream impairment. Both the 2010 and 2008 IRs find two temperature measurements exceed the Class V 21°C criterion from 13 observations. Exceedances occur on 8/15/2005 at 24.4°C and 21.4 °C on 8/15/2006. There are no additional data beyond the 2008 Integrated Report (IR).

9TOM-2-NCNR (Poverty Creek Rd. Bridge Lv. 3) The 2016 data window finds three of 11 temperature measurements exceed the Class V 21°C criterion. Excessive values range from 22 to 24.5°C and occur in the summer months. The 2012 Integrated Report (IR) finds three temperature exceedances of the Class V 21°C criterion occur on 6/16/2010 at 22°C; 7/19/2010 at 24.0°C and 8/16/2010 at 24.5°C from 11 measurements for 2012.

9TOM-3-NCNR (Mt. Zion Road Bridge Lv. 3) Only one temperature measurement (full support) reported during the 2020 data window. Seven temperature measurements exceed the Class V 21°C criterion ranging from at 22.0°C to 24.7°C from 33 measurements within the 2016 data window. Excursions occur during the summer months.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_TOM01A00 / Toms Creek / These mainstem waters extend from just below the Poverty Creek confluence downstream to the Toms Creek mouth on the New River. These waters are within the WQS five mile public water supply (PWS) designation (NE60).	5C	Temperature	2014	L	4.56
VAW-N22R_TOM02A00 / Toms Creek / Toms Creek mainstem waters just below the Poverty Creek confluence upstream to the mouth of Big Run. These waters are not within the WQS public water supply (PWS) designation (NE60).	5C	Temperature	2008	L	5.71
VAW-N22R_TOM03A08 / Toms Creek / Toms Creek from the mouth of Big Run upstream to its headwaters (NE60).	5C	Temperature	2012	L	6.14

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Impaired (Category 4 or 5) Waters in 2022

Toms Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			16.41

Sources: Source Unknown

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Appendix 4 - Fact Sheets for
Impaired (Category 4 or 5) Waters in 2022

New River Basin

Cause Group Code: **N22R-05-BAC** **New River**

Cause Location: New River mainstem from Claytor Dam (NE57) downstream to the confluence with Back Creek (NE62).

Cause City/County: Montgomery County; Pulaski County; Radford

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The initial 2016 303(d) Listing of these waters is a result of escherichia coli (E.Coli) excursions of the 235 cfu/100 ml instantaneous criterion in three of 23 samples. All three exceeding samples were found to have E.Coli concentrations of 250 cfu/100 ml. These waters are not meeting the Recreational Use. The 2020 data window extends this Recreational Use impairment upstream to the confluence of Little River.

9-NEW081.72 (Rt. 11 Bridge at Radford) - The 2022 data window applies new E.coli criterion and finds one Statistical Threshold Value exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. The 2020 data window finds five of 42 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

9-NEW066.90 (New River at Whitethorne) The 2022 data window applies new E.coli criterion and finds one Statistical Threshold Value exceedance in one or multiple 90-day periods but insufficient data to analyze geomean. Nine of 36 E.coli samples exceed during the 2020 data window. The 2018 data window shows six of 24 Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion. Exceedances range from 241 to 383 cfu/100 ml. The 2016 data window found excursions in three of 23 samples. Exceeding values were all 250 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N18R_NEW01A00 / New River / New River mainstem from the Watershed boundary, Crab Creek mouth, upstream to approximately one mile downstream of the Rt. 11 Bridge; end of the WQS public water supply (PWS) section (NE57).	5A	Escherichia coli (E. coli)	2020	L	3.33
VAW-N18R_NEW02A00 / New River / New River mainstem from approximately one mile downstream of the Rt. 11 Bridge upstream to the Radford City intake (NE57).	5A	Escherichia coli (E. coli)	2020	L	3.73
VAW-N18R_NEW04A00 / New River / New River mainstem waters from the mouth of Little River upstream to Claytor Dam (NE57).	5A	Escherichia coli (E. coli)	2020	L	0.60
VAW-N22R_NEW02A00 / New River / New River mainstem from the Radford Army Arsenal Plant downstream intake near Whitethorne downstream to the confluence of Back Creek (NE62).	5A	Escherichia coli (E. coli)	2016	L	2.87
VAW-N22R_NEW02B14 / New River / New River mainstem from the mouth of Toms Creek downstream to the RAAP downstream intake (NE62).	5A	Escherichia coli (E. coli)	2016	L	0.51
VAW-N22R_NEW03A00 / New River / New River mainstem from the confluence of Stroubles Creek downstream to the mouth of Toms Creek (NE59).	5A	Escherichia coli (E. coli)	2016	L	4.10
VAW-N22R_NEW04A00 / New River / New River mainstem from the Radford Army Arsenal Plant upstream intake/Pepper's Ferry Region POTW outfall downstream to the confluence of Stroubles Creek (NE59).	5A	Escherichia coli (E. coli)	2016	L	2.33

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_NEW05A00 / New River / New River mainstem from the Blacksburg /Christiansburg /VPI Authority intake at Rt. 114 downstream to the Radford Army Arsenal Plant upstream intake / Pepper's Ferry Regional POTW outfall (NE59).	5A	Escherichia coli (E. coli)	2020	L	1.77
VAW-N22R_NEW06A00 / New River / New River mainstem from the Watershed Boundary at the Crab Creek confluence downstream to the Blacksburg /Christiansburg /VPI Authority intake (NE59).	5A	Escherichia coli (E. coli)	2020	L	1.73

New River

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			20.97

Sources: Livestock (Grazing or Feeding Operations); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N22R-06-BEN** **Unnamed Tributaries XEJ and XEH to Slate Branch**

Cause Location: Unnamed Tributary XEH from its mouth on Slate Branch upstream to its headwaters. And Unnamed Tributary XEJ from its mouth on Unnamed Tributary XEH upstream to its headwaters.

Cause City/County: Montgomery County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: The 2008 assessment finds the Aquatic Life Use via the General Standard (Benthic) is impaired for a total of 2.51 miles. Unnamed Tributary to Slate Branch- XEH for 1.68 miles and Unnamed Tributary XEJ to XEH for 0.83 miles. There are no additional data for 9-XEH000.75 and 9-XEJ000.10 beyond the 2008 Integrated Report (IR). 9-XEH000.01 is a new station assessed in 2016.

9-XEH000.75- (Downstream of Villages Development at NRV Mall) There are no additional data beyond the 2008 IR. Bio 'IM' Two 2006 Virginia Stream Condition Index (VSCI) surveys with an average score of 23.1. This station was sampled at the request of the WCRO VWP program with the goal of collecting water quality data prior to new development immediately upstream near the New River Valley Mall complex. A crayfish/macro invertebrate kill in January 2006 impacted the stream with the source occurring somewhere above this station. The most noticeable difference between this site and the reference station is the low abundance of organisms collected in the spring sample compared to the reference site. The abundance increased in the fall and is comparable to the reference site (Falling Branch).

9-XEH000.01 (Near Huckleberry Trail, Downstream of XEJ) - This stream was originally sampled at a location upstream (9-XEH000.75). The 2016 and 2018 data windows find four VSCI scores average 52.0 (2013-2014). The headwaters of Slate Branch are developed with residential and commercial properties as well as Rt. 460 and Peppers Ferry Road. Storm water runoff from these areas may have an impact on water quality at the sampling station which is about one mile downstream of the New River Valley Mall. Habitat scores at this station were relatively good considering the proximity to developed lands upstream and appear favorable for macroinvertebrates. Specific conductance was high at this site during all surveys. Periphyton and algal growth was always thick even during the fall surveys which may be an indication of excessive nutrients.

