1st Community Engagement Meeting for the development of a Clean Up Plan (Implementation Plan) for the

Lower Rapidan River Watershed

April 12, 2024

DEQ Northern Regional Office

Kaitlin King

Nonpoint Source Coordinator

Virginia Department of Environmental Quality

What do we hope to accomplish today?

- Remind ourselves of Virginia's water quality process
- Review the TMDLs that guide the Implementation Plan
- Discuss how to reduce bacteria in the watershed
  - Residential septic/urban
  - Agriculture
- Next steps

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Materials for Todays Discussion

- Discussion handout and project area map
- HUC12 maps on tables for notes
- Resources on DEQ's water quality monitoring process
- E.coli impairment information for this IP project area

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Virginia's Water Quality Process

- Water Quality Monitoring & Assessment:
  - Collect and analyze data
- Reporting
  - Identify impaired waters, 303(d) list under CWA
- Cleanup Studies
  - Plans for restoring impaired waters (TMDL)
- **Cleanup Implementation Plans**
  - Plans for actions needed to restore water quality (NPS pollution)
- Implementing Control Measures
  - Permits (TMDLs), best management practices, cleanup actions
  - 319 Grant funding available for IP NPS BMPs

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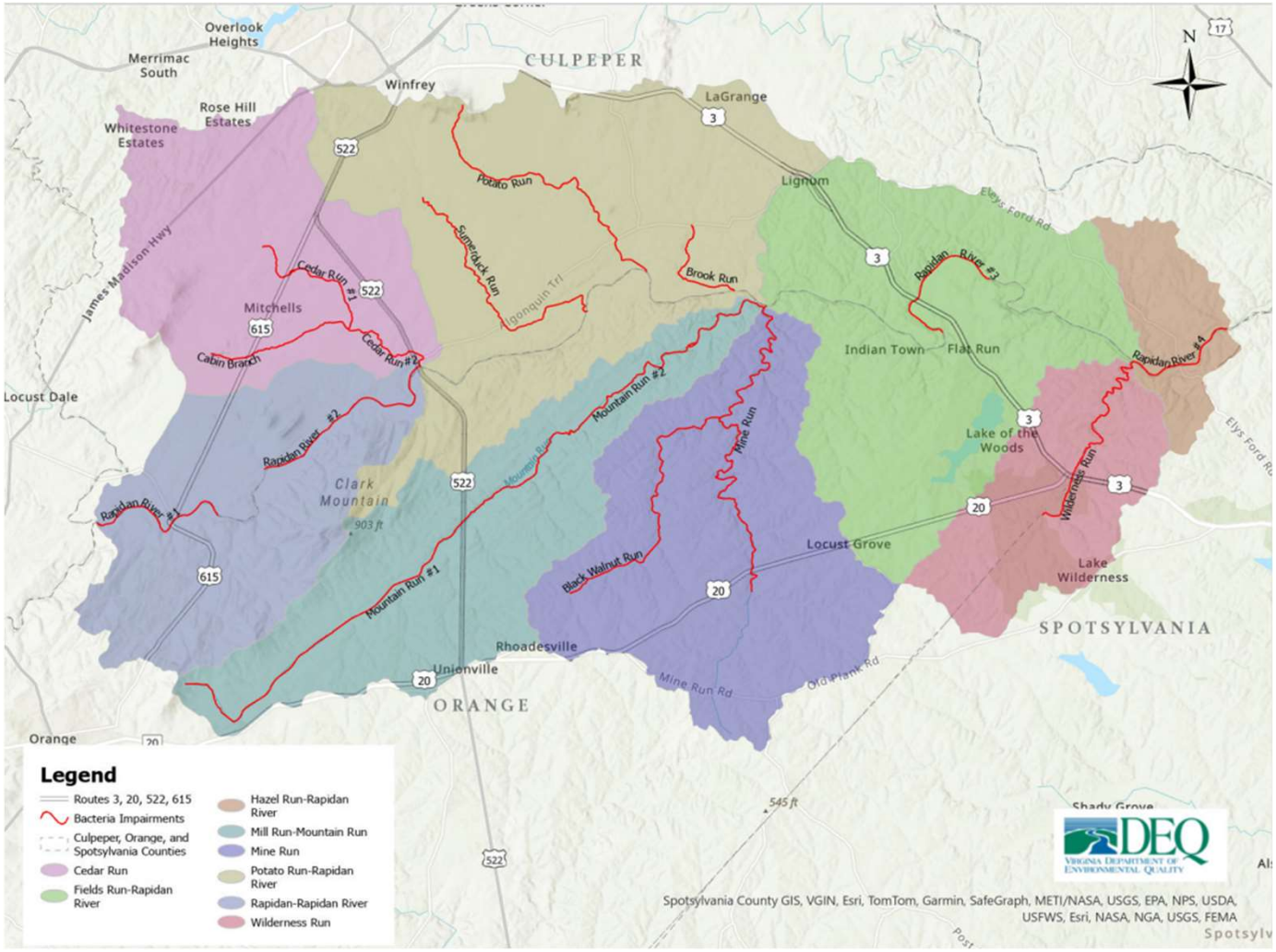
Bacteria Impairments as of 2022 Integrated Report

