How to Use GoToWebinar

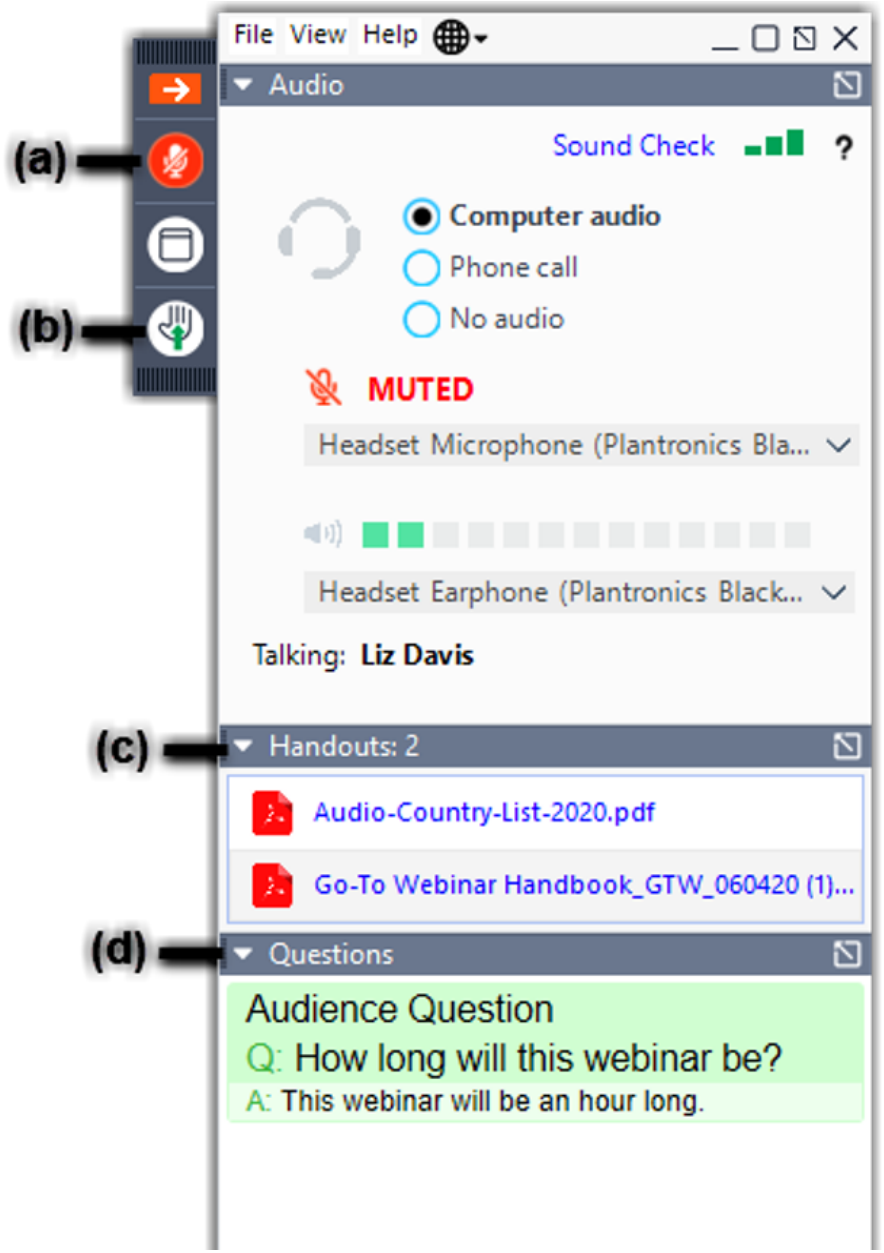
(a) Mute button

(b) Raise hand button

(c) Handouts available to download

(d) Questions box

Please be sure to **mute yourself** during the presentation. Thank you!



DEQ

Public Webinar

Draft 2024 Water Quality Assessment Integrated Report

Sandra Mueller
Water Monitoring and Assessment Program
Virginia Department of Environmental Quality
May 2, 2024

Purpose

- Provide highlights from the Draft 2024 Integrated Report (IR)
- Increase public awareness of water quality in Virginia
- Announce opportunity for public review and comment through **May 22, 2024**

Background – 2024 IR

- Required to assess and report on the quality of state waters every even-numbered year
- Six Year Assessment Period: Jan. 2017 – Dec. 2022
- Assessments are conducted in reference to Virginia Water Quality Standards and DEQ Water Quality Assessment Guidance
- Report the results of statewide water quality monitoring
- Identify and prioritize waters needing cleanup plans

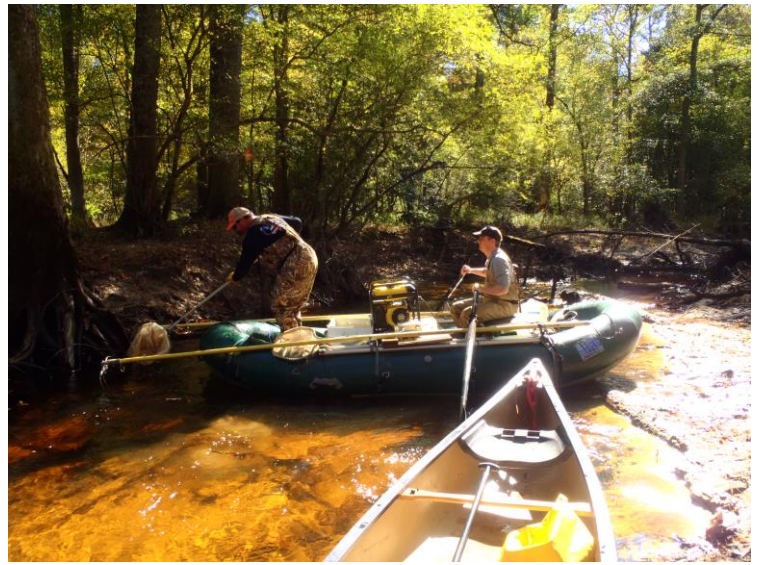
Continuing Planning Process

Water Quality Standards Designated Uses

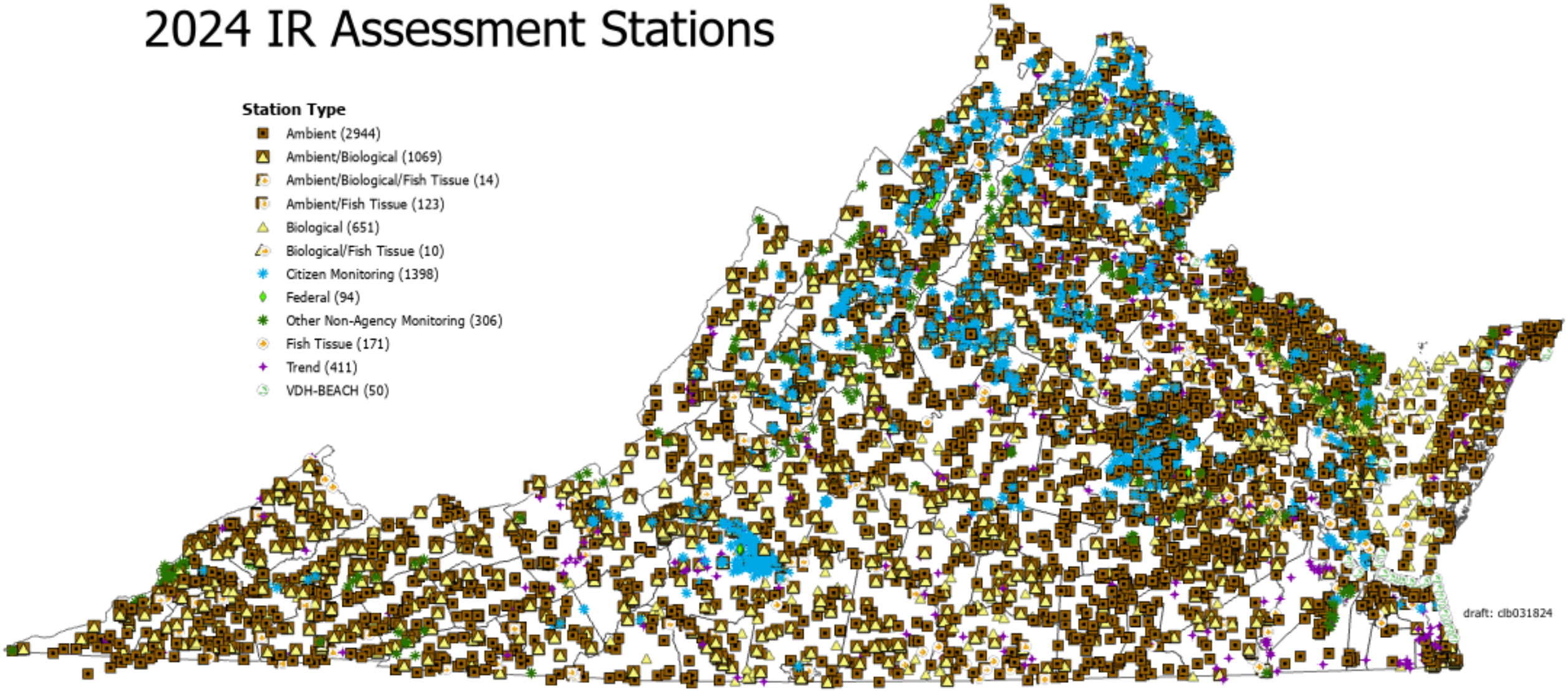
- Public Water Supply
- Shellfishing
- Wildlife
- Recreation
- Fish Consumption
- Aquatic Life
  - Chesapeake Bay sub uses