9-XEJ000.10- (North of NRV Mall) There are no additional data beyond the 2008 IR. Bio 'IM' Two 2006 VSCI surveys with an average score of 23.8. This station was sampled at the request of the WCRO VWP program with the goal of collecting water quality data prior to new development immediately upstream and north of the New River Valley Mall and above the Huckleberry Tail crossing. The main source of impact appears to be recent development and urban land use resulting in altered hydrology, excessive storm water runoff, sediment deposition, bank erosion, and riparian vegetation removal.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_XEH01A08 / Slate Branch, UT (XEH) / Unnamed tributary XEH from its mouth on Slate Branch upstream to its headwaters (NE59).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.69
VAW-N22R_XEJ01A08 / Unnamed Trib. XEJ to XEH / Unnamed Tributary XEJ from its mouth on Unnamed Tributary XEH upstream to its headwaters (NE59).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	0.84

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Unnamed Tributaries XEJ and XEH to Slate Branch

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			2.53

Sources: Loss of Riparian Habitat; Municipal (Urbanized High Density Area); Sediment Resuspension (Clean Sediment); Streambank Modifications/Destabilization

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New River Basin

Cause Group Code: **N23R-01-BAC** **Sinking Creek**

Cause Location: Sinking Creek mainstem waters from just downstream of the Rt. 778 Bridge upstream to the mouth of Gravel Hill Branch.

Cause City/County: Craig County; Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The initial 21.03 mile 2010 303(d) Listing of these waters is due to bacteria excursions of the WQS instantaneous criterion for escherichia coli (E.coli).

9-SNK012.06 (Rt. 42 Bridge)- The 2020 data window finds five E.coli excursions out of 24 samples. One exceedance of the E.Coli instantaneous criterion (235 cfu/100 ml) occurs within the 2016 and 2018 data windows at 600 cfu/100 ml (2013). The 2010 IR found three of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The exceedance range is from 250 to greater than 2000 cfu/100 ml.

9-SNK005.38 (Rt. 778 Bridge)- There are no new data beyond the 2014 data window. E.coli excursions of the 235 cfu/100 ml instantaneous criterion occur in four of 23 observations within the 2014 data window. Values in excess of the instantaneous criterion range from 275 to 600 cfu/100 ml. E.coli excursions of the instantaneous criterion occur in two of 11 observations within the 2010 and 2012 data windows. Values in excess of the instantaneous criterion are 480 and 600 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N23R_SNK01B10 / Sinking Creek / Sinking Creek mainstem waters from just downstream of the Rt. 778 Bridge upstream to the mouth of an unnamed tributary near the Rt. 700 crossing (NE65).	5A	Escherichia coli (E. coli)	2010	L	3.03
VAW-N23R_SNK01C14 / Sinking Creek / Sinking Creek from just downstream of the Rt. 700 Bridge upstream to the junction of routes 601 & 604 - 6th Order Boundary (NE65)	5A	Escherichia coli (E. coli)	2010	L	2.75
VAW-N23R_SNK02A00 / Sinking Creek / Sinking Creek from the junction of routes 601 & 604 upstream to the mouth of Gravel Hill Branch- 6th Order Boundary (NE64).	5A	Escherichia coli (E. coli)	2010	L	15.26

Sinking Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			21.04

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N25R-01-BAC** Walker Creek and Town Creek

Cause Location: Walker Creek from the Route 52 crossing downstream to the confluence with an unnamed tributary just downstream of the Old Church Rd. (Rt. 713) crossing near White Gate and Town Creek from the headwaters downstream to the confluence with Crab Orchard Creek.

Cause City/County: Bland County; Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Escherichia coli (E. coli)/5A; Fecal Coliform/4A

Cause Description: The 2022 data window extends the Recreational Use impairment downstream due to data collected in 2020 at AWQM station located at 9-WLK033.90 had a geomean exceedance in any 90-day period. Stations 9-WLK060.32 had a 17% and 9-WLK044.06 has 16% exceedance of the previous E. coli water quality standard and station 9-TNC000.53 had a 66% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N25R_TNC01A10 / Town Creek / From headwaters to Crab Orchard confluence at Town of Bland.	4A	Escherichia coli (E. coli)	2010	L	4.40
VAS-N25R_WLK04A00 / Walker Creek / Walker Creek mainstem from the Kimberling Creek confluence at the Giles/Bland County line, upstream to the Helveys Mill Creek confluence near Point Pleasant.	4A	Escherichia coli (E. coli)	2006	L	14.49
VAS-N25R_WLK04A12 / Walker Creek / Walker Creek mainstem from the Crab Orchard Creek confluence, upstream to the Rt. 52 crossing north of Walker Mountain.	4A	Escherichia coli (E. coli)	2006	L	8.46
VAS-N25R_WLK04B12 / Walker Creek / Walker Creek mainstem from the Helveys Mill Creek confluence, near Point Pleasant, upstream to the Crab Orchard Creek confluence, south of Bland.	4A	Escherichia coli (E. coli)	2006	L	10.60
VAW-N25R_WLK03B22 / Walker Creek / Walker Creek mainstem from the mouth of an unnamed tributary just downstream of the Old Church Rd. (Rt. 713) crossing near White Gate upstream to its confluence with Kimberling Creek (NE71).	5A	Escherichia coli (E. coli)	2022	L	6.49

Walker Creek and Town Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			44.44

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N25R_WLK04A00 / Walker Creek / Walker Creek mainstem from the Kimberling Creek confluence at the Giles/Bland County line, upstream to the Helveys Mill Creek confluence near Point Pleasant.	4A	Fecal Coliform	2006	L	14.49
VAS-N25R_WLK04B12 / Walker Creek / Walker Creek mainstem from the Helveys Mill Creek confluence, near Point Pleasant, upstream to the Crab Orchard Creek confluence, south of Bland.	4A	Fecal Coliform	2006	L	10.60

Walker Creek and Town Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			25.09

Sources: Grazing in Riparian or Shoreline Zones; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N26R-01-BAC** **East Wilderness Creek and Nobusiness Creek**

Cause Location: This segment includes the mainstem of Nobusiness Creek from the Kimberling Creek confluence upstream 6.4 miles, East Wilderness Creek from the confluence with Wolfpen Branch upstream 3.2 miles.

Cause City/County: Bland County; Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: AWQM station 9-EWL000.06 had 18% of the samples exceed the previous E.coli water quality standard. Station 9-NBS000.70 had a 50% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N26R_EWL01A10 / East Wilderness Creek / A Wolfpen Branch tributary near Shady Grove Church from Wolf Creek Mountain to the north.	4A	Escherichia coli (E. coli)	2010	L	3.51
VAS-N26R_NBS01B04 / Nobusiness Creek / Nobusiness Creek from Kimberling Creek confluence to upstream of Panther Den Branch.	4A	Escherichia coli (E. coli)	2010	L	6.73

East Wilderness Creek and Nobusiness Creek

Recreation

Escherichia coli (E. coli) - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
			10.24

Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N26R-01-BEN** Nobusiness Creek

Cause Location: From the Kimberling Creek confluence to upstream of Panther Den Branch.

Cause City/County: Bland County; Giles County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Freshwater probabilistic monitoring station is impaired based on VSCI scores of 35 and 41 at 9-NBS003.08 in the 2019 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N26R_NBS01B04 / Nobusiness Creek / Nobusiness Creek from Kimberling Creek confluence to upstream of Panther Den Branch.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	6.73

Nobusiness Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.73

Sources: Source Unknown

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New River Basin

Cause Group Code: **N26R-03-TEMP** Nobusiness Creek

Cause Location: This segment includes from the Kimberling Creek confluence to upstream of Panther Den Branch.