Impairment Name	Watershed (HUC12)
Mine Run	Mine Run
Black Walnut Run	Mine Run
Potato Run	Potato Run – Rapidan River
Sumerduck Run	Potato Run – Rapidan River
Brook Run	Potato Run – Rapidan River
Cedar Run #1	Cedar Run
Cedar Run #2	Cedar Run
Cabin Branch	Cedar Run
Mountain Run #1	Mill Run – Mountain Run
Mountain Run #2	Mill Run – Mountain Run
Rapidan River #1	Rapidan – Rapidan River
Rapidan River #2	Rapidan – Rapidan River
Rapidan River #3	Fields Run – Rapidan River
Rapidan River #4	Hazel Run – Rapidan River
Wilderness Run	Wilderness Run



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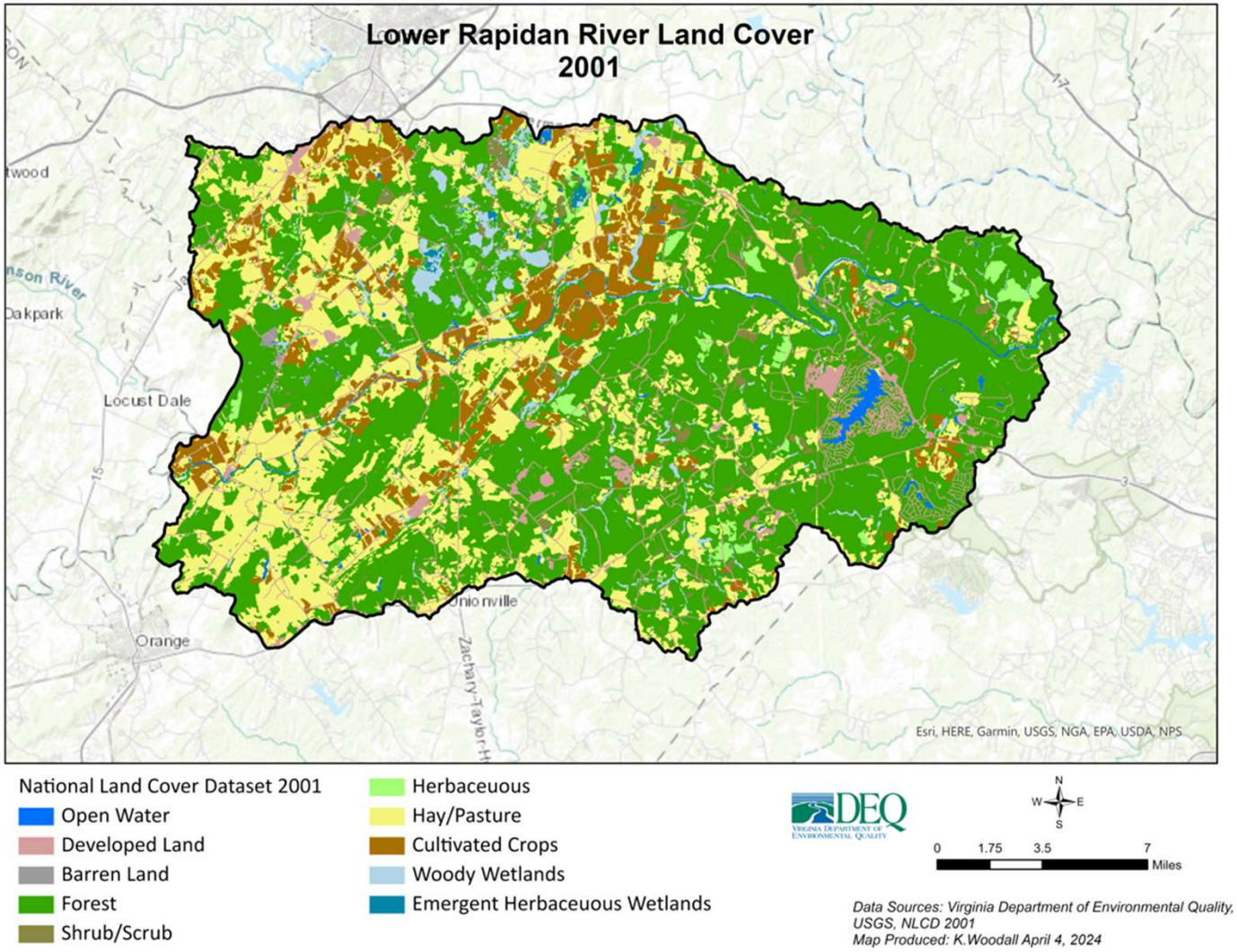
NLCD Land Use 2001



Land Use Categories	Percent of Acreage
Open Water	1%
Developed Land	6%
Barren Land	0.2%
Forest	52%
Shrub/Scrub	2%
Herbaceous	2%
Hay/Pasture	24%
Cultivated Crops	9%
Woody Wetlands	3%
Emergent Herbaceous Wetlands	0.5%