Water Quality Monitoring – 2024 IR

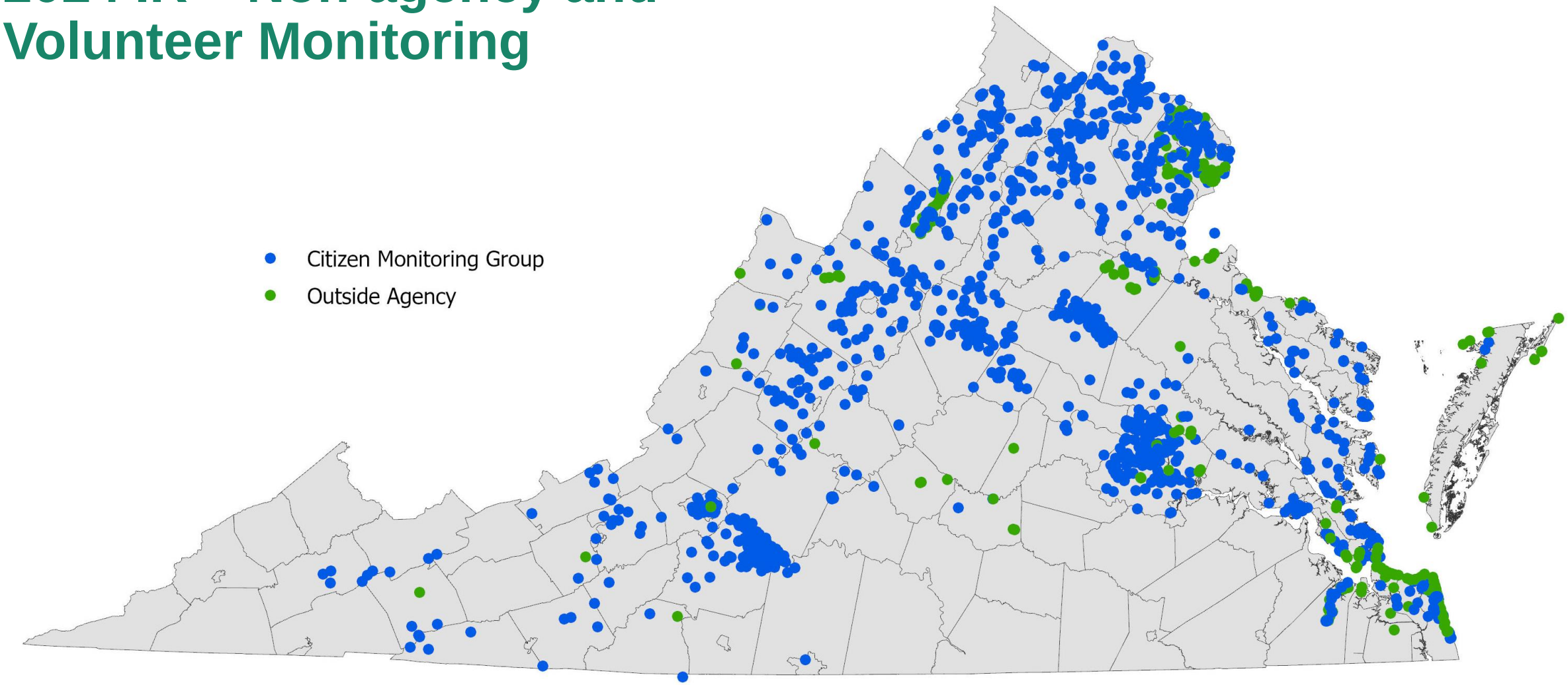
- Water quality data was evaluated for multiple parameters collected by DEQ at approximately 3400 stations
- Data from nearly 100 volunteer and non-agency monitoring organizations were submitted for use in the assessment



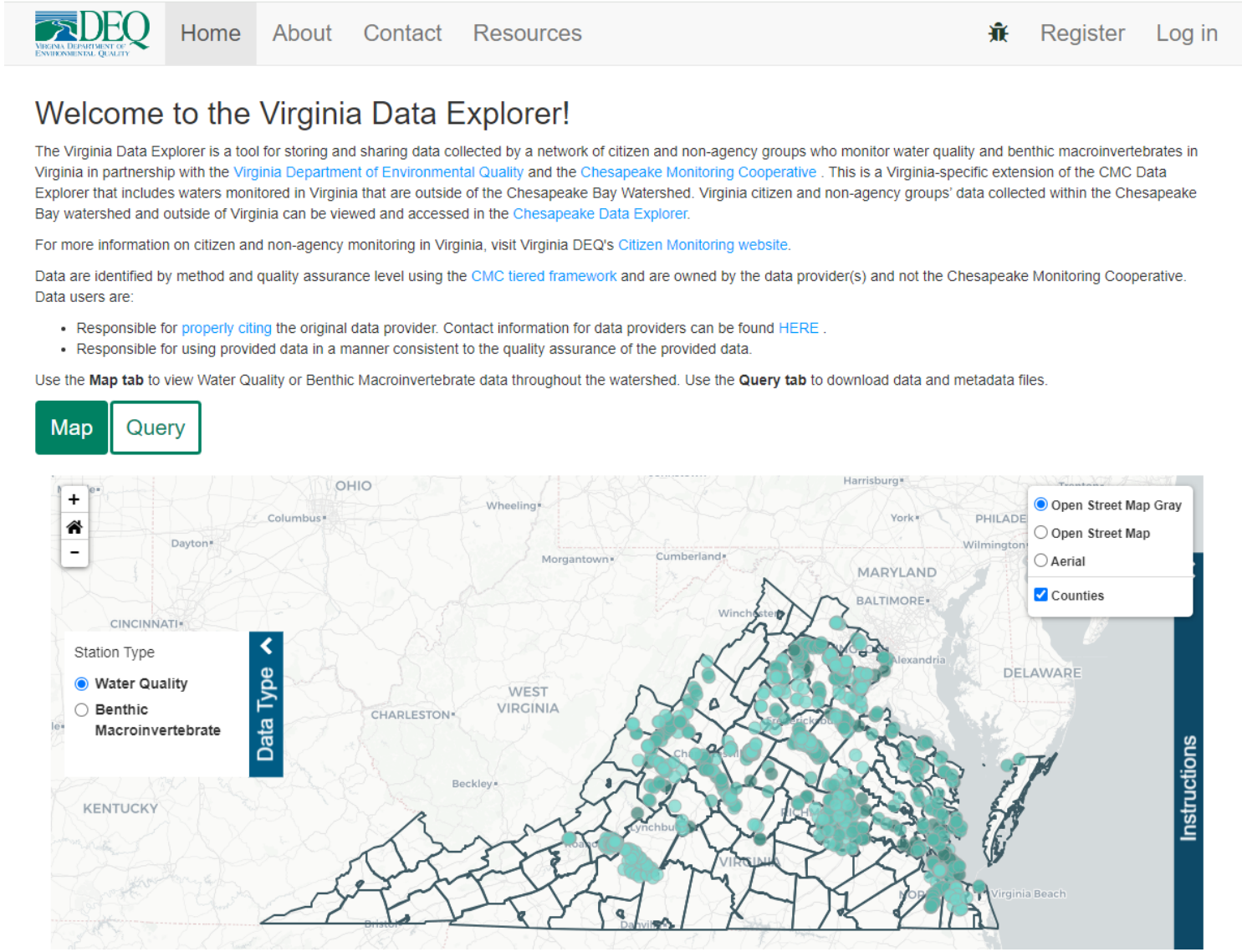
2024 IR Assessment Stations



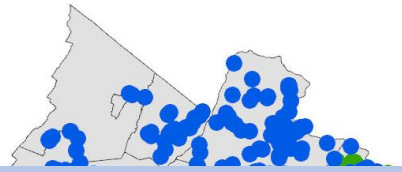
2024 IR – Non-agency and Volunteer Monitoring



Volunteer Monitoring



2024 IR – Non-agency and Volunteer Monitoring



https://www.deq.virginia.gov/our-programs/water/water-quality/monitoring/citizen-monitoring

- **Citizen Monitoring Grant Opportunity**: Request for Applications (RFA) typically released around July 1. Applications due August 31.
- **Citizen Nominations for DEQ Monitoring**: Accepted January - April yearly
- **Submit your data to DEQ** through the Virginia Data Explorer

Water Quality Assessment

- Analyze water quality data and compare the results to Water Quality Standards and established assessment thresholds
- Follow the assessment procedures and methods outlined in Virginia's Water Quality Assessment Guidance Manual
- Categorize waters based on assessment results
  - **Fully supporting or non-impaired:** waters that meet water quality standards
  - **Impaired:** waters that do not meet water quality standards
  - **Insufficient Information:** waters without sufficient data to make an assessment determination

2024 IR - Assessment Overview

	Rivers (Miles)	Lakes (Acres)	Estuaries (Sq. Miles)
Non-Impaired	3,654 (4%)	13,338 (11%)	307 (11%)
Impaired	16,291 (16%)	100,715 (86%)	2,142 (75%)
Not Assessed	81,030 (80%)	3,730 (3%)	393 (14%)
Total	100,975	117,783	2,842

Not assessed: approximately 65% of Virginia's rivers are headwater systems and are not monitored by DEQ's ambient water quality network. These waters are routinely monitored via the Probabilistic Monitoring program and are included in watershed cleanup plans.

Comparison between 2022 & 2024 Cycles

	Rivers (Miles)		Lakes (Acres)		Estuaries (Miles^2)	
	2022	**2024**	**2022**	**2024**	**2022**	**2024**
Non-Impaired	4%	4%	10%	11%	11%	11%
Impaired	16%	16%	86%	86%	75%	75%

2024 IR – Waters proposed for delisting, summary

720 new water segment “delists” this cycle

- 38 segments resulting in removal from the 303d list (“full delist”)
- 682 segments based on use/parameter attainment but water remains on the 303d list (“partial delist”)

86% of partial delists are in estuarine waters

- 446 dissolved oxygen
- 74 bacteria
- 55 bioassessments

Two water bodies listed for HABs are proposed for delisting based on no new advisories and limited data for initial listing