Cause City/County: Bland County; Giles County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5A

Cause Description: AWQM station 9-NBS000.70 had a 18% exceedance of the WQS for temperature in Class VI waters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N26R_NBS01B04 / Nobusiness Creek / Nobusiness Creek from Kimberling Creek confluence to upstream of Panther Den Branch.	5A	Temperature	2018	L	6.73

Nobusiness Creek

Aquatic Life	Temperature - Total Impaired Size by Water Type:	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles) 6.73
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Sources: Source Unknown

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New River Basin

Cause Group Code: **N27R-01-BAC** Little Walker Creek

Cause Location: Little Walker Creek mainstem from its confluence with Walker Creek upstream to the mouth of Spur Branch.

Cause City/County: Pulaski County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The initial 2004 303(d) Listing of these waters is the result of fecal coliform (FC) bacteria exceedances (two exceeding from 18 observations) causing a 17.48 mile impairment. Escherichia coli (E.coli) replaces fecal coliform bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-LWK000.77 (Rt. 100 Bridge) - The 2020 data window finds 8 excursions out of 34 samples. E.coli exceed the 235 cfu/100 ml instantaneous criterion in eight of 34 and five of 22 samples within the 2018 and 2016 data windows, respectively. Exceedance range is 337 to greater than 2000 cfu/100 ml. The 2014 data window found three of 11 samples in exceedance of the instantaneous criterion. Values exceeding the criterion range from 275 to greater than 2000 cfu/100 ml. The 2008 through 2012 assessments find E.coli exceed the instantaneous criterion in five of 12 samples. Values exceeding the criterion range from 320 to 500 cfu/100 ml. Four of nine excursions are reported in 2006 with the range of exceedance from 350 to 500 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N27R_LWK01A00 / Little Walker Creek / Little Walker Creek mainstem from its confluence with Walker Creek upstream to the mouth of Spur Branch (NE72).	5A	Escherichia coli (E. coli)	2006	L	17.48

Little Walker Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			17.48

Sources: Livestock (Grazing or Feeding Operations); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: N29R-01-PCB New River, Reed Creek, Claytor Lake, Peak Creek, Stony Creek, Walker Creek, And Unknown Tributary XAG.

Cause Location: The impairment begins at the I-77 bridge crossing the New River and extends downstream to the VA/WVA State Line and includes the tributaries Peak Creek and Reed Creek as described below.

Cause City/County: Giles County; Montgomery County; Pulaski County; Radford; Wythe County

Use(s): Fish Consumption; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/4A; Polychlorinated biphenyls (PCBs)/4A

Cause Description: The VDH issued a fish consumption advisory 8/6/01 for PCBs for the lower portion of the New River (Rt. 114 Bridge downstream to the VA/WV Line - 52.0 mi) based on fish tissue collections from carp. Advisory extension to Claytor dam was issued 8/6/03 (11.47 mi) and further extended upstream on New River (13 mi) to the I-77 Bridge to include the lower portions of Peak Ck (4.02 mi), Reed Ck (16.35 mi) and Claytor Lake (4,287 ac) on 12/2/04. Stony Ck is a 2010 IR addition to the original 2002 303(d) Listing. An unnamed tributary (XAG) is an addition with the 2016 IR. The VDH level of concern is 50 parts per billion (ppb) in fish tissue.

Water column (WC) data from 2010-16 are listed below where excursions of the WQS criterion of 640 pg/L are contravened causing an Observed Effect (OE) or 303(d) Listing for 'PCBs in Water Column'. Collections are made in wet weather (WW) & dry weather (DW) conditions. A complete listing of fish tissue sites and data are available at <https://www.deq.virginia.gov>. VDH Advisory information is available at <https://www.vdh.virginia.gov>.

9-RDC009.00 (Near Rt. 619 at Grahams Forge) 2012 2 species: Carp 5 fish composite [62.6-69.4 cm] at 68.24 ppb. Smouth Bass 5 fish comp. [21.8-26.6] 3.04 ppb. 2014 2 sp: Carp 4 fish [67.9-76.5] 75.67 ppb & 5 fish [64.5-69.8] 85.77. Smouth Bass 5 fish [23.1-30.3] 2.46 ppb.

9-NEW107.51 (New R. near Allisonia) 2014 3 sp: Channel Catfish 3 fish comp. [61.2-69.5] 23.02 ppb; Smouth Bass 3 fish [40.1-49.6] 2.45 ppb; Carp 5 fish [56.5-70.4] 45.12 ppb & 5 fish [55.3-71.3] 8.79 ppb.

9-NEW098.32 (Rt. 672 Br, Lighthouse) 2012 4 sp: Channel Catfish 2 fish [70.5-71.5] 65.15 ppb. Lmouth Bass 5 fish [34.5-43.1] 7.76 ppb; Spotted Bass 5 fish [34.2-38.2] 11.00 ppb; Carp 3 fish [45.8-56.5] 6.04 ppb.

9-PKC009.53 (Upstream of XAG confluence) 2014 DW 197.02 pg/L- 'FS'; WW 799.75 pg/L- 'OE'

9-XAG000.01 (Mouth of X-Trib XAG near former Allied Site) 2014: DW 1,458.87 pg/L (7/31/2014); WW 1,754.02 pg/L (10/15/2014).

9-XFQ000.77 (Off Pierce Ave. near Calfee Park) 2014: DW 194.99 pg/L- 'FS'; WW 686.76 pg/L- 'OE'

9-PKC007.82 (Rt. 99 Br) 2012 3 sp: Stoneroller 15 fish [14.3-16.0] 33.18 ppb. Rock Bass 5 fish [16.7-18.6] 10.49 ppb; Redbreast Sunfish 5 fish [14.3-18.1] 3.01 ppb. 2013: DW 1,193.64 pg/L; WW 2,436.73 pg/L; 2014 1 sample 'FS' DW 389.51 pg/L; WW 1,252.42 pg/L

9-PKC004.65 (Rt. 100 Br) 2012 4 sp: Channel catfish 2 fish [63.1-69.0] 33.15 ppb. Lmouth Bass 5 fish [33.4-40.8] 2.68 ppb; Carp 2 sizes: 4 fish [54.6-62.0] 2.32 ppb & 4 fish [54.6-62.0] 9.16 ppb; Smouth Bass 3 fish [35.3-42.6] 6.90 ppb. 2014 WC PCB: 1,075.73 pg/L

9-NEW088.86 (New R. Claytor Lake at Dam) 2012 6 sp: Flathead Catfish 2 fish [83.0-87.5] 86.67 ppb. Carp 4 fish [56.5-67.0] 2.05 ppb; Channel Catfish 1 fish [58.8 cm] 7.43 ppb; Lmouth Bass 5 fish [32.5-34.5] 0.36 ppb; Smouth Bass 4 fish [27.0-32.2] 0.88 ppb; Spotted Bass 3 fish [28.8-36.8] 0.00 ppb.

9-NEW085.94 (New R. downstream of Claytor Dam) 2012 2 sp: Flathead Catfish 5 fish [57.5-70.3] 33.74 ppb. Carp 5 fish [62.6-81.0] 11.27 ppb.

9-NEW081.72 (Rt. 11 Br at Radford) 2010: DW 320 pg/L - 'FS'; WW 4,739- 'OE'. 2011 WW 243.70 pg/L - 'FS'. 2013 WW 647.88 pg/L- 'OE'

9-NEW079.19 (New R. below Radford Univ.) 2012 1 sp: Carp 2 fish [67.5-76.5] 53.28 ppb & 2 fish [76.8-83.6] 94.85 ppb.

9-NEW066.90 (New R. at Whitethorne) 2012 1 sp: Carp 1 fish [72.0 cm] 125.58 ppb.