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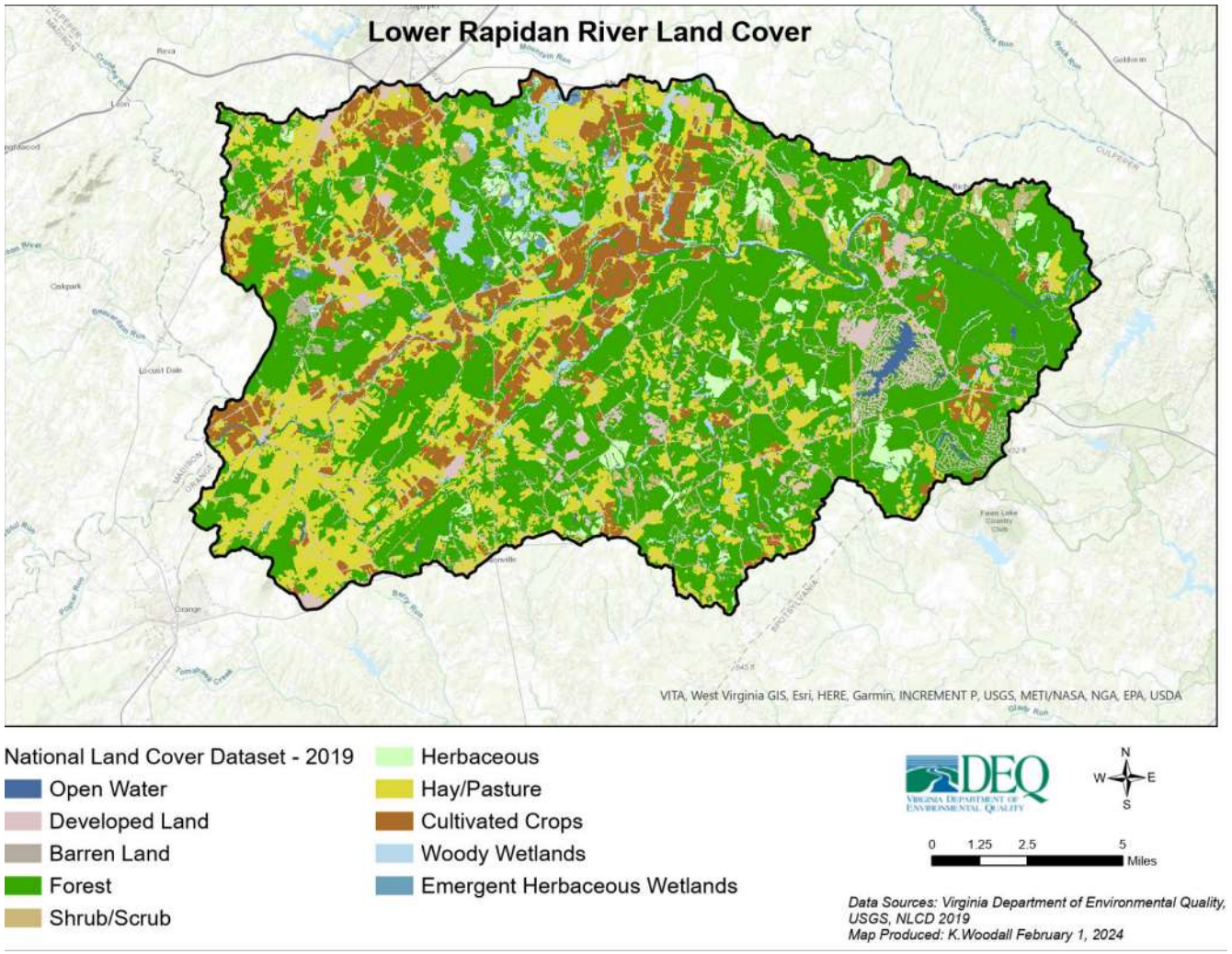
NLCD Land Use 2019



Land Use Categories	Percent of Acreage
Open Water	1%
Developed Land	8%
Barren Land	0.2%
Forest	49%
Shrub/Scrub	2%
Herbaceous	3%
Hay/Pasture	23%
Cultivated Crops	10%
Woody Wetlands	3%
Emergent Herbaceous Wetlands	1%