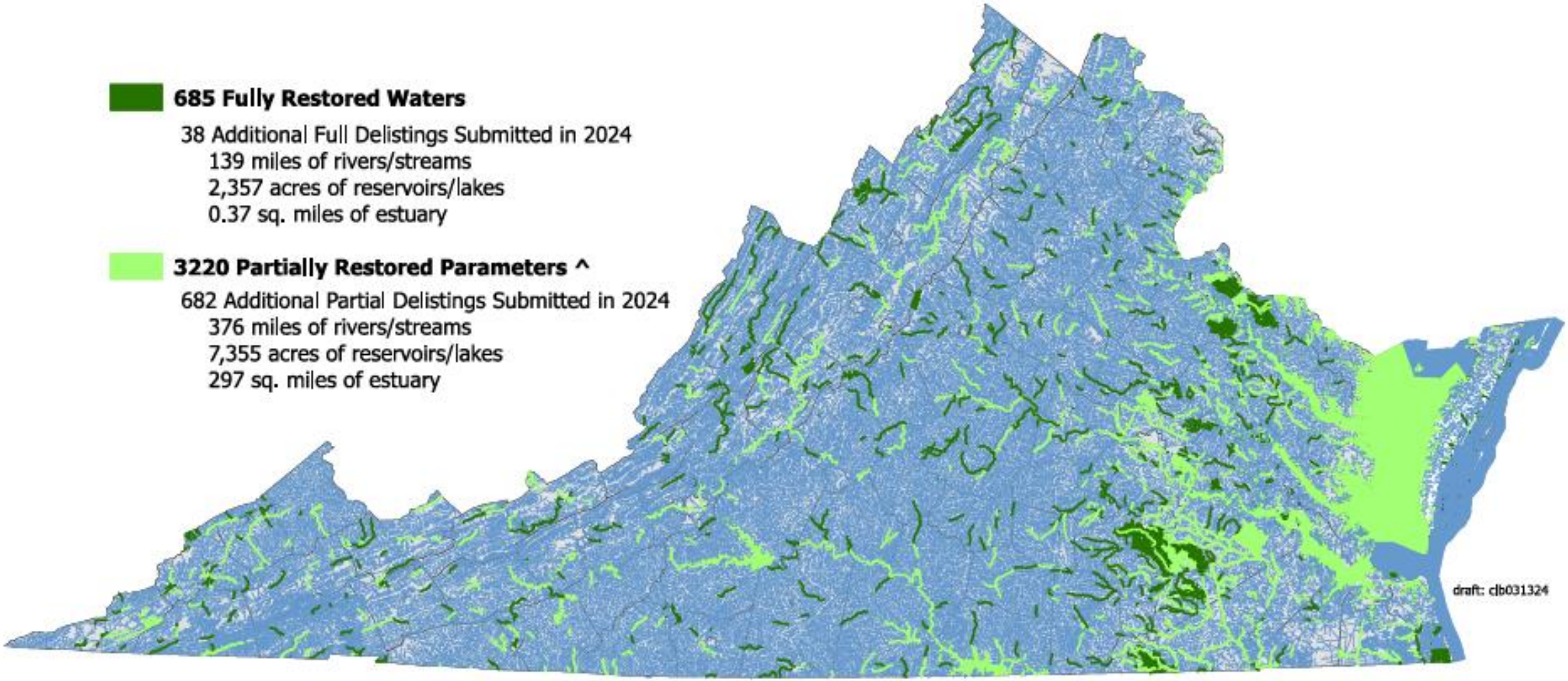
Water Quality Restoration Progress* in Virginia

685 Fully Restored Waters

38 Additional Full Delistings Submitted in 2024
- 139 miles of rivers/streams
- 2,357 acres of reservoirs/lakes
- 0.37 sq. miles of estuary

3220 Partially Restored Parameters ^

682 Additional Partial Delistings Submitted in 2024
- 376 miles of rivers/streams
- 7,355 acres of reservoirs/lakes
- 297 sq. miles of estuary



* Restoration progress (i.e. delist status) is cumulative as December 2022.

^ Partial delisting totals are parameter based. Partial delistings from previous cycles are removed from this tally as they become fully delisted.

Rivers – overall assessment summary

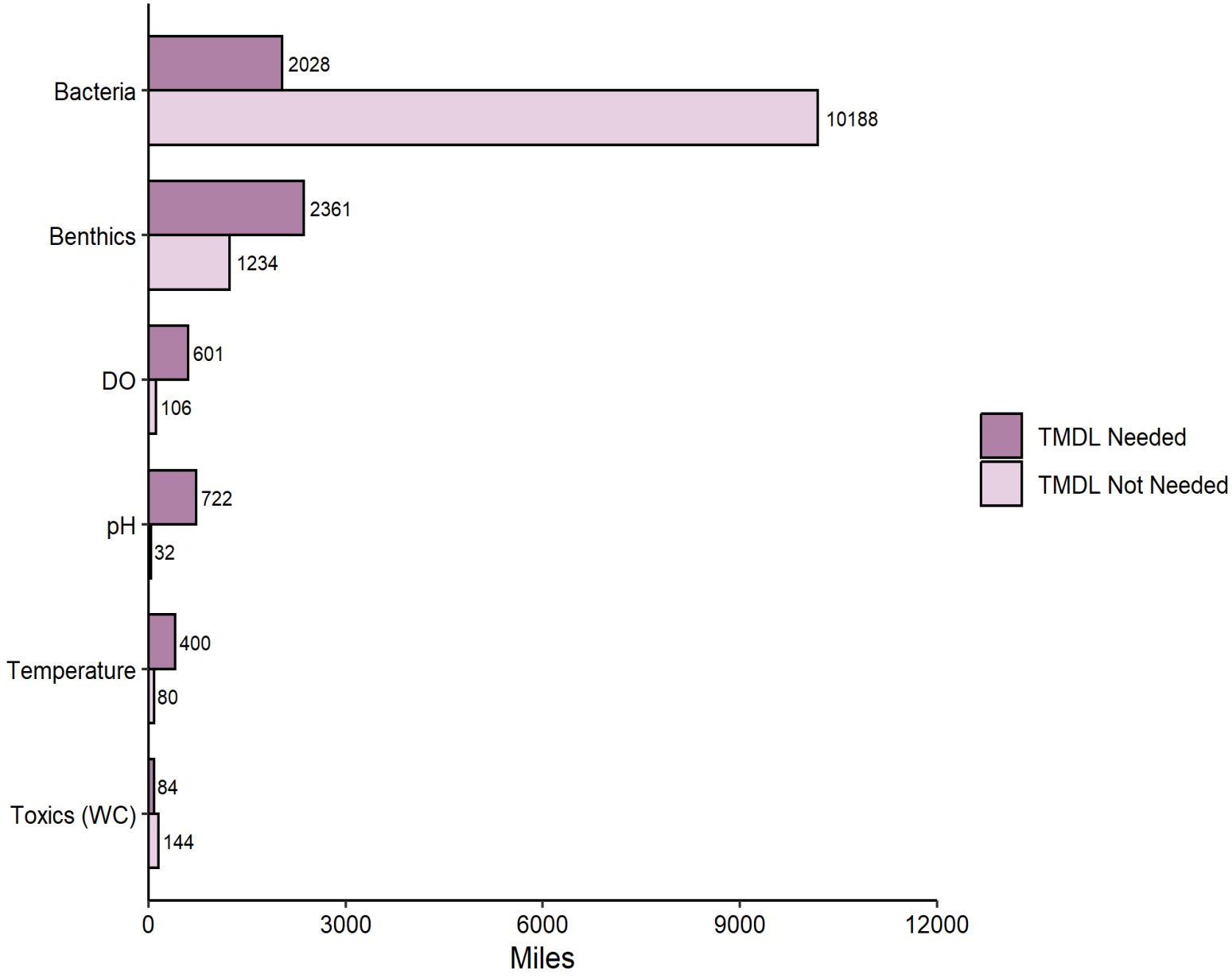
	Rivers (Miles)
Non-Impaired	3,654 (4%)
Impaired	16,291 (16%)
Not Assessed	81,030 (80%)
Total	100,975

- No major changes to riverine assessments this cycle
- Not assessed: approximately 65% of Virginia's rivers are small systems that are not monitored by DEQ's ambient water quality network
  - These waters are routinely monitored via the Probabilistic and Biological monitoring networks and are included in watershed cleanup plans.

Rivers

Summary of impaired river miles by parameter:

- Bacteria remains a common impairment in Virginia's rivers
- Many rivers are covered by watershed plans to address bacteria (shown in light purple).



Lakes/Reservoirs – overall assessment summary

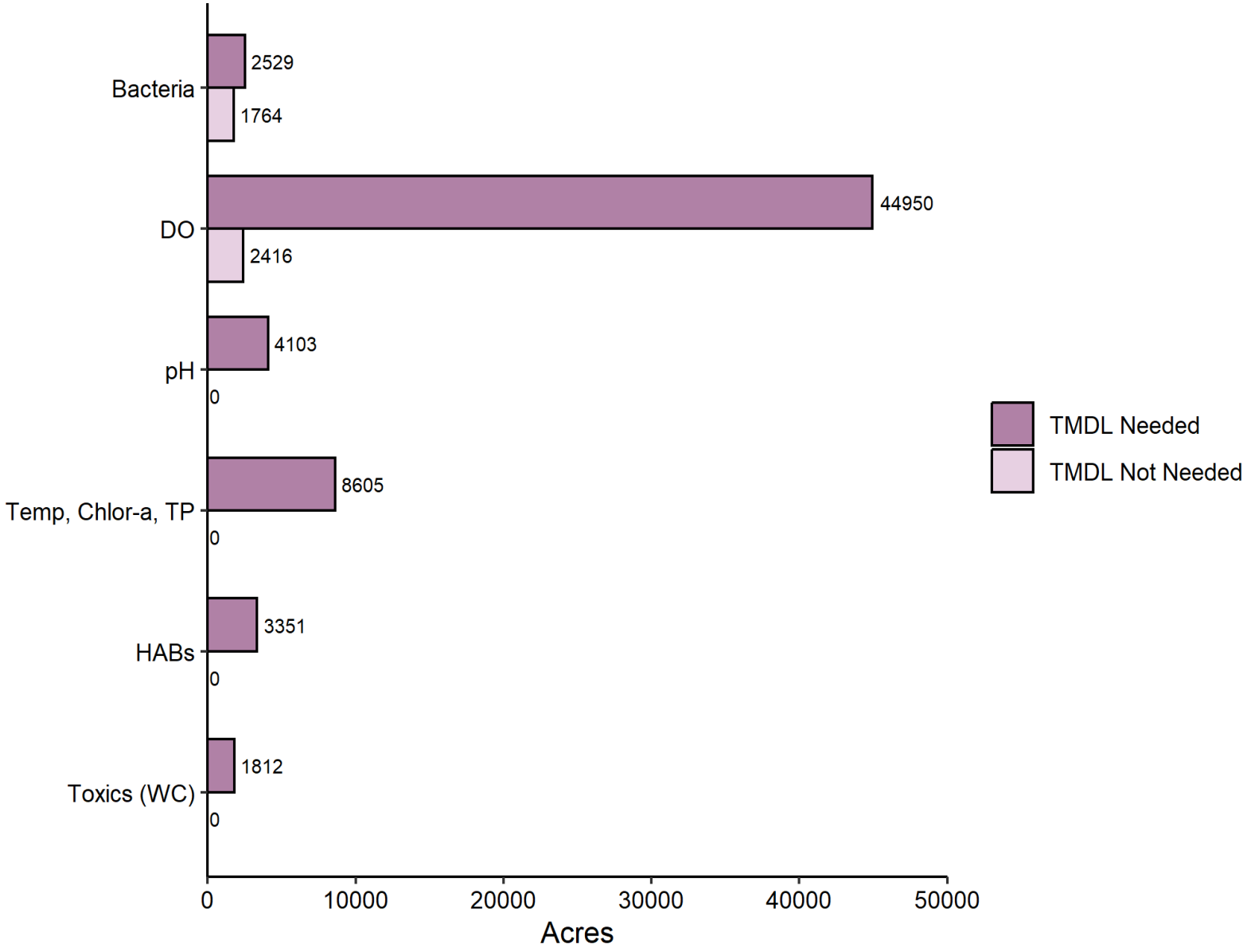
	Lakes (Acres)
Non-Impaired	13,338 (11%)
Impaired	100,715 (86%)
Not Assessed	3,730 (3%)
Total	117,783

- An increase of roughly 1,000 acres or 1% as non-impaired.
- Notably, Mint Springs Lake and Lake Anna Fishing Pond proposed for delisting harmful algal blooms due to no new advisories and limited data supporting initial listings.