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9-LWK000.77 (Rt. 100 Br) 2011 WW 642.4 pg/L- ‘OE’; 2014 DW 39.79 pg/L- ‘FS’

9-WLK004.34 (Rt. 622 Br - Giles Co.) 2010 WW 1,706 pg/L & 2011 WW 648.8 pg/L. 2014 DW 60.12 pg/L ‘FS’

9-NEW050.70 (New R. near Pembroke) 2012 3 sp: Carp 2 fish [67.5-71.6] 419.87 ppb; Channel Catfish 1 fish [58.1] 23.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N08R_NEW01A02 / New River / Mainstem, north of Barren Springs, from Reed Creek confluence downstream to Big Reed Island Creek confluence.	4A	PCBs in Fish Tissue	2006	L	5.71
VAS-N11R_RDC01B00 / Reed Creek / Lower mainstem from Muskrat Branch confluence downstream to Rt. 52 bridge south of Max Meadows.	4A	PCBs in Fish Tissue	2016	L	5.85
VAS-N11R_RDC01B06 / Reed Creek / Lower mainstem from Rt. 52 bridge downstream to Miller Creek confluence south of Max Meadows.	4A	PCBs in Fish Tissue	2006	L	0.61
VAS-N11R_RDC02B02 / Reed Creek / Reed Creek from Miller Creek confluence at Max Meadows downstream to the Glade Creek confluence, near Boiling Spring.	4A	PCBs in Fish Tissue	2006	L	6.09
VAS-N11R_RDC03B04 / Reed Creek / From New River confluence near Lone Ash, upstream to the Glade Creek confluence near Boiling Spring.	4A	PCBs in Fish Tissue	2006	L	9.88
VAW-N16L_NEW01A02 / Claytor Lake (New River) / Claytor Lake from its impounding structure upstream to the Claytor State Park Cabins.	4A	PCBs in Fish Tissue	2006	L	1196.92
VAW-N16L_NEW01B14 / Claytor Lake (New River) / Claytor Lake from the Claytor State Park Cabins upstream to the former Burlington Industries water intake.	4A	PCBs in Fish Tissue	2006	L	602.03
VAW-N16L_NEW02A02 / Claytor Lake (New River) / Claytor Lake from the Claytor State Park Cabins upstream to the confluence of Peak Creek	4A	PCBs in Fish Tissue	2006	L	278.52
VAW-N16L_NEW03A02 / Claytor Lake (New River) / Claytor Lake from the confluence of Peak Creek upstream to the end of the WQS public water supply (PWS) designation. The segment ends five miles upstream of the former Burlington Industries intake.	4A	PCBs in Fish Tissue	2006	L	671.89
VAW-N16L_NEW04A02 / Claytor Lake (New River) / Claytor Lake from the end of the Burlington WQS public water supply (PWS) designation upstream to the Pulaski County PSA intake.	4A	PCBs in Fish Tissue	2006	L	447.80
VAW-N16L_NEW05A02 / Claytor Lake (New River) / Claytor Lake from the Pulaski County PSA intake upstream to the end of the WQS public water supply (PWS) designation. Five miles upstream from the Pulaski County PSA intake.	4A	PCBs in Fish Tissue	2006	L	660.27
VAW-N16L_NEW06A02 / Claytor Lake (New River) / Claytor Lake from the upstream end of the Pulaski County PSA WQS public water supply (PWS) designation upstream to the backwaters of Claytor Lake at Allisonia.	4A	PCBs in Fish Tissue	2006	L	152.14

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N16R_NEW01A00 / New River / This section of the New River extends from the mouth of Big Reed Island Creek downstream to the backwaters of Claytor Lake Class IV sec. 2c (NE43).	4A	PCBs in Fish Tissue	2006	L	0.61
VAW-N17L_PKC01A10 / Claytor Lake (Peak Creek) / Peak Creek from its confluence with the New River upstream to the end of the WQS public water supply (PWS) designation.	4A	PCBs in Fish Tissue	2002	L	216.87
VAW-N17L_PKC02A10 / Claytor Lake (Peak Creek) / Peak Creek from the end of the WQS public water supply (PWS) designation upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	78.17
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	PCBs in Fish Tissue	2002	L	1.83
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	PCBs in Fish Tissue	2002	L	1.66
VAW-N17R_PKC03A00 / Peak Creek / This portion of Peak Creek extends from the mouth of Tract Fork to downstream of the Washington Ave. Bridge (~0.20 miles) (NE46).	4A	PCBs in Fish Tissue	2006	L	0.51
VAW-N18R_NEW01A00 / New River / New River mainstem from the Watershed boundary, Crab Creek mouth, upstream to approximately one mile downstream of the Rt. 11 Bridge; end of the WQS public water supply (PWS) section (NE57).	4A	PCBs in Fish Tissue	2006	L	3.33
VAW-N18R_NEW02A00 / New River / New River mainstem from approximately one mile downstream of the Rt. 11 Bridge upstream to the Radford City intake (NE57).	4A	PCBs in Fish Tissue	2006	L	3.73
VAW-N18R_NEW03A00 / New River / New River mainstem from the City of Radford water intake upstream to the confluence of Little River (NE57).	4A	PCBs in Fish Tissue	2006	L	2.15
VAW-N18R_NEW04A00 / New River / New River mainstem waters from the mouth of Little River upstream to Claytor Dam (NE57).	4A	PCBs in Fish Tissue	2006	L	0.60
VAW-N22R_NEW01A00 / New River / The New River mainstem from the confluence of Back Creek downstream to the Watershed Boundary at the Montgomery / Giles County Line (NE62).	4A	PCBs in Fish Tissue	2002	L	3.45
VAW-N22R_NEW02A00 / New River / New River mainstem from the Radford Army Arsenal Plant downstream intake near Whitethorne downstream to the confluence of Back Creek (NE62).	4A	PCBs in Fish Tissue	2002	L	2.87

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N22R_NEW02B14 / New River / New River mainstem from the mouth of Toms Creek downstream to the RAAP downstream intake (NE62).	4A	PCBs in Fish Tissue	2002	L	0.51
VAW-N22R_NEW03A00 / New River / New River mainstem from the confluence of Stroubles Creek downstream to the mouth of Toms Creek (NE59).	4A	PCBs in Fish Tissue	2002	L	4.10
VAW-N22R_NEW04A00 / New River / New River mainstem from the Radford Army Arsenal Plant upstream intake/Pepper's Ferry Region POTW outfall downstream to the confluence of Stroubles Creek (NE59).	4A	PCBs in Fish Tissue	2002	L	2.33
VAW-N22R_NEW05A00 / New River / New River mainstem from the Blacksburg /Christiansburg /VPI Authority intake at Rt. 114 downstream to the Radford Army Arsenal Plant upstream intake / Pepper's Ferry Regional POTW outfall (NE59).	4A	PCBs in Fish Tissue	2002	L	1.77
VAW-N22R_NEW06A00 / New River / New River mainstem from the Watershed Boundary at the Crab Creek confluence downstream to the Blacksburg /Christiansburg /VPI Authority intake (NE59).	4A	PCBs in Fish Tissue	2006	L	1.73
VAW-N23R_NEW01A00 / New River / New River mainstem from the Giles/Montgomery County Line downstream to the confluence of Sinking Creek (NE63).	4A	PCBs in Fish Tissue	2002	L	5.48
VAW-N24R_NEW01A00 / New River / New River mainstem from the confluence of Stony Creek upstream to the mouth of Walker Creek on the New River (NE74).	4A	PCBs in Fish Tissue	2002	L	3.87
VAW-N24R_NEW02A00 / New River / New River mainstem waters from the mouth of Walker Creek upstream to the confluence of Little Stony Creek with the New River (NE74).	4A	PCBs in Fish Tissue	2002	L	2.00
VAW-N24R_NEW03A00 / New River / New River mainstem waters from the confluence of Little Stony Creek upstream to mouth of Sinking Creek on the New River. (NE74)	4A	PCBs in Fish Tissue	2002	L	3.87
VAW-N28R_SNC01A00 / Stony Creek / Stony Creek mainstem waters from its mouth on the New River upstream to Chemical Lime Company's outfall on Stony Creek (NE75).	4A	PCBs in Fish Tissue	2010	L	1.37
VAW-N28R_SNC02A00 / Stony Creek / Stony Creek mainstem waters from the Chemical Lime Company outfall on Stony Creek upstream to the Kimballton Branch confluence on Stony Creek (NE75).	4A	PCBs in Fish Tissue	2010	L	0.63
VAW-N28R_SNC03A00 / Stony Creek / Stony Creek mainstem waters from the confluence of Kimballton Branch upstream to the mouth of Laurel Branch (NE75).	4A	PCBs in Fish Tissue	2010	L	1.69