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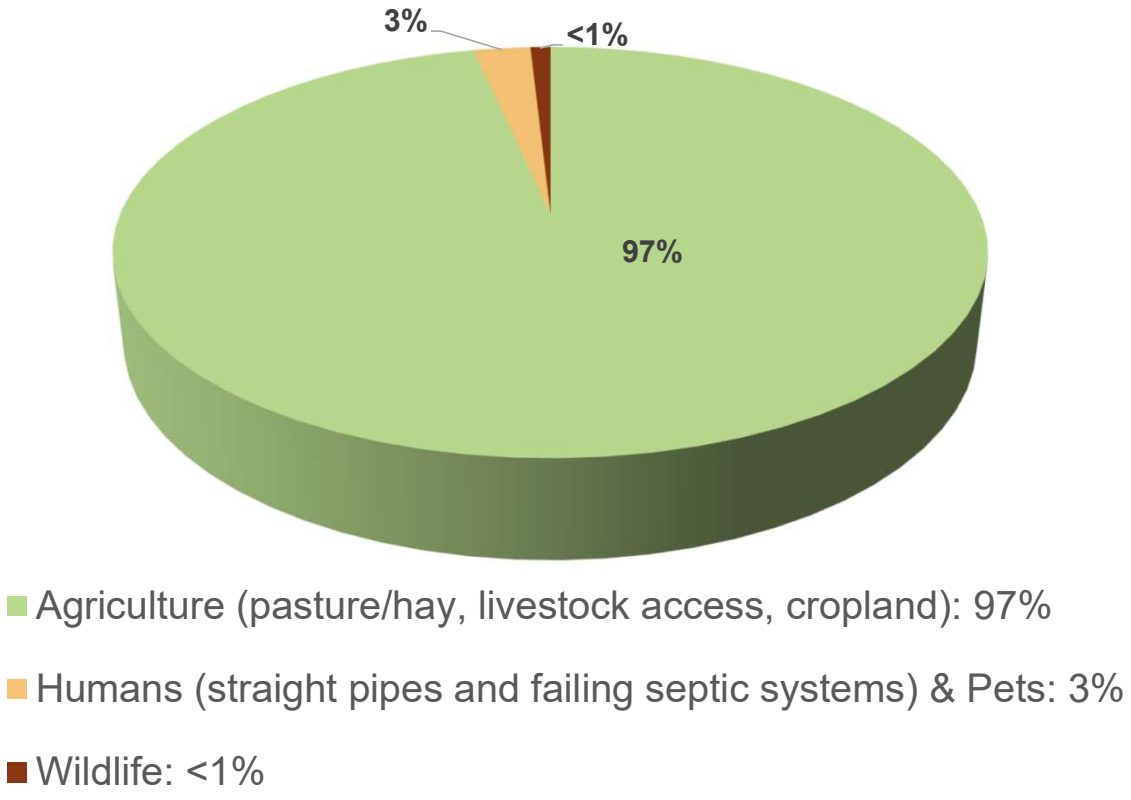
From the TMDL study: Bacteria Source Assessment



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From the TMDL study: Bacteria Load Reductions

IP Area	Failed Septic Systems & Straight Pipes	Livestock Direct Deposition	Agricultural: Cropland and Pasture	Developed Land	Wildlife Direct Deposition
Mountain Run	100%	100%	94%	94%	0%
Mine Run	100%	100%	40%	40%	0%
Cedar Run	100%	89%	89%	89%	0%
Rapidan River	100%	75%	46%	46%	0%

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Residential Overview

Within the lower Rapidan River watershed, estimated totals (TMDLs, 2005/2007):

Watershed	Houses on Public Sewer or General Permit	Total Septic Systems	Houses with Failing Septic Systems	Houses with Straight Pipes
Rapidan-Rapidan River	232	335	131	9
Cedar Run	77	398	121	6
Potato Run-Rapidan River	27	584	181	13
Mill Run-Mountain Run	0	474	169	6
Mine Run	1	612	196	6
Fields Run-Rapidan River	1,760	661	167	9
Wilderness Run	858	805	170	0
Hazel Run-Rapidan River	64	563	141	4

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What changes have you seen in the watersheds?

1. What is the current trend in housing? Are new homes being built, or is the housing stock aging?
2. Have there been expansions in sewer coverage since the TMDLs?
3. Is there plan for future expansion of sewer coverage in the watershed?
4. Is there any data regarding straight pipes in the watershed?

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Potential Residential wastewater practices to reduce bacteria load

Based on the DEQ BMP Manual (FY23):

Control Measures	% Effectiveness	Units	Cost/Unit
Septic Tank Pump-Out (RB-1)	5%	System	$400
Connection to Public Sewer (RB-2)	100%	System	$11,000
Connection to Public Sewer with Pump (RB-2P)	100%	System	$18,000
Septic Tank System Repair (RB-3)	100%	System	$5,000
Septic Tank System Installation/Replacement (RB-4, RB-4P)	100%	System	$8,000 - $12,000
Alternative On-site Waste Treatment System (RB-5)	100%	System	$24,000

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Residential BMPs installed since 2005