Lakes/Reservoirs

Summary of impaired lake acres by parameter:

- Recreation Use impairments due to harmful algal bloom or HAB events are based on VDH advisories.



Estuaries – overall assessment summary

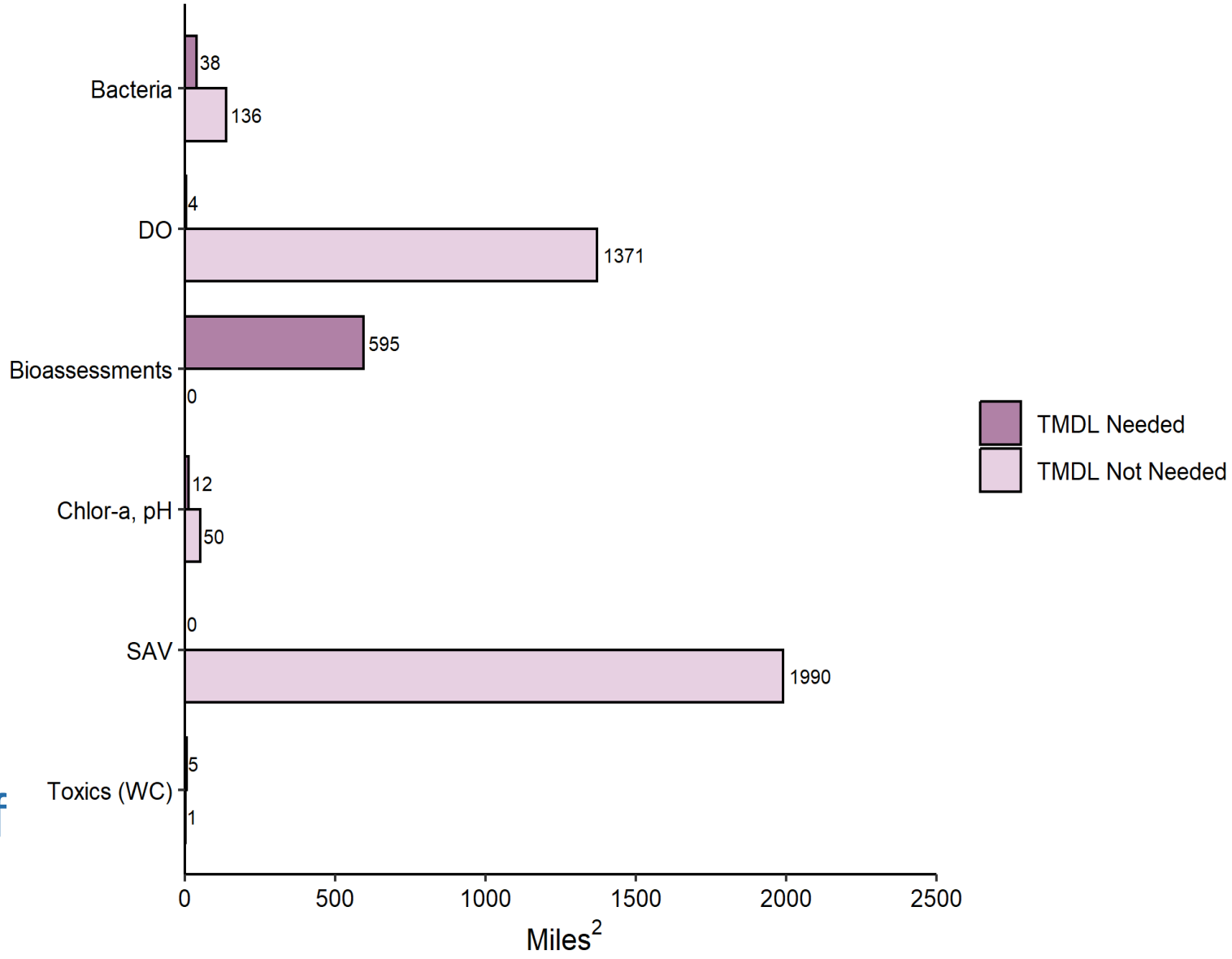
	Estuaries (Miles^2)
Non-Impaired	307 (11%)
Impaired	2,142 (75%)
Not Assessed	393 (14%)
Total	2,842

- The estuarine assessment includes the Chesapeake Bay criteria assessment
- No major changes to overall estuarine assessments this cycle
  - Low dissolved oxygen, insufficient submerged aquatic vegetation, and mercury and PCBs in fish tissue remain the major causes of impairment
  - All DO criteria need to be assessed in the mainstem Chesapeake Bay and portions of the tidal tributaries for a water to be delisted

Estuaries

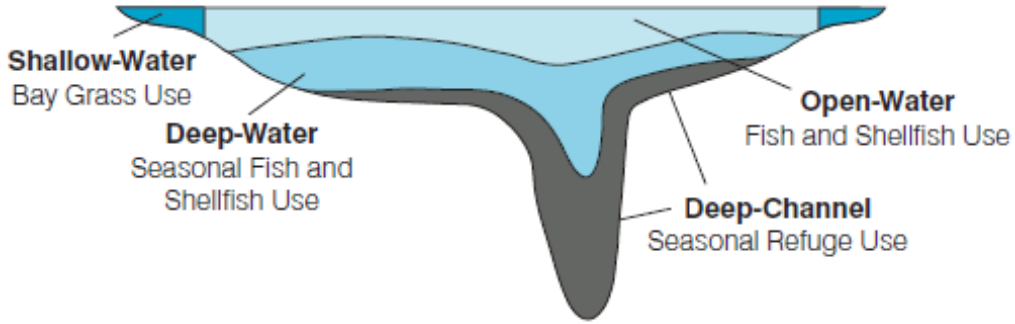
Summary of impaired estuary square miles by parameter – including the Chesapeake Bay:

- Low Dissolved Oxygen and insufficient SAV are leading causes of impairment to the aquatic life designated use.
- The Chesapeake Bay TMDL addresses many of these impairments (shown in light purple).

