



# Roanoke River, Tinker Creek, and Wolf Creek TMDL Study

A water quality study for watersheds in the City of Roanoke, Roanoke County, and  
Botetourt County

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Aerin Portner

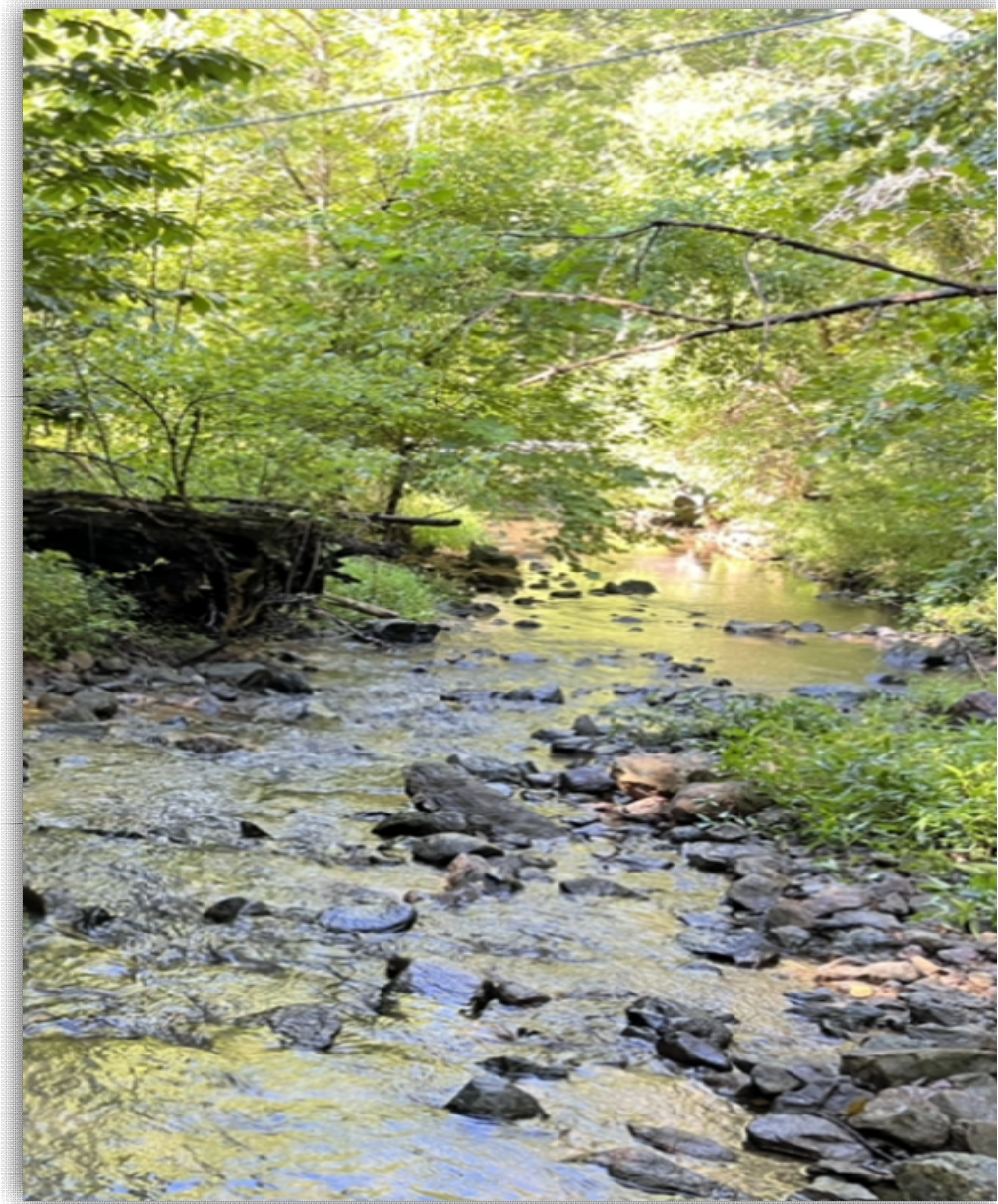
TMDL Coordinator

Virginia Department of Environmental Quality

April 2, 2025

# Agenda

- Welcome and Introductions
  - Opening Remarks / Introductions
  - Meeting Objectives
- Brief TMDL Development Review
  - Impairments
- Additional Sampling
  - Public Comments
  - Objectives
  - Invitation
- TAG Establishment
  - Public Comment Period
- Questions