BMP Name	BMP Code	Number
Septic Tank Pump-out	RB-1	90
Conventional Onsite Sewage System Repair	RB-3	11
Conventional Onsite Sewage Systems Full Inspection and Non-permitted Repair	RB-3M	7
Conventional Onsite Sewage System Installation/Replacement	RB-4	7
Conventional Onsite Sewage System Installation/Replacement with Pump	RB-4P	1
Alternative Onsite Sewage System Installation	RB-5	1

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Potential pet waste practices to reduce bacteria load

Based on the DEQ BMP Manual (FY23):

Control Measures	% Effectiveness	Units	Cost/Unit
Pet Waste Disposal Station (PW-1)	75%	number	$600
Pet Waste Treatment (PW-2)	100%	number	$200
Pet Waste Treatment for Confined Canine Facilities (PW-3)	site specific	number	$16,000
Pet Waste Education Program	50%	program	$5,000

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What needs to be done to address Residential Septic/pet waste sources of bacteria?

1. Aware of current problems/issues with failing septic and/or straight pipes? Any particular area to focus on?

2. What % of failing septic systems need to be repaired vs. replaced?

3. Of the failing systems and straight pipes, what % would require a conventional system vs. an alternative system?

4. What's the possibility to hook up to sewer? Any new projects in future?

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Continued…What needs to be done to address Residential Septic/pet waste sources of bacteria?

5. Aware of areas on public sewer that may smell of sewage or leak/overflow?

6. What's the best way to recruit interest? Best outreach/education methods?

7. Is there interest in pet waste stations? Where?

8. What funding sources/organizations could help with paying for repairs, replacement of septic systems or sewer connections? Pet waste stations?

9. Any barriers to implementation in this watershed?

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Agricultural Best Management Practices Discussion

- Break?

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Agriculture BMPs installed since 2005

Cropland

BMP Name	BMP Code	Number	Units	Amount
Continuous Minimal or No-Till Systems	CCI-CNT, , SL-15A, SL-15B	28	Acres	6,242
Cover Crops	SL-8, SL-8B, SL-8C, SL-8H, WQ-4	347	Acres	68,180
Forested Riparian Buffer - Maintenance Practice	CCI-FRB-1	1	Acres	1
Long Term Vegetative Cover on Cropland	SL-1	21	Acres	761
Riparian Grass Filter Strips	WQ-1	1	Acres	17
Woodland Buffer Filter Area	CRFR-3, FR-3	6	Acres	27

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Agriculture BMPs Installed since 2005

Pasture

BMP Name	BMP Code	Number	Units	Amount
Alternative Water System	SL-6B	1	System	10
Animal Waste Control Facilities	WP-4	2	System	2
Animal Waste Control Facilities - Maintenance Practice	CCI-WP-4	5	System	5
CREP Riparian Forest Buffer	CP-22	6	Acres	42
Extension of Watering Systems	SL-7	8	Linear Feet	283
Grazing Land Management	SL-9, SL-10	30	Acres	2,209
Stream Exclusion - Maintenance Practice	CCI-SE-1, CCI-SL-6N, CCI-SL-6W	25	Linear Feet	105,803
Stream Exclusion (fencing)	CRSL-6, LE-2, SL-6, SL-6N, SL-6W, WP-2	91	Linear Feet	334,695

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Agriculture statistics

USDA - National Agricultural Statistics Service, NASS

Item	Culpeper County			Orange County			Spotsylvania County		
	2002	2022	% change	2002	2022	% change	2002	2022	% change
Farm Acres	125,121	115,816	-7%	104,879	103,983	-1%	56,346	39,666	-30%
Cattle/Calves	30,166	17,970	-40%	23,735	18,347	-23%	9,140	6,698	-27%
Beef Cattle	12,051	9,900	-18%	11,530	7,922	-31%	4,149	2,574	-38%
Dairy Cattle	3,064	40	-99%	1,667	732	-56%	884	21	-98%
Sheep	327	850	160%	412	836	103%	366	628	72%
Horses	2,009	1,937	-4%	1,343	961	-28%	948	510	-46%
Turkeys	13	<10	-	183,451	142,401	-22%	68	129	90%

Are these the trends you still see? If not, how changed?
Should more focus be on beef cattle vs. dairy cattle?