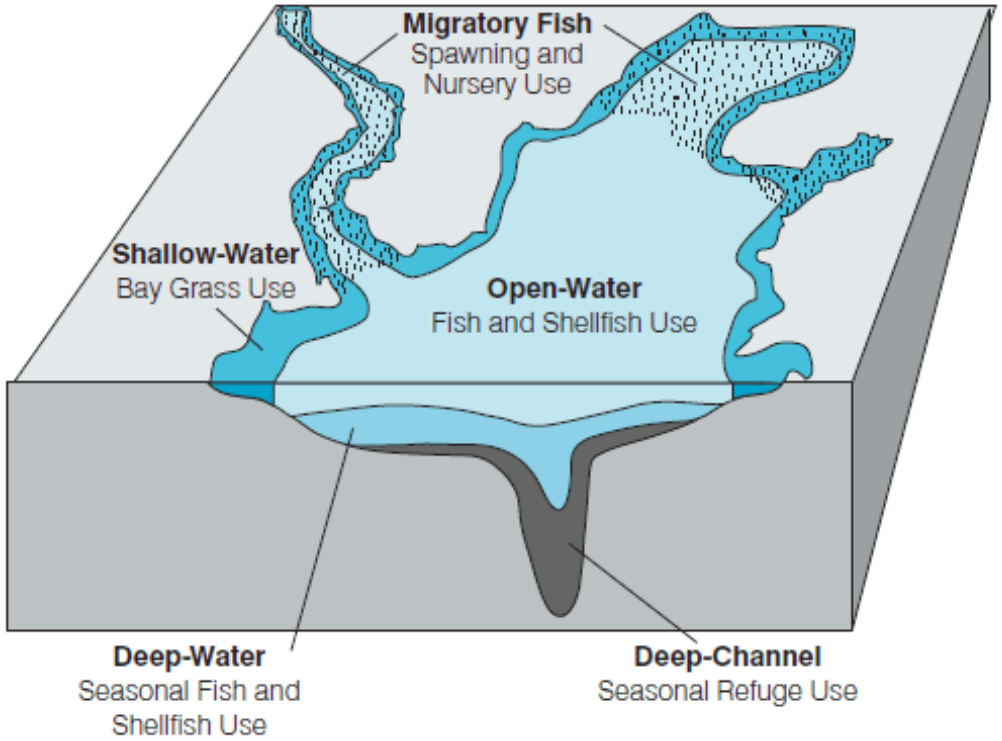


Chesapeake Bay & Tidal Tributaries Refined Designated Uses

A. Cross-Section of Chesapeake Bay or Tidal Tributary



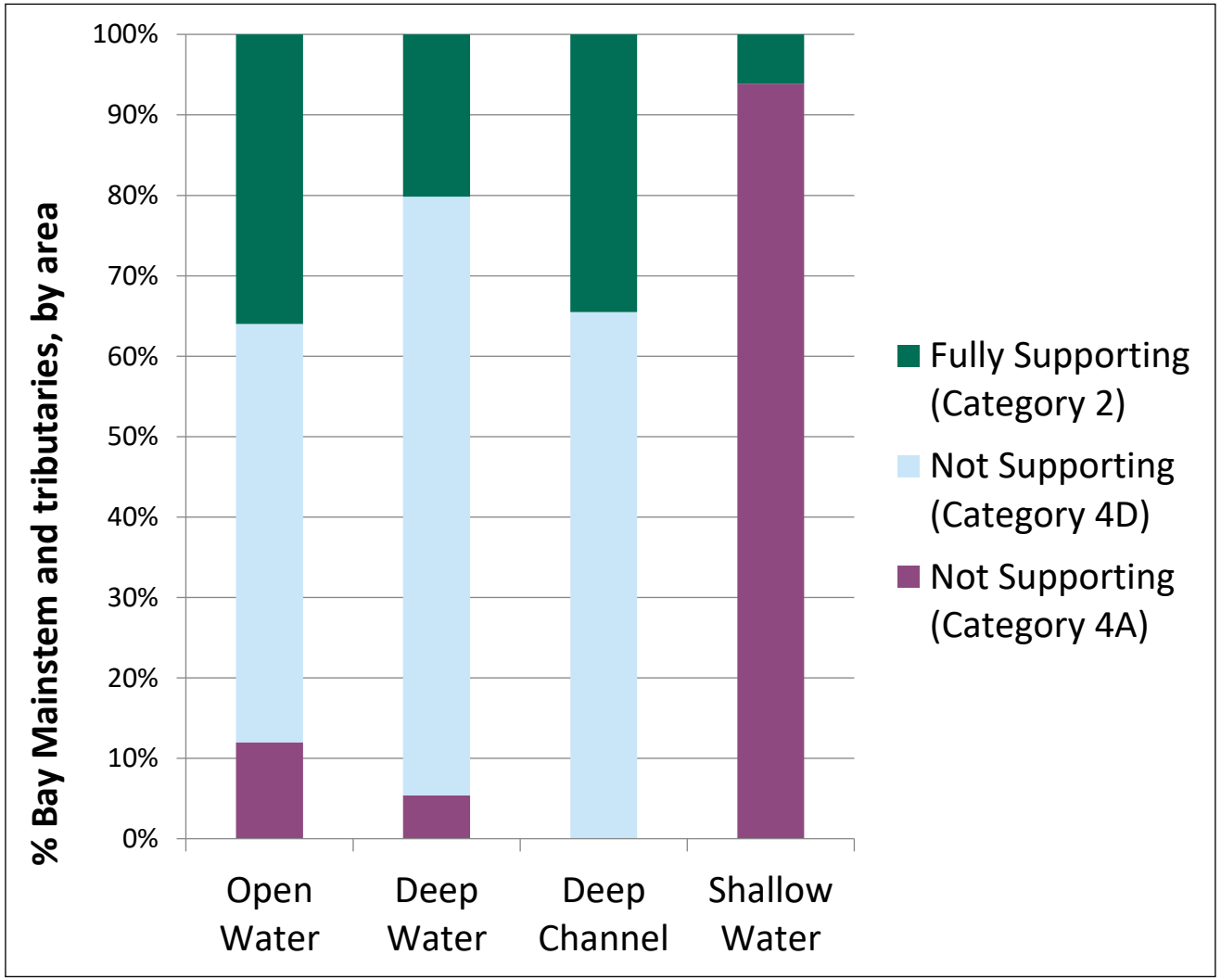
B. Oblique View of the Chesapeake Bay and its Tidal Tributaries



Chesapeake Bay Criteria Assessment

DEQ and its partners performed criteria assessments for the following parameters:

- Dissolved Oxygen
  - *3 of 11 Bay DO criteria are assessed*
- James River Chlorophyll-a
- Submerged Aquatic Vegetation (SAV)
- Estuarine Bioassessments



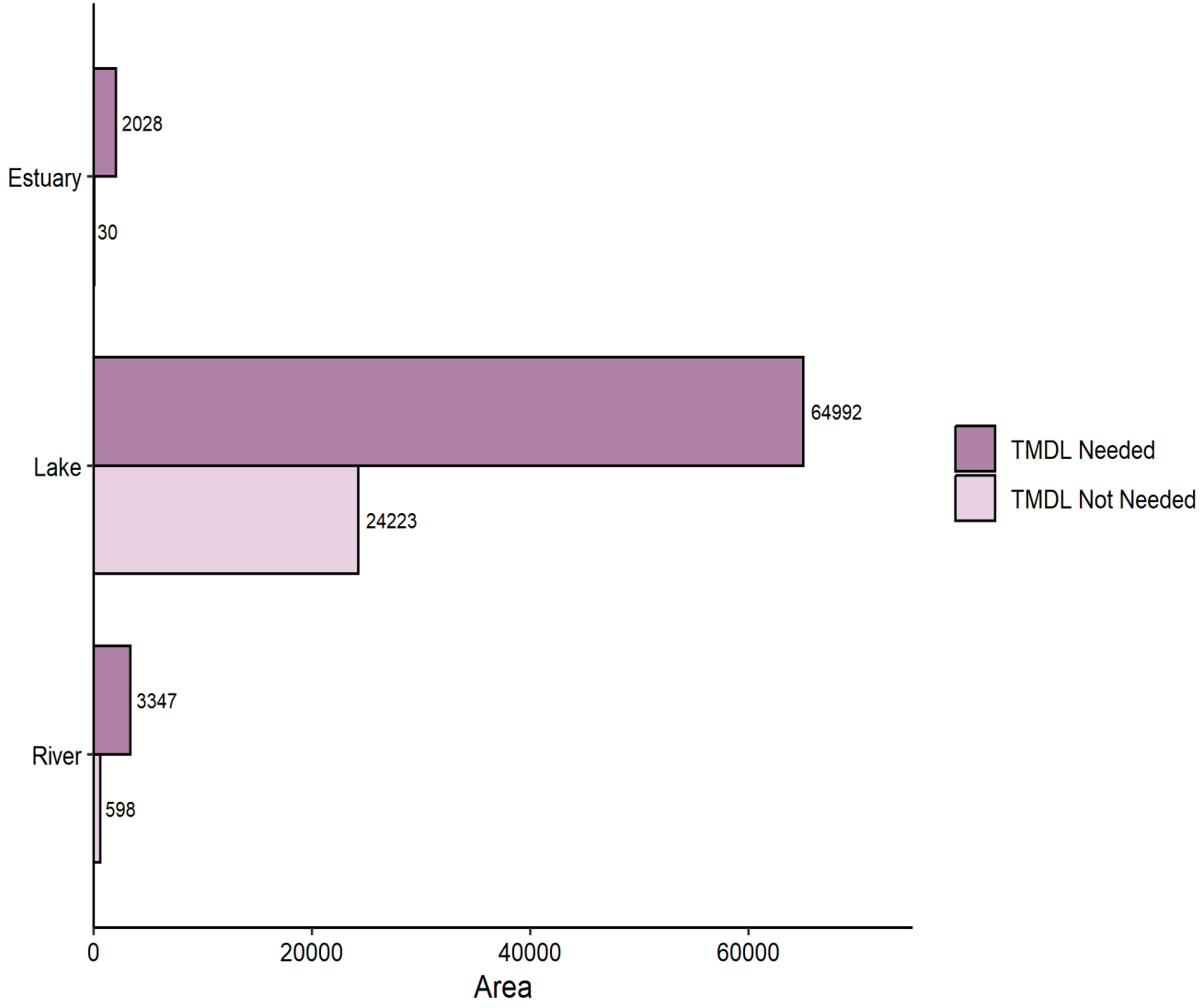
Fish Consumption Use Assessment

- DEQ collects fish tissue from ~80 sites each year.
- Samples are analyzed for PCBs and metals (including mercury).
- No major changes to the fish consumption assessment this cycle
  - Mercury and PCBs in fish tissue remain major causes of impairment in Virginia's waters
- Of the waters assessed for the fish consumption use, 19% of river miles, 77% of lake acres, and 84% of estuarine square miles show impairment

DEQ

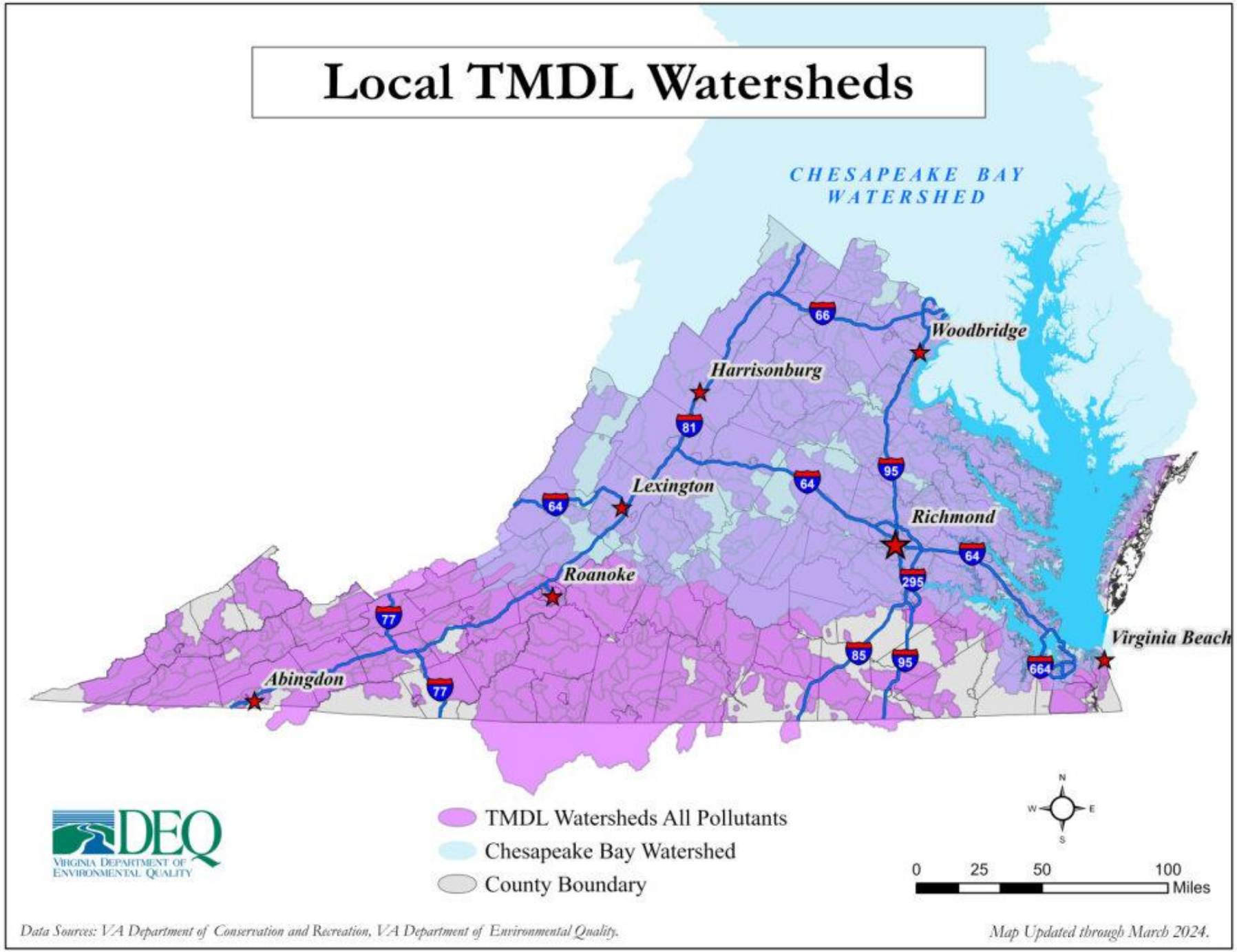
Summary of waters with fish consumption impairments