# Background: Clean Water Act

“Section 303(d) of the Clean Water Act (CWA) requires states to identify waters that are impaired by pollution, even after application of pollution controls. For those waters, states must establish a total maximum daily load (TMDL) of pollutants to ensure that water quality standards can be attained. A TMDL is both a quantitative assessment of pollution sources and pollutant reductions needed to restore and protect U.S. waters and a planning process for attaining water quality standards.”

Library of Congress. Congressional Research Service. (n.d.). *Overview of the Clean Water Act and its major regulatory programs*. Retrieved from [https://www.congress.gov/crs\\_external\\_products/R/PDF/R42752/R42752.7.pdf](https://www.congress.gov/crs_external_products/R/PDF/R42752/R42752.7.pdf).



# Virginia's Water Quality Standards

- Water quality standards protect these six designated uses:
  - aquatic life
  - wildlife
  - fishing
  - shellfish
  - swimming
  - drinking water





# Virginia's Water Quality Process









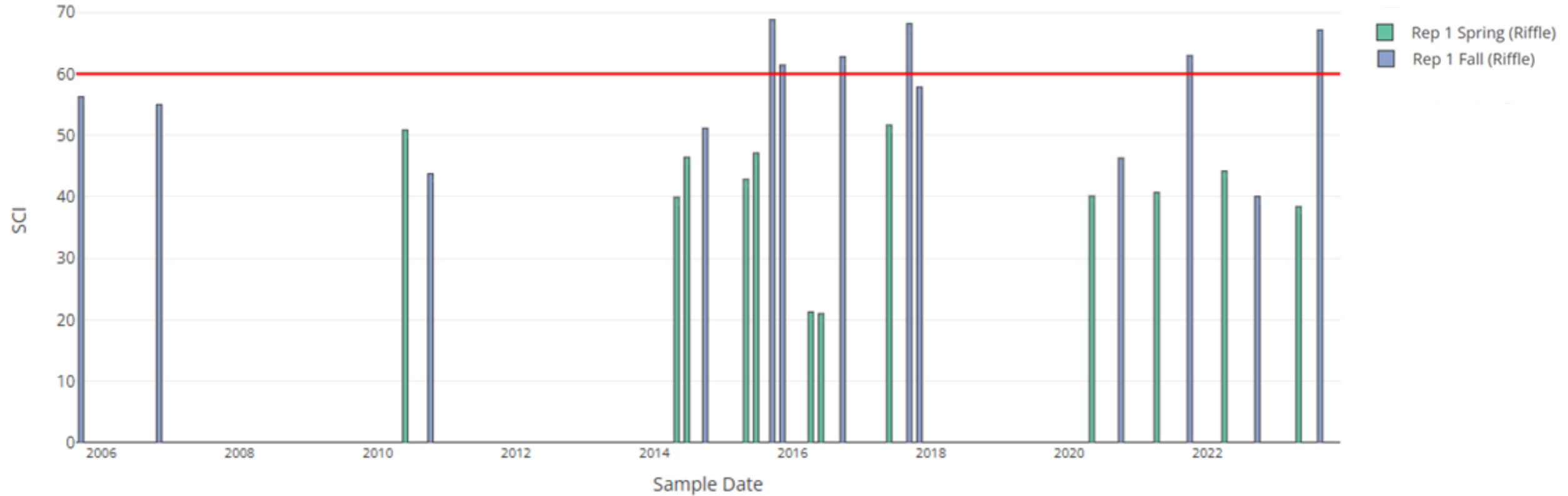


## Why Benthic Macroinvertebrates?

- Biological Indicators
- Vary in their sensitivity to or tolerance of pollution
  - Known pollution tolerance values (0-10)
  - Respond to changes in water quality
- Widespread, found in all aquatic environments
- Limited mobility; spend 1-3 years in the water as larvae or nymphs
- Biological monitoring gives a longer-term picture of water quality
- Accurately can be quantified and scored
  - Virginia Stream Condition Index (VSCI) score
  - Score of 60 out of 100