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N28R_SNC04A00 / Stony Creek / Stony Creek mainstem from the confluence of Laurel Branch upstream to the mouth of Pine Swamp Branch (NE75).	4A	PCBs in Fish Tissue	2010	L	4.70
VAW-N29R_NEW01A02 / New River / New River mainstem from the backwaters of Bluestone Reservoir, Route 460, to the confluence of Rich Creek.	4A	PCBs in Fish Tissue	2002	L	3.21
VAW-N29R_NEW02A02 / New River / New River mainstem from the mouth of Rich Creek upstream to the confluence of Wolf Creek.	4A	PCBs in Fish Tissue	2002	L	3.55
VAW-N29R_NEW03A02 / New River / New River mainstem from the confluence of Wolf Creek upstream to the Celanese Acetate Plant outfalls.	4A	PCBs in Fish Tissue	2002	L	2.80
VAW-N29R_NEW04A02 / New River / New River mainstem from the Celeanese Acetate Plant outfalls upstream to the watershed boundary at the confluence of Stony Creek.	4A	PCBs in Fish Tissue	2002	L	5.78
VAW-N35R_NEW01A00 / New River / New River mainstem from the Rt. 460 Bridge at Glen Lyn downstream to the Virginia/West Virginia State Line.	4A	PCBs in Fish Tissue	2002	L	6.92

New River, Reed Creek, Claytor Lake, Peak Creek, Stony Creek, Walker Creek, And Unknown Tributary XAG.

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	4304.61	105.19

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N17R_PKC01A00 / Peak Creek / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake (NE46).	4A	Polychlorinated biphenyls (PCBs)	2016	L	1.83
VAW-N17R_PKC02A00 / Peak Creek / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek (NE46).	4A	Polychlorinated biphenyls (PCBs)	2016	L	1.66
VAW-N17R_XAG01A02 / Peak Creek, UT (XAG) / An unnamed tributary to Peak Creek not within WQS designated public water supply (PWS) sections. The unnamed tributary mouth is located @37°02'47" / 80°46'03" (NE46).	4A	Polychlorinated biphenyls (PCBs)	2016	L	3.20

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N25R_WLK01A00 / Walker Creek / Walker Creek mainstem waters from its mouth on the New River upstream to the Cecil Branch confluence at the Rt. 100 crossing (NE73).	4A	Polychlorinated biphenyls (PCBs)	2014	L	8.40

New River, Reed Creek, Claytor Lake, Peak Creek, Stony Creek, Walker Creek, And Unknown Tributary XAG.

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		15.09

New River, Reed Creek, Claytor Lake, Peak Creek, Stony Creek, Walker Creek, And Unknown Tributary XAG.

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.69

Sources: Atmospheric Deposition; Contaminated Sediments; Discharges from Municipal Separate Storm Sewer Systems (MS4); Industrial Point Source Discharge; Industrial/Commercial Site Stormwater Discharge (Permitted); Municipal Point Source Discharges; Non-Point Source; Source Unknown; Unspecified Urban Stormwater

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New River Basin

Cause Group Code: **N30R-01-BAC** **Wolf Creek and Tributaries**

Cause Location: This segment extends from the Burkes Garden Creek confluence downstream between the confluence with Clear Fork and Wilderness Creek and Little Creek, a Wolf Creek tributary upstream to the Tazewell County Sportsmen Club impoundment.

Cause City/County: Bland County; Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: The AWQM station located at 9-WFC039.16 had a 91% exceedance of the previous E.coli water quality standard. Station 9-WFC050.16 had a 78% exceedance, and station 9-WFC024.57 had a 17% exceedance. Station 9-LTL001.22 had a 50% exceedance of the previous E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N30R_LTL02A10 / Little Creek / A Wolf Creek tributary upstream to Tazewell County Sportsmen Club impoundment.	4A	Escherichia coli (E. coli)	2014	L	1.89
VAS-N30R_WFC01A00 / Wolf Creek / Mainstem from unnamed tributary downstream of Carter Branch at Grapefield downstream to the Hunting Camp Creek confluence north of Bastian.	4A	Escherichia coli (E. coli)	2006	L	9.11
VAS-N30R_WFC01A04 / Wolf Creek / From Burkes Garden Creek confluence downstream to unnamed tributary downstream of Carter Branch at Grapefield.	4A	Escherichia coli (E. coli)	2006	L	7.98
VAS-N30R_WFC01A06 / Wolf Creek, headwaters / Upper segment of Wolf Creek inside Burkes Garden from Snyder Branch confluence downstream to Little Creek confluence (37.1484/-81.2483).	4A	Escherichia coli (E. coli)	2006	L	3.81
VAS-N30R_WFC01B06 / Wolf Creek / Mainstem from the Hunting Camp Creek confluence downstream to Wilderness Creek confluence at South Gap.	4A	Escherichia coli (E. coli)	2006	L	6.40
VAS-N32R_WFC01A10 / Wolf Creek / Wolf Creek between confluence with Clear Fork at Rocky Gap and Wilderness Creek at South Gap, parallel to I-77 at Rocky Gap.	4A	Escherichia coli (E. coli)	2010	L	1.89

Wolf Creek and Tributaries

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			31.08

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N30R_WFC01A00 / Wolf Creek / Mainstem from unnamed tributary downstream of Carter Branch at Grapefield downstream to the Hunting Camp Creek confluence north of Bastian.	4A	Fecal Coliform	2002	L	9.11

Wolf Creek and Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			9.11

Sources: Grazing in Riparian or Shoreline Zones; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N30R-02-BEN** **Unnamed Tributary to Station Spring Creek**

Cause Location: West of Little Town in Burkes Garden.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/5A

Cause Description: Probabilistic monitoring station, 9-XLX000.45 had a VSCI score of 50 during the 2020 monitoring season.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N30R_XLX01A22 / Unnamed Tributary to Staton Spring Creek / West of Little Town in Burkes Garden.	5A	Benthic Macroinvertebrates Bioassessments	2022	L	5.49

Unnamed Tributary to Station Spring Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		5.49

Sources: Source Unknown

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New River Basin

Cause Group Code: **N31R-01-BAC** **Hunting Camp Creek**

Cause Location: This segment extends from the confluence with Wolf Creek, upstream through the community of Bastian to an impoundment, river mile 8.50.

Cause City/County: Bland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 9-HCC001.40 had a 18% exceedance and station 9-HCC005.57 had 2 or more STV hits in the same 90-day period with less than 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N31R_HCC01A00 / Hunting Camp Creek / Segment is from the confluence with Wolf Creek, upstream through the community of Bastian to an impoundment, river mile 8.50.	4A	Escherichia coli (E. coli)	2006	L	8.94

Hunting Camp Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			8.94

Sources: Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Loss of Riparian Habitat

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New River Basin

Cause Group Code: **N31R-01-BEN** **Hunting Camp Creek**

Cause Location: From the confluence with Wolf Creek, upstream through the community of Bastian to an impoundment.