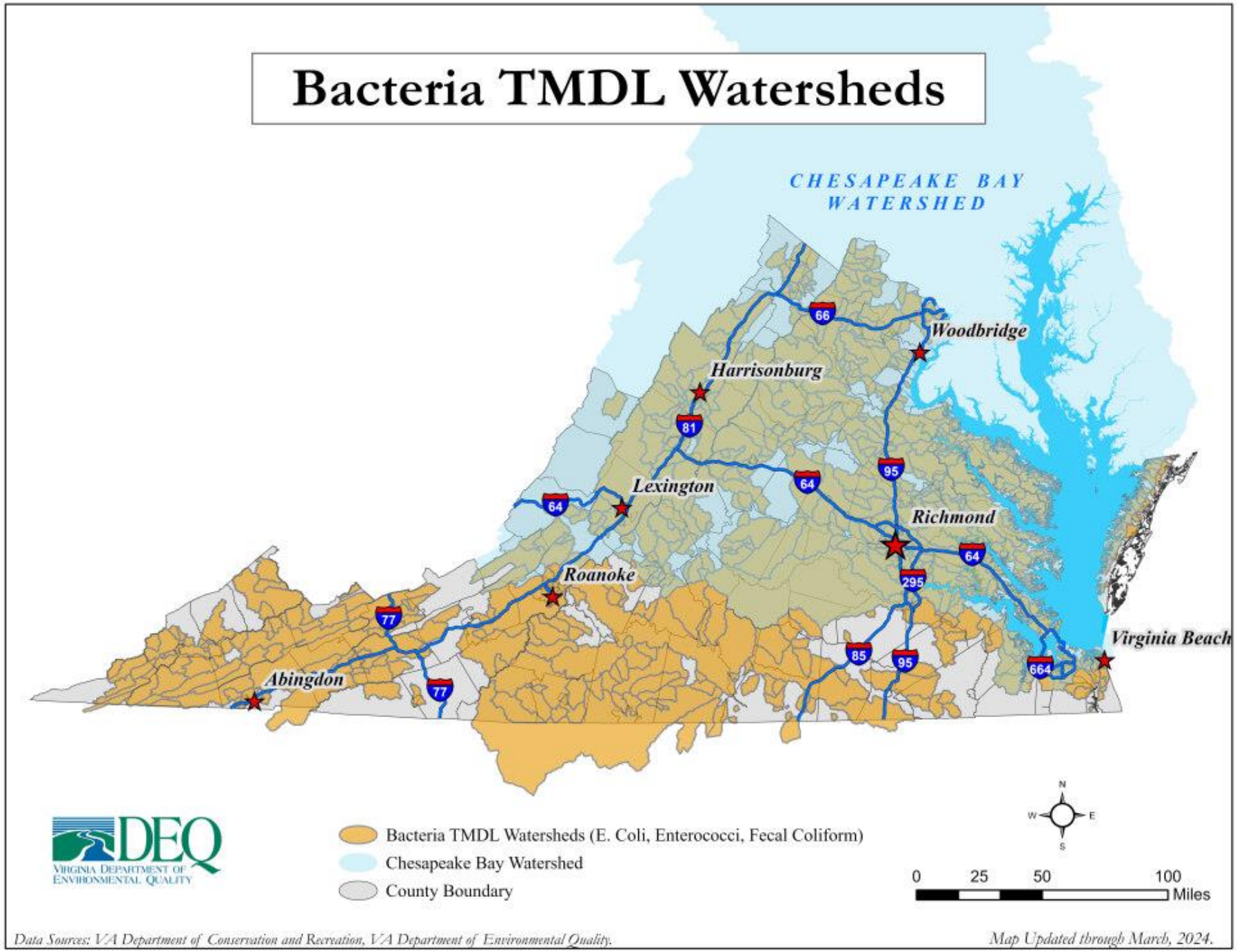
- Mercury and PCBs in fish tissue remain a common impairment in Virginia's waters
- DEQ has developed several watershed plans to address the impairments (shown in light purple).

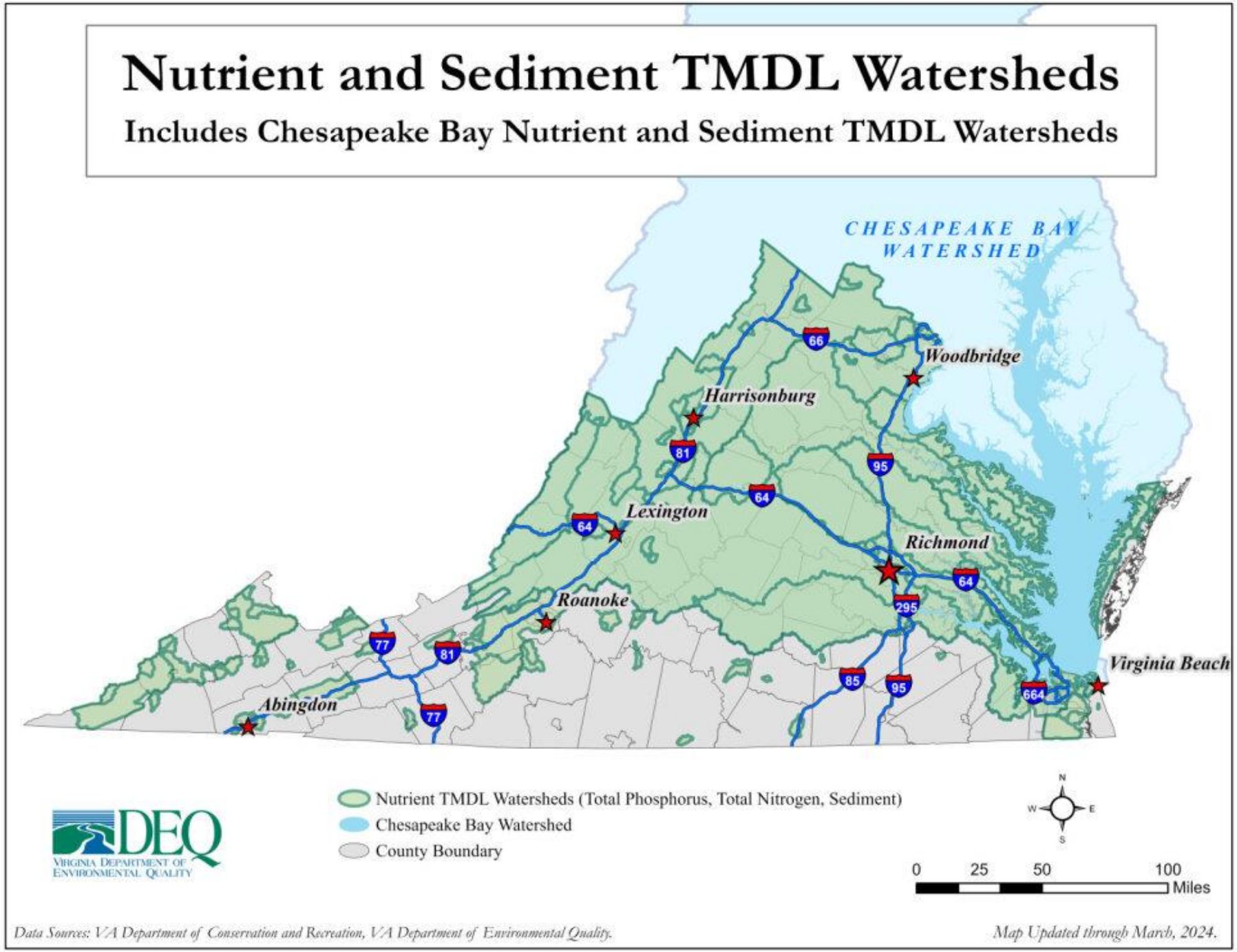


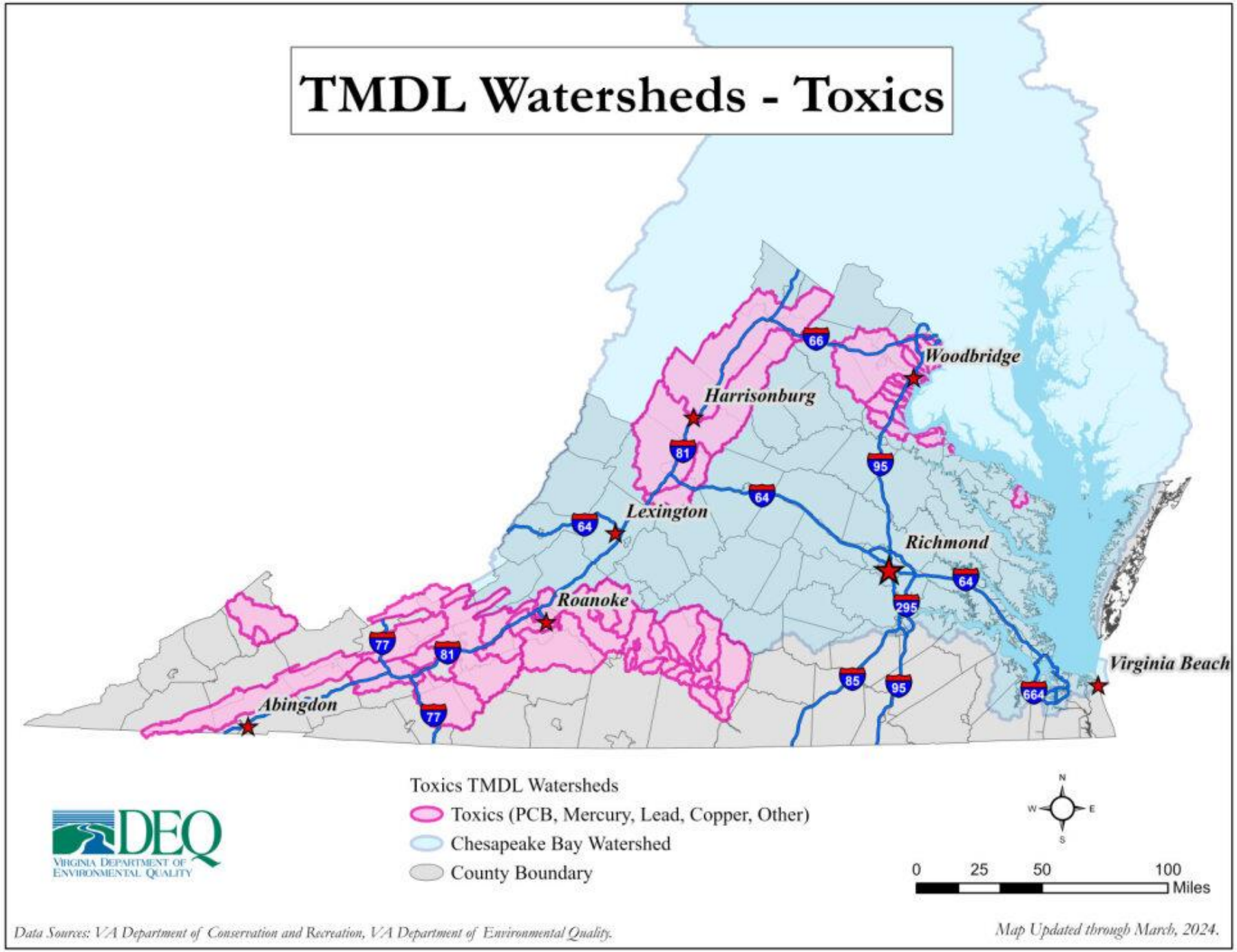
Total Maximum Daily Loads (TMDLs)