# Roanoke River Biomonitoring Data

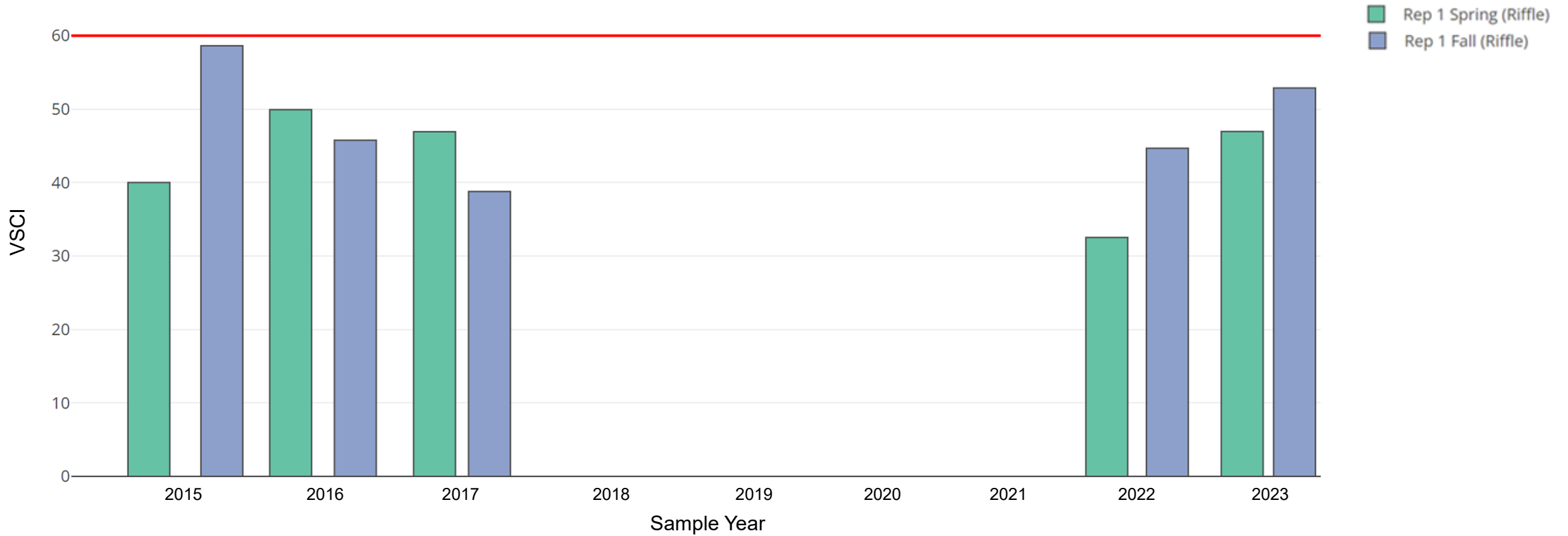
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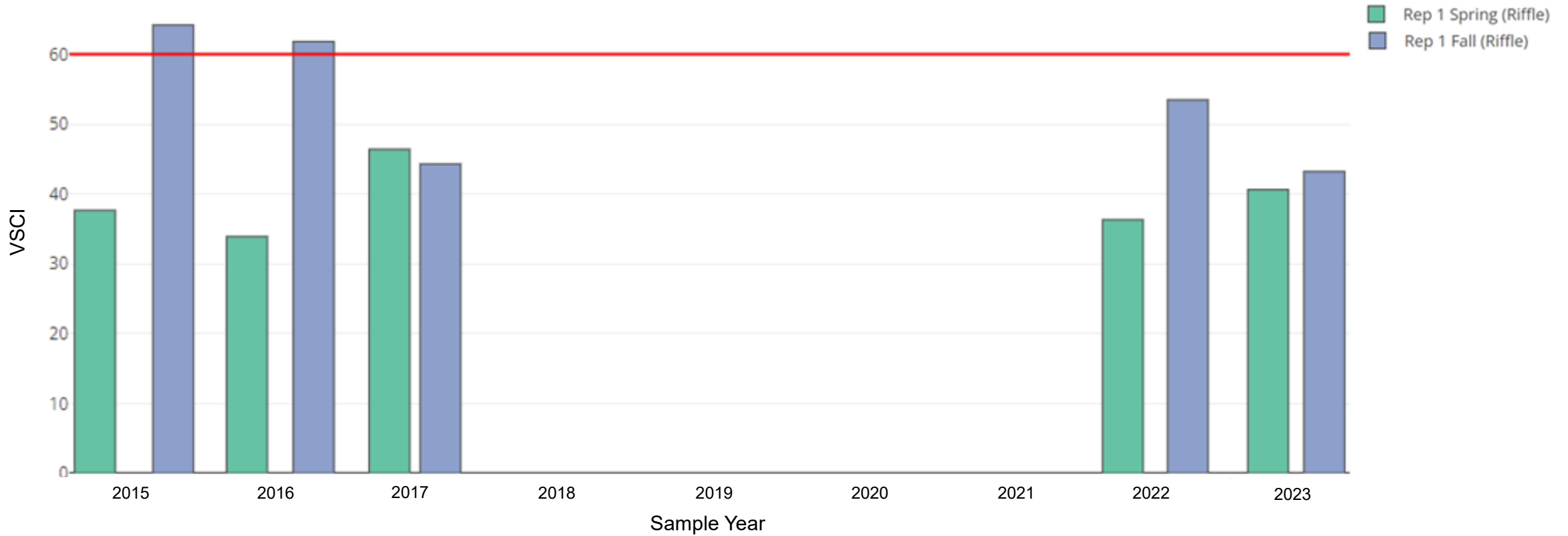
# Tinker Creek Biomonitoring Data