Cause City/County: Bland County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Station 9-HCC000.29 is impaired based on VSCI scores of 77 and 49 in 2020. In addition, station 9-HCC007.83 is impaired based on VSCI scores of 39 and 65 in 2019.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N31R_HCC01A00 / Hunting Camp Creek / Segment is from the confluence with Wolf Creek, upstream through the community of Bastian to an impoundment, river mile 8.50.	4A	Benthic Macroinvertebrates Bioassessments	2022	L	8.94

Hunting Camp Creek

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.94

Sources: Agriculture; Erosion and Sedimentation; Livestock (Grazing or Feeding Operations)

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New River Basin

Cause Group Code: **N32R-01-BAC** **Wolf Creek**

Cause Location: Wolf Creek mainstem waters from the mouth of Clear Fork Creek downstream to the confluence of Wolf Creek with the New River.

Cause City/County: Bland County; Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The originally listed 2004 portion of the overall extent described above began near the intersection of Routes 61 and 724 at the confluence of an unnamed tributary extending downstream to the mouth of Wolf Creek on the New River. A total of 5.60 miles. A bacteria TMDL was completed in 2015: E.coli TMDL Development for Wolf Creek and Tributaries in Giles, Bland, and Tazewell Counties, VA [Approved: EPA 7/27/16, SWCB 6/27/16; TMDL ID: 66175].

The 2006 Integrated Report (IR) extends the 2004 303(d) Listed fecal coliform (FC) bacteria impairment 16.71 miles upstream. The total bacteria impairment is 22.31 miles. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-WFC017.31 (Bridge #6065 on Rt. 644 off Rt. 61) Six out of 36 E.Coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2016 data window. Five exceeding values are found from 24 E.coli observations in 2014. The range of exceedance is from 250 to greater than 2000 cfu/100 ml. Two of 15 E.coli samples exceed the 235 cfu/100 ml criterion within the 2012 data window. The 2010 and 2008 assessments find two of 12 E.coli samples exceed the 235 cfu/100 ml criterion. Two of nine E.coli samples exceed the criterion in 2006.

9-WFC011.05- (Rt. 676 Bridge at Boxely) The 2016 data window finds two of 36 E.Coli samples exceed the 235 cfu/100 ml instantaneous criterion (400 cfu/100ml and >2000 cfu/100 ml). One exceeding value of greater than 2000 cfu/100 ml exceeds the 235 cfu/100 ml instantaneous criterion from 12 observations within the 2014 data window. There were no additional data within the 2012 data window. Both the 2008 and 2010 assessments find E.coli bacteria exceed the instantaneous criterion in two of 10 samples.

9-WFC005.61 (Rt. 673 Bridge at Penvir) Four of 35 E.Coli samples exceed the instantaneous criterion of 235 cfu/100 ml in the 2016 data window. Excursions range from 250 to 625 cfu/100 ml. The 2014 data window found two of 12 samples in exceedance of the 235 cfu/100 ml instantaneous criterion. There were no additional data within the 2012 data window. E.coli exceedances are found in five of 12 samples in 2008 and 2010. Values in excess of the 235 cfu/100 ml criterion range from 250 to greater than 2000. E.coli exceedances are found in three of nine samples and the same range of exceedance as in 2008.

9-WFC000.20 (Rt. 61 Bridge) The 2022 data window applies new E.coli criterion and finds no Statistical Threshold Value exceedances but insufficient data to analyze geomean from 34 samples. E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in five of 48 samples within the 2018 data window. The 2016 data window finds three of 48 samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 275 to 425 cfu/100 ml. Two of 24 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in 2014. The 2012 assessment finds one of 14 E.coli samples exceeding the instantaneous criterion of 235 cfu/100 ml at 1200. E.coli exceeds the instantaneous criterion in three of 12 samples in 2008 and 2010. Each excursion of the criterion is 520, 900 and 1200 cfu/100 ml. E.coli excursions in 2006 are two of nine samples. The 2004 IR finds FC exceedances of the 400 cfu/100 ml instantaneous criterion in two of 18 samples resulting in a 2004 impairment listing that remains.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N32R_WFC01A00 / Wolf Creek / Wolf Creek mainstem from its mouth on the New River upstream to the former Narrows STP outfall on Wolf Creek. Mill Creek confluence (NE81)	4A	Escherichia coli (E. coli)	2006	L	0.40

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Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N32R_WFC02A00 / Wolf Creek / Wolf Creek mainstem from the mouth of Mill Creek former Narrows STP outfall upstream to an unnamed bridge crossing Wolf Creek (NE81).	4A	Escherichia coli (E. coli)	2006	L	5.22
VAW-N32R_WFC03A00 / Wolf Creek / Wolf Creek mainstem waters from an unnamed bridge upstream to Bland/Giles County Line (NE81).	4A	Escherichia coli (E. coli)	2006	L	8.80
VAW-N32R_WFC04A00 / Wolf Creek / Wolf Creek mainstem waters from the Bland/Giles County Line upstream to the confluence of Clear Fork Creek (NE81).	4A	Escherichia coli (E. coli)	2006	L	7.91

Wolf Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			22.33

Sources: Livestock (Grazing or Feeding Operations); Municipal (Urbanized High Density Area); On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); Unspecified Domestic Waste; Wastes from Pets; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N32R-01-TEMP** **Wolf Creek**

Cause Location: Wolf Creek mainstem waters from the Bland/Giles County Line upstream to the confluence of Clear Fork Creek.

Cause City/County: Bland County

Use(s): Aquatic Life

Causes(s)/VA Category: Temperature/5C

Cause Description: The Aquatic Life Use impairment for temperature returns with the 2014 Integrated Report (IR).

9-WFC017.31 (Bridge #6065 on Rt. 644 off Rt. 61) No additional data collected since the 2016 data window. The 2016 data window finds four of 36 exceedances of the 21°C Class V - Stockable Trout Waters criterion. One exceedance occurs at 22.9°C (7/23/13) in addition to the exceedances within the 2014 data window. Three of 24 temperature measurements exceed the WQS Class V - Stockable Trout water criterion of 21°C in 2014. Values in excess of the criterion are 24.7°C (7/12/11), 23.0°C (6/25/12) and 21.2°C (8/21/12). These waters were delisted with the 2012 IR as temperature excursions of the WQS Class V criterion of 21°C are zero of 15 measurements or an exceedance rate of 0.0% at station 9-WFC017.31. Originally listed in 2008 these waters should have been listed in 2006 with two of nine exceeding values and a TMDL Schedule of 2018. Two of 12 temperature measurements exceed the Class V stockable trout water 21°C criterion within the 2008 and 2010 data windows. Exceeding values are 21.1°C on 8/4/2003 and 21.9°C on 8/30/2004.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N32R_WFC04A00 / Wolf Creek / Wolf Creek mainstem waters from the Bland/Giles County Line upstream to the confluence of Clear Fork Creek (NE81).	5C	Temperature	2014	L	7.91

Wolf Creek

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			7.91

Sources: Natural Sources; Source Unknown

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New River Basin

Cause Group Code: **N33R-01-BAC** **Dry Fork**

Cause Location: This segment includes Dry Fork south of East River Mountain at the West Virginia state line, downstream to North Gap (excluding the headwaters).