- When waters are assessed as impaired, **Total Maximum Daily Loads** and **Implementation Plans** are developed by DEQ
- TMDLs determine the total amount of a pollutant that a waterbody can receive without exceeding water quality standards
- Implementation Plans identify the management practices that will result in water quality improvements
- Remove parameters from 303(d) list when Water Quality Standards achieved
- The Draft 2024 IR includes the list of impaired waters prioritized for TMDL development through 2026.

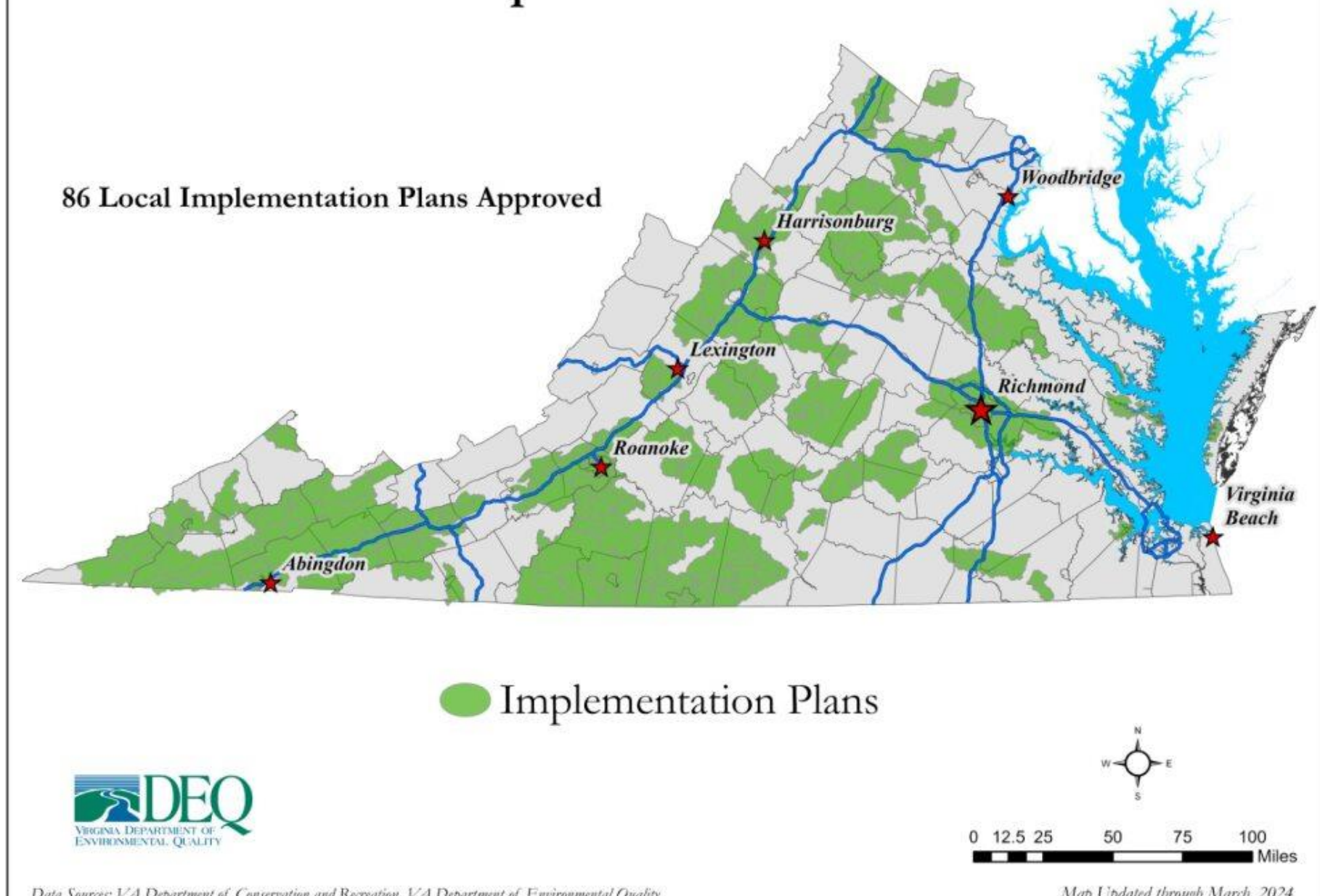

Local TMDL Watersheds
CHESAPEAKE BAY WATERSHED
Woodbridge
Harrisonburg
Lexington
Richmond
Roanoke
Abingdon
Virginia Beach
66
81
64
64
95
295
77
77
85
95
664
DEQ
Virginia Department of Environmental Quality
TMDL Watersheds All Pollutants
Chesapeake Bay Watershed
County Boundary
N
W
E
S
0
25
50
100
Miles
Data Sources: VA Department of Conservation and Recreation, VA Department of Environmental Quality.
Map Updated through March 2024.


Bacteria TMDL Watersheds
CHESAPEAKE BAY WATERSHED
Woodbridge
Harrisonburg
Lexington
Richmond
Roanoke
Abingdon
Virginia Beach
66
81
64
95
64
295
64
85
95
664
77
77
DEQ
Virginia Department of Environmental Quality
Bacteria TMDL Watersheds (E. Coli, Enterococci, Fecal Coliform)
Chesapeake Bay Watershed
County Boundary
N
W
E
S
0
25
50
100
Miles
Data Sources: VA Department of Conservation and Recreation, VA Department of Environmental Quality.
Map Updated through March, 2024.

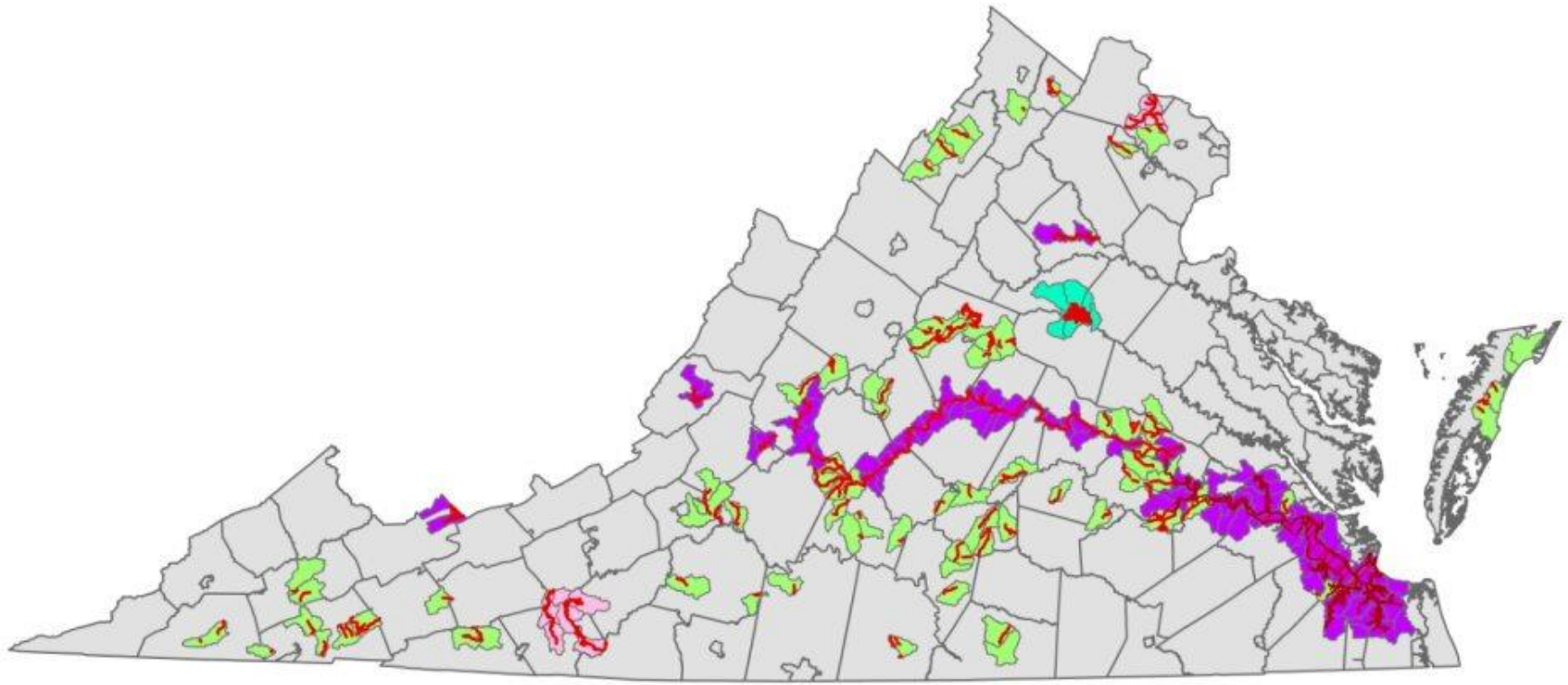

Nutrient and Sediment TMDL Watersheds
Includes Chesapeake Bay Nutrient and Sediment TMDL Watersheds
CHESAPEAKE BAY WATERSHED
Woodbridge
Harrisonburg
Lexington
Richmond
Roanoke
Abingdon
Virginia Beach
66
81
64
95
77
295
85
664
DEQ
Virginia Department of Environmental Quality
Nutrient TMDL Watersheds (Total Phosphorus, Total Nitrogen, Sediment)
Chesapeake Bay Watershed
County Boundary
N
W
E
S
0 25 50 100
Miles
Data Sources: VA Department of Conservation and Recreation, VA Department of Environmental Quality.
Map Updated through March, 2024.