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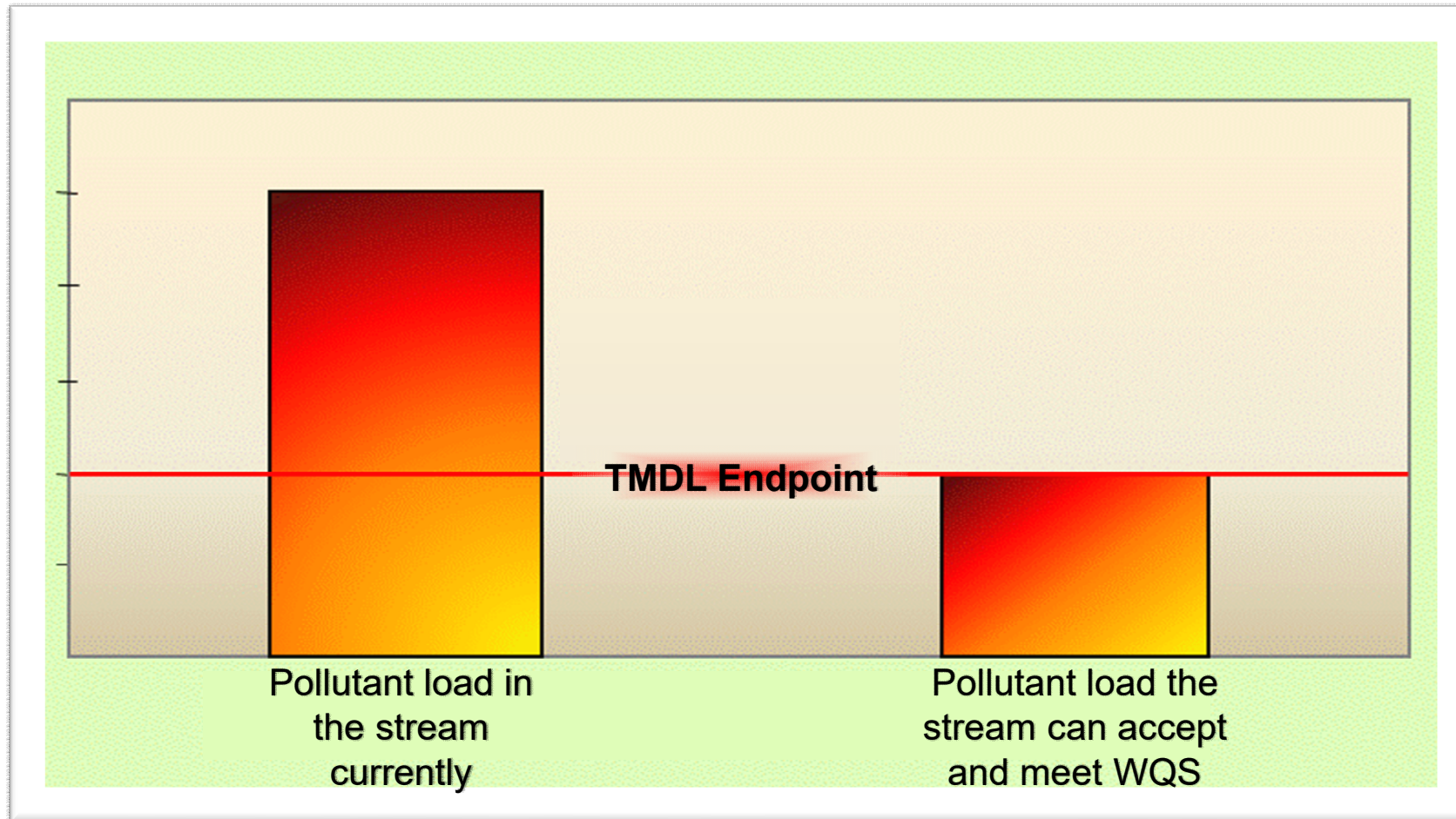