Cause City/County: Bland County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The AWQM station located at 9-DYF000.07 had 17% exceedance of the previous e.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N33R_DYF01A12 / Dry Fork / Dry Fork south of East River Mountain, the WV state line, downstream to North Gap, excluding headwaters.	5A	Escherichia coli (E. coli)	2012	L	5.24

Dry Fork

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			5.24

Sources: Grazing in Riparian or Shoreline Zones; Livestock (Grazing or Feeding Operations)

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New River Basin

Cause Group Code: **N34R-01-BAC** **Rich Creek**

Cause Location: The impaired waters begin just downstream of Peterstown, West Virginia at the mouth of Brush Creek on Rich Creek and extends to the Rich Creek confluence on the New River (Peterstown, WVA Quad).

Cause City/County: Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The 2002 2.85 mile fecal coliform (FC) bacteria impairment remains. Escherichia coli (E.coli) replaces fecal coliform bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-RHC000.08 (Rt. 806 Bridge) - The 2022 data window's E.coli exceedances occur in one of 12 observations of the statistical threshold value of 410 cfu/100ml and not enough data to analyze the geomean (Insufficient Data). 2020 data windows escherichia coli exceedances occur in 12 of 24 observations. 2018 data windows escherichia coli exceedances occur in 10 of 24 observations. 2014 and 2016 data windows escherichia coli exceedances occur in 14 of 35 observations. Exceedances range from 275 to 1575 cfu/100 ml. E.coli exceed the 235 cfu/100 ml instantaneous criterion in 14 of 32 samples within the 2012 data window. Exceedances range from 350 to 1010 cfu/100 ml. The 2010 assessment finds E.coli exceed the instantaneous criterion in 10 of 21 samples. Exceedances range from 400 to 1010 cfu/100 ml. E.coli exceed the instantaneous criterion in three of nine samples in 2008 ranging from 400 to 900 cfu/100 ml. Data within the 2006 data window exceed the former FC 400 cfu/100 ml instantaneous criterion in five of nine samples with an exceedance range of 1000 to 2800 cfu/100 ml. The 2004 IR reports FC exceeds the former instantaneous criterion in 10 of 18 samples. Exceeding values range from 500 to 2800 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N34R_RHC01A00 / Rich Creek / Rich Creek mainstem from its mouth on the New River upstream to the Rt. 219 crossing at the Virginia/West Virginia State Line.	5A	Escherichia coli (E. coli)	2008	L	2.85

Rich Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			2.85

Sources: Municipal (Urbanized High Density Area); Unspecified Domestic Waste; Wet Weather Discharges (Non-Point Source); Wildlife Other than Waterfowl

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Appendix 4 - Fact Sheets for
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New River Basin

Cause Group Code: **N35R-01-BAC** **Adair Run**

Cause Location: The Adair Run impairment begins at the Virginia / West Virginia State Line and extends downstream to the Adair Run confluence with the New River.

Cause City/County: Giles County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/5A

Cause Description: The 2004 303(d) Listed 0.37 mile bacteria impaired waters find the Recreational Use is not supported. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-ADR000.13 (Rt. 648 Bridge) The 2022 assessment finds E.coli exceed the 410 cfu/100 ml WQS statistical threshold value in three of 12 samples and not enough data to analyze the geomean-Insufficient Information. The 2020 assessment finds E.coli exceed the 235 cfu/100 ml WQS instantaneous criterion in five of 12 samples. The 2018 assessment finds E.coli exceed the 235 cfu/100 ml WQS instantaneous criterion in two of 12 samples. The 2016 assessment finds E.coli exceed the 235 cfu/100 ml WQS instantaneous criterion in two of 12 samples. The 2014 assessment finds E.coli exceed the 235 cfu/100 ml WQS instantaneous criterion in five of 32 samples. Values in excess of the criterion range from 325 to 1650 cfu/100 ml. There are no additional data within the 2012 data window. The 2010 assessment finds escherichia coli exceed the 235 cfu/100 ml WQS instantaneous criterion in three of 20 samples. Values in excess of the criterion are 450, 1050 and 1200 cfu/100 ml. The 2004 IR reports fecal coliform exceeds the former 400 cfu/100 ml instantaneous criterion in six of 26 observations. Exceeding values range from 500 to 4200 cfu/100 ml. FC exceeds the former instantaneous criterion in six of 20 observations within the 2006 data window. Exceeding values range from 500 to 4200 cfu/100 ml. FC data within the 2008 data window find four of 14 samples exceeding the former instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-N35R_ADR01A00 / Adair Run / Adair Run mainstem from its mouth on the New River upstream to the Virginia/West Virginia State Line.	5A	Escherichia coli (E. coli)	2010	L	0.37

Adair Run

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			0.37

Sources: Unspecified Domestic Waste; Wildlife Other than Waterfowl

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New River Basin

Cause Group Code: **N36R-01-BAC** **Bluestone River and Big Branch**

Cause Location: This segment extends from Route 460 bridge downstream to the West Virginia political boundary and includes Big Branch from the headwaters downstream to the confluence with the Bluestone River. It also includes Mud Fork, a Bluestone River tributary at Falls Mills (does not include privately owned reservoir).

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A; Fecal Coliform/4A

Cause Description: Station 9-BST066.80 had 2 or more STV hits in the same 90-day period with less than 10 samples. The AWQM station located at 9-BST062.47 had a 77% exceedance of the previous E.coli water quality standard, station 9-BST073.32 had a 23% exceedance. Stations 9-BIG000.12 had a 88% exceedance of the previous bacteria water quality standard and 9-MFK000.11 had 2 or more STV exceedances in the same 90-day period with less 10 samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N36R_BST04B02 / Bluestone River / From PWS intake for Town of Bluefield, downstream to Wright's Valley Creek confluence.	4A	Fecal Coliform	2002	L	1.73
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	4A	Fecal Coliform	2002	L	0.62

Bluestone River and Big Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			2.35

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N36R_BST04A02 / Bluestone River / From Wright's Valley Creek confluence downstream to N37 at the Big Branch confluence below Falls Mills.	4A	Escherichia coli (E. coli)	2004	L	6.24
VAS-N36R_BST04B02 / Bluestone River / From PWS intake for Town of Bluefield, downstream to Wright's Valley Creek confluence.	4A	Escherichia coli (E. coli)	2006	L	1.73
VAS-N36R_BST05A02 / Bluestone River / From Town of Bluefield PWS intake, upstream to Rt. 460 bridge near Shannandale.	4A	Escherichia coli (E. coli)	2006	L	5.05
VAS-N36R_MFK01A06 / Mud Fork / Bluestone tributary at Falls Mills, north of Stony Ridge upstream to SR 608 bridge. Does not include privately owned reservoir.	4A	Escherichia coli (E. coli)	2018	L	2.98
VAS-N37R_BIG01A10 / Big Branch / Bluestone tributary south of Abbs Valley Ridge, parallel Rt. 698.	4A	Escherichia coli (E. coli)	2010	L	3.33

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(continued)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	4A	Escherichia coli (E. coli)	2006	L	0.62

Bluestone River and Big Branch

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			19.95

Sources: Rural (Residential Areas); Sewage Discharges in Unsewered Areas; Silviculture Activities

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New River Basin

Cause Group Code: **N36R-01-BEN** **Bluestone River**

Cause Location: This segment extends from the Wright's Valley Creek confluence downstream to the West Virginia political boundary.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: VSCI scores at 9-BST066.80 were 31 and 26 in 2008. Recent benthic sampling at 9-BST069.82 resulted in VSCI scores of 56.2 and 58.2 in 2017. In addition, station 9-BST069.21 had VSCI scores of 53.8 and 49.7 in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N36R_BST04A02 / Bluestone River / From Wright's Valley Creek confluence downstream to N37 at the Big Branch confluence below Falls Mills.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	6.24
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	4A	Benthic Macroinvertebrates Bioassessments	2002	L	0.62

Bluestone River

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		6.86

Sources: Crop Production (Crop Land or Dry Land); Illegal Dumps or Other Inappropriate Waste Disposal; Silviculture Activities; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N36R-01-CDANE** **Bluestone River**

Cause Location: This segment includes the mainstem from the confluence with Big Branch downstream to West Virginia political boundary; may be found on the Bramwell quad sheet.