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Potential Agriculture practices to reduce bacteria load

Control Measures	% Effectiveness	Units	Cost / Unit
Cropland Practices			
Long Term Vegetative Cover on Cropland (SL-1)	75%	acres	$300
Cover Crop (SL-8B, SL-8H)	20%	acres	$40
Continuous Minimal or No-Till Systems (CCI-CNT, , SL-15A, SL-15B)	41%	acres	$100
Livestock Waste Reduction Practices			
Afforestation of Erodible Crop and Pastureland (FR-1)	Land Use Change	acres	$570
Animal Waste Control Facility (WP-4)	40%	system	$80,000
Pasture Management – Cattle (SL-9, SL-10)	50%	acres	$150
Permanent Vegetative Cover on Critical Areas (SL-11)	75%	acres	$2,000
Stream Exclusion (fencing) (CRSL-6, SL-6, SL-6N, SL-6W, WP-2)	100%	system	$75,000
Streamside Buffer (CP-22, CRFR-3, FR-3)	48%; Land Use Change	acres	$270
Water Control Structure (WP-1)	70%	acres treated	$130

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What needs to be done to address Agricultural sources of bacteria?

1. What is the level of interest in installing best management practices (BMPs)? What % are interested in 10-, 25-, 35-, 50-foot buffers? What types of practices do they prefer?
2. What is the current growth trend for agriculture in the area? Do you expect to see significant changes in farming practices over the next 5-10 years?
3. Is there interest in rotational grazing systems? Other pasture management practices?
4. Is there interest in practices to address manure spreading on crop or pasture fields?

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Continued…What needs to be done to address Agriculture sources of bacteria?

5. Is there interest in converting poor pasture or erodible cropland to forest?
6. What % of cropland is already implementing conservation (e.g., continuous no-till) practices?
7. What would be the best outreach/education methods to recruit interest? Are there any groups in the watershed that would be good resources for education and outreach?
8. Are there other funding sources (in addition to DCR, NRCS and DEQ) that could help pay for installation of BMPs?
9. Any barriers to implementing stream fencing and improving pasture management in this watershed?

Next Steps

	Tentative Date
First Public Meeting	**February 21st, 2024** (Public comment period February 21st, 2024 – March 22, 2024)
Community Engagement Meetings	
# 1	**April 12th, 2024**
# 2	June or July 2024
Final Public Meeting	**August/September 2024** (Public comment period 30 days after Final Public Meeting)
EPA Acceptance	Winter 2024/Spring 2025 Eligible to apply for DEQ 319 funding in 2025, funds will be received to accepted applicants in 2026

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Contact Information

Kaitlin King
VDEQ – Central Office
1111 E. Main Street Suite 1400,
Richmond, VA 23219
kaitlin.king@deq.virginia.gov
(804) 338-2430

Questions?

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Individual Permits in Project Area

VPDES IP	Facility Name	TMDL	Notes
VA0074381	Camp Happyland (Camp Rappahannock)	Rapidan River Basin	WLA expanded after TMDL was complete
VA0078131	Locust Grove Elementary School	Mt/Mine	
VA0083411	Wilderness Wastewater Treatment Plant	Rapidan River Basin	
VA0087718	DOC - Coffeewood Correctional Center	Rapidan River Basin	
VA0091961	Locust Grove Town Center	Rapidan River Basin	
VA0092339	Rapidan Mill WWTP Clean Rapidan Water Company	Rapidan River Basin	added after TMDL was complete
VA0093092	Aerojet Rocketdyne Incorporated	new permit in 2021; received no WLA, was not expected to discharge bacteria; terminated in 2023	

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