TMDL Watersheds - Toxics
Woodbridge
Harrisonburg
Lexington
Richmond
Roanoke
Abingdon
Virginia Beach
66
81
95
64
64
64
295
77
81
77
85
95
664
Toxics TMDL Watersheds
Toxics (PCB, Mercury, Lead, Copper, Other)
Chesapeake Bay Watershed
County Boundary
N
W
E
S
0
25
50
100
Miles
DEQ
Virginia Department of Environmental Quality
Data Sources: VA Department of Conservation and Recreation, VA Department of Environmental Quality.
Map Updated through March, 2024.

TMDL Implementation Watersheds



TMDL Priorities for 2025-2026



* THE 12-DIGIT HYDROLOGIC UNIT CODES (HUC) DISPLAYED ARE THOSE THAT INTERSECT WITH THE PRIORITY WATERS AND MAY APPROXIMATE PRIORITY WATERSHEDS. AT THE ONSET OF A PROJECT, WATERSHEDS WILL BE DEFINITIVELY DELINEATED.

- Riverine Priorities
- Reservoir Priorities
- Estuarine Priorities
- County Boundary
- Multiple Use Priority HUC
- Recreation Use/Harmful Algal Bloom Priority HUC
- Aquatic Life Use Priority HUC
- Fish Consumption Use Priority HUC

N W E S

DEQ
Virginia Department of Environmental Quality

0 20 40 80 Miles

Data Sources: Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation
Map Produced: March, 2024 - K.Woodall

Trend Analysis

- Published in the IR every six years (2024, 2018, 2012, 2006)
- Includes a 20-year data window for a network of 400 trend stations (monitored annually, monthly or bimonthly)
- 2024 IR: 15 parameters analyzed using data collected between 2003 – 2022 data

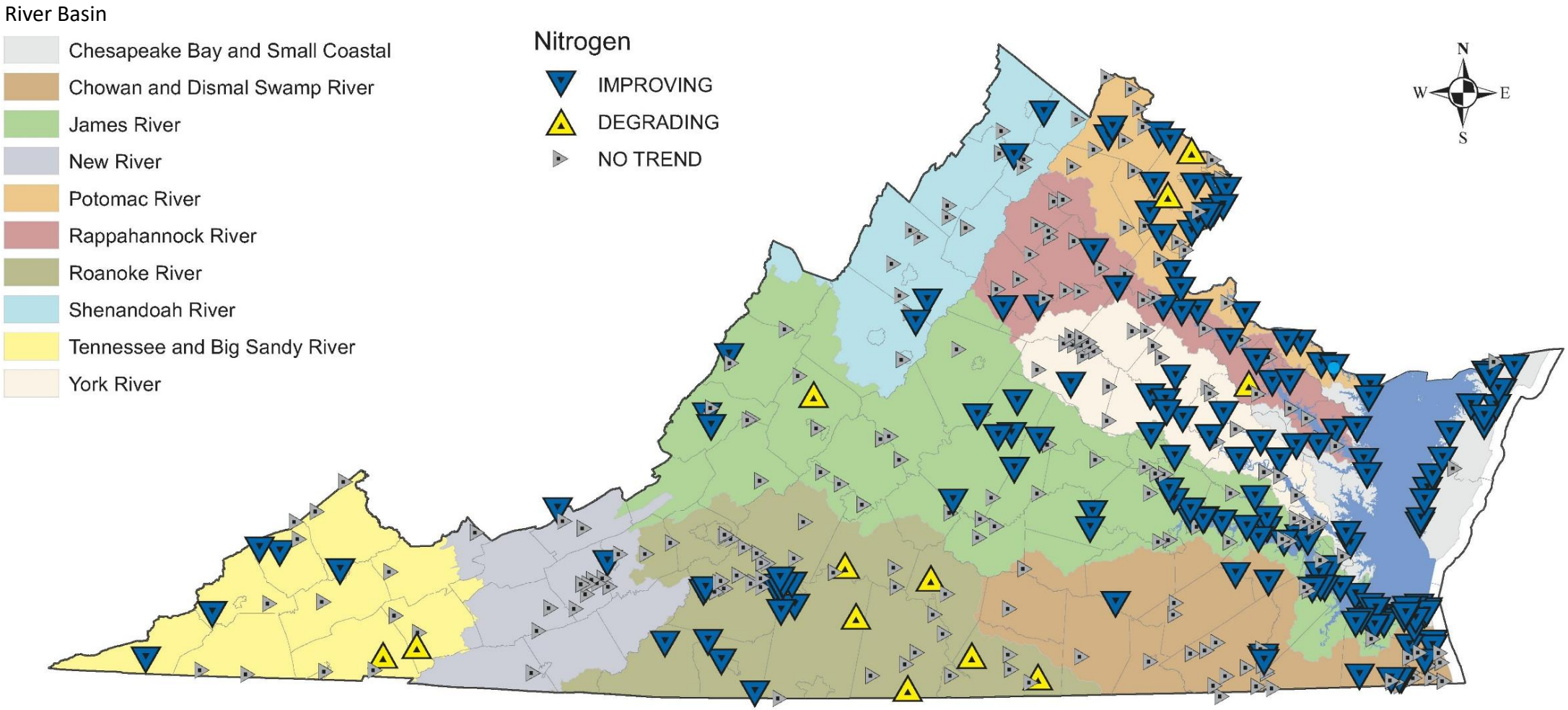
  Nutrients: Chl-a, Nitrogen, Phosphorus

  Bacteria: E. coli, Entercocci, Fecal Coliform

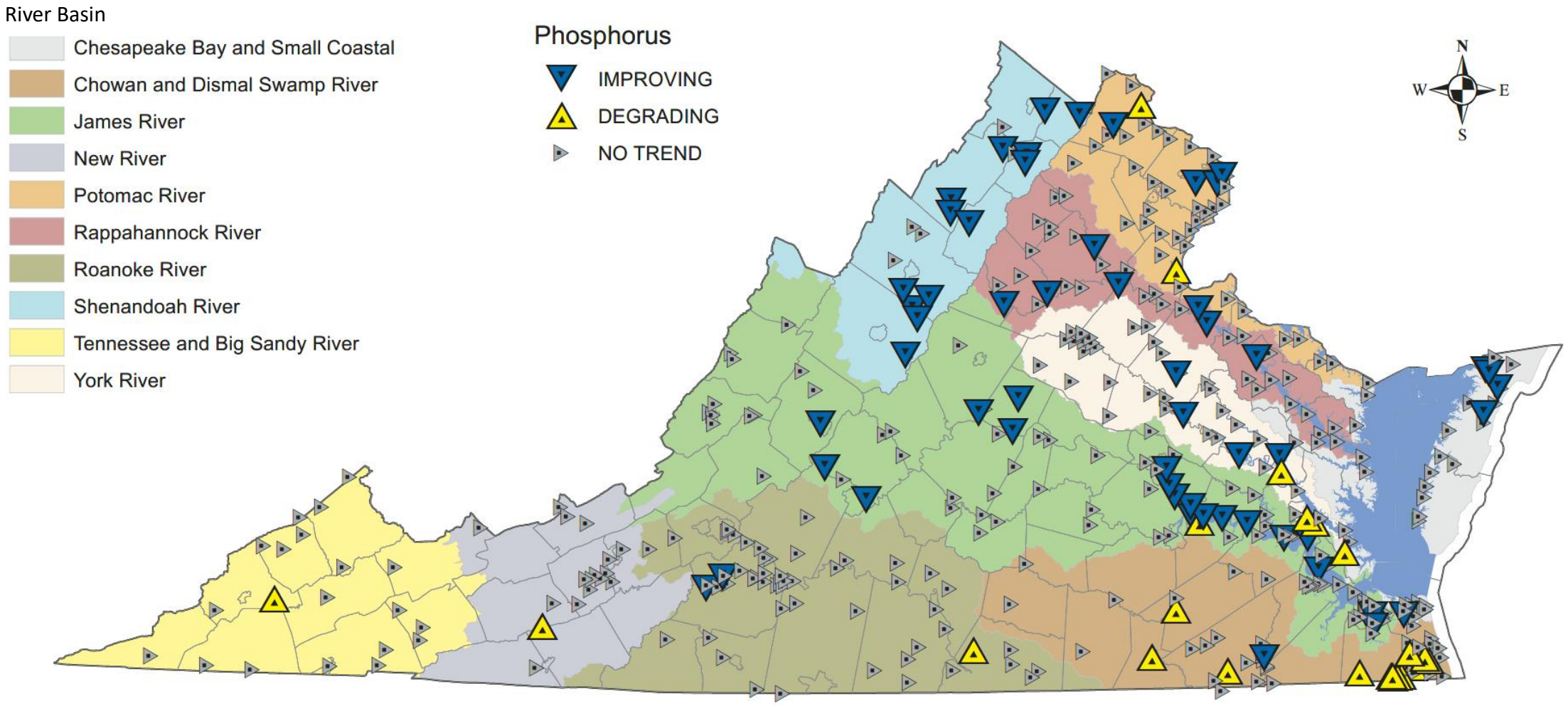
  Solids: Fixed solids, Suspended solids, Volatile solids, Turbidity

  Field Parameters: Temperature, Secchi Disk, Specific Conductance, DO, pH

Trend Analysis: Total Nitrogen



Trend Analysis: Total Phosphorus



Visualizing the 2024 IR data

- DEQ's Environmental Data Mapper: https://apps.deq.virginia.gov/EDM/
- EPA's How's My Waterway portal (once data is final): https://mywaterway.epa.gov/

2024 IR Public Comment

- Public comment period: April 22 – May 22, 2024
- Download Integrated Report via DEQ website: https://www.deq.virginia.gov/our-programs/water/water-quality/assessments/integrated-report
- Mapping application: https://apps.deq.virginia.gov/EDM/

Send comments to:

Sandra Mueller
DEQ-Water Monitoring and Assessment Program
P.O. Box 1105
Richmond, VA 23218-1105
deqecology@deq.virginia.gov