Cause City/County: Tazewell County

Use(s): Fish Consumption

Causes(s)/VA Category: Chlordane/5A

Cause Description: The fish tissue and sediment sampling stations at 9-BST065.01 (9-BST21.26) had total chlordane levels detected in the sediment in 2002 above DEQ's screening value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	5A	Chlordane	2004	L	0.62

Bluestone River

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fish Consumption			
Chlordane - Total Impaired Size by Water Type:			0.62

Sources: Illegal Dumps or Other Inappropriate Waste Disposal; Source Unknown

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New River Basin

Cause Group Code: **N36R-01-PCB** **Bluestone River and Tributaries**

Cause Location: This segment begins at the Route 460 bridge downstream to the West Virginia political boundary. It also includes a segment of Beaverpond Creek that flows from West Virginia into Virginia, sometimes under city buildings and streets and into the Bluestone River and Brush Fork from the west Virginia state line to the confluence with the Bluestone River in Falls Mills. Whitley Creek, a Bluestone River tributary in Bluefield VA, mostly under streets and buildings. Wrights Valley Creek from the St. Clair community downstream to the confluence with the Bluestone River.

Cause City/County: Tazewell County

Use(s): Aquatic Life; Fish Consumption; Wildlife

Causes(s)/VA Category: PCBs in Fish Tissue/5A; Polychlorinated biphenyls (PCBs)/5A

Cause Description: The Virginia Department of Health issued a fish consumption advisory on the Bluestone River August 6, 2001. The advisory limits the consumption of white sucker, rock bass, and largemouth bass to no more than two meals per month and recommends avoiding the consumption of carp.

Water column PCB sampling in 2017 and 2018 shows exceedances of the water quality criteria at 9-BFK000.02, 9-BPB000.02, 9-BPB000.44, 9-BPB001.51, 9-BPB003.17, 9-BST069.12, 9-BST065.01, 9-WHI000.03, and 9-WVC000.05.

Water column PCB samples were collected on Brush Fork at 9-BFK000.02 and 9-BFK003.33 in 2017 and 2018. The three samples collected at 9-BFK000.02 exceeded the water quality criteria for PCBs in surface waters. Water column PCB samples were also collected on Beaverpond Creek at 9-BPB000.02, 9-BPB000.44, and 9-BPB001.51 in 2017 and 2018. All samples collected exceeded the water quality criteria for PCBs in surface waters.

Fish tissue was collected from the mainstem Bluestone River in late summer 2014. Station 9-BST065.01 had composite samples of rock bass, white sucker and carp exceed the tissue value for PCB. Station 9-BST069.09 had composite samples of rock bass and white sucker exceed the tissue value for PCBs. At station 9-BST073.32, two composite samples of rock bass and white sucker were collected, none exceeded the tissue value for PCBs.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N36R_BFK01A06 / Brush Fork / Bluestone tributary from WV state line downstream to Bluestone River at Falls Mills parallel to Rt. 643.	5A	Polychlorinated biphenyls (PCBs)	2010	L	1.48
VAS-N36R_BPB01A06 / Beaverpond Creek / Bluestone tributary from WV state line, sometimes under town buildings and streets in Bluefield, downstream to Bluestone confluence.	5A	Polychlorinated biphenyls (PCBs)	2012	L	2.99
VAS-N36R_WHI01A08 / Whitley Creek / Bluestone tributary in Bluefield, VA, mostly under streets and buildings.	5A	Polychlorinated biphenyls (PCBs)	2022	L	0.71
VAS-N36R_WVC01A06 / Wrights Valley Creek / From St Clair community downstream to confluence with the Bluestone River.	5A	Polychlorinated biphenyls (PCBs)	2022	L	2.30
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	5A	Polychlorinated biphenyls (PCBs)	2022	H	0.62

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Bluestone River and Tributaries

Aquatic Life

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.1

Bluestone River and Tributaries

Fish Consumption

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		7.48

Bluestone River and Tributaries

Wildlife

Polychlorinated biphenyls (PCBs) - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		8.1

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N36R_BST04A02 / Bluestone River / From Wright's Valley Creek confluence downstream to N37 at the Big Branch confluence below Falls Mills.	5A	PCBs in Fish Tissue	2002	H	6.24
VAS-N36R_BST04B02 / Bluestone River / From PWS intake for Town of Bluefield, downstream to Wright's Valley Creek confluence.	5A	PCBs in Fish Tissue	2002	H	1.73
VAS-N36R_BST05A02 / Bluestone River / From Town of Bluefield PWS intake, upstream to Rt. 460 bridge near Shannandale.	5A	PCBs in Fish Tissue	2002	H	5.05
VAS-N37R_BST01A96 / Bluestone River / Mainstem from Big Branch confluence downstream to WV state line near Yards.	5A	PCBs in Fish Tissue	2002	H	0.62

Bluestone River and Tributaries

Fish Consumption

PCBs in Fish Tissue - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		13.64

Sources: Crop Production (Crop Land or Dry Land); Illegal Dumps or Other Inappropriate Waste Disposal; Silviculture Activities; Source Unknown; Unrestricted Cattle Access

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New River Basin

Cause Group Code: **N37R-01-BAC** **Laurel Fork**

Cause Location: Laurel Fork mainstem from the Curran Branch confluence at Boissevain to the WV state line east of Pocahontas.

Cause City/County: Tazewell County

Use(s): Recreation

Causes(s)/VA Category: Escherichia coli (E. coli)/4A

Cause Description: The AWQM station located at 9-LRR001.39 had a 83% exceedance of the previous E.coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N37R_LRR01A94 / Laurel Fork / Laurel Fork mainstem from the Curran Branch confluence at Boissevain, to WV state line east of Pocahontas.	4A	Escherichia coli (E. coli)	2006	L	4.7

Laurel Fork

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			4.7

Sources: Sanitary Sewer Overflows (Collection System Failures); Septage Disposal

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New River Basin

Cause Group Code: **N37R-01-BEN** **Laurel Fork**

Cause Location: Laurel Fork mainstem from the Curran Branch confluence at Boissevain to the WV state line east of Pocahontas.

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: The biological station at 9-LRR001.39 found that the segment was impaired based on the VSCI.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N37R_LRR01A94 / Laurel Fork / Laurel Fork mainstem from the Curran Branch confluence at Boissevain, to WV state line east of Pocahontas.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	4.7

Laurel Fork

Aquatic Life

Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
		4.7

Sources: Impacts from Abandoned Mine Lands (Inactive); Silviculture Activities

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New River Basin

Cause Group Code: **N37R-02-BEN** **Laurel Fork**

Cause Location: Upstream of the Curran Branch confluence at Boissevain to headwaters on Yokel Ridge (parallel to the West Virginia state line).

Cause City/County: Tazewell County

Use(s): Aquatic Life

Causes(s)/VA Category: Benthic Macroinvertebrates Bioassessments/4A

Cause Description: Probabilistic monitoring station at 9-LRR012.30 was impaired based on VSCI scores of 54.7 and 56.3 in 2016, 51.31 and 50.38 in 2018, and 40.3 in 2020.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-N37R_LRR02A02 / Laurel Fork / Upstream of the Curran Branch confluence at Boissevain to headwaters on Yokel Ridge (parallel WV state line).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	8.3

Laurel Fork

Aquatic Life	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			8.3

Sources: Impacts from Abandoned Mine Lands (Inactive); Silviculture Activities