# Wolf Creek Biomonitoring Data

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# What is a TMDL?





# 2024 Draft Benthic Stressor Analysis Summary

Stream	Probable Stressors	TMDL Target
Wolf Creek	Sediment	Sediment
Tinker Creek	Sediment <del>Sediment PCBs</del>	Sediment
Roanoke River	Phosphorus Nitrogen <del>Sediment</del> <del>Niagara Dam</del>	Phosphorus Nitrogen

~~Red strikethrough~~ = TMDL already developed

~~Blue strikethrough~~ = TMDL can only be developed for pollutants

# Summary of Public Comments

We received >30 pages of public comments as well as multiple documents of supporting materials related to submitted comments.

These included suggestions for additional sampling and changes to study design. These included (but aren't limited to):

- Collect additional evidence for benthic stressor analysis
- Repeat algae biomass sampling
- Conduct more detailed algae analysis
- Conduct manipulative field experiments to remove dam influences and determine limiting nutrients
- Conduct additional water quality modeling
- Pursue and advanced restoration plan

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## 2025 Objectives

DEQ will be conducting additional sampling that will include:

- Repeated algae biomass sampling
- More detailed algae analysis (Algae speciation by the Academy of Natural Sciences of Drexel University, Patrick Center for Environmental Research)

DEQ will be updating the Draft Benthic Stressor Analysis with the additional data

## DEQ will be establishing a TMDL Advisory Group



# TMDL Advisory Group (TAG)

## TMDL Advisory Group (TAG)

- Set-up upon request
- Formal panel with approved membership that advises on TMDL plan development
  - Cross-section of stakeholders
  - Members commit to attend multiple meetings
  - Individual members may have an alternate (encouraged to attend)
- The public may attend as observers
- The goal of the group is balanced compromise and consensus



# What will that look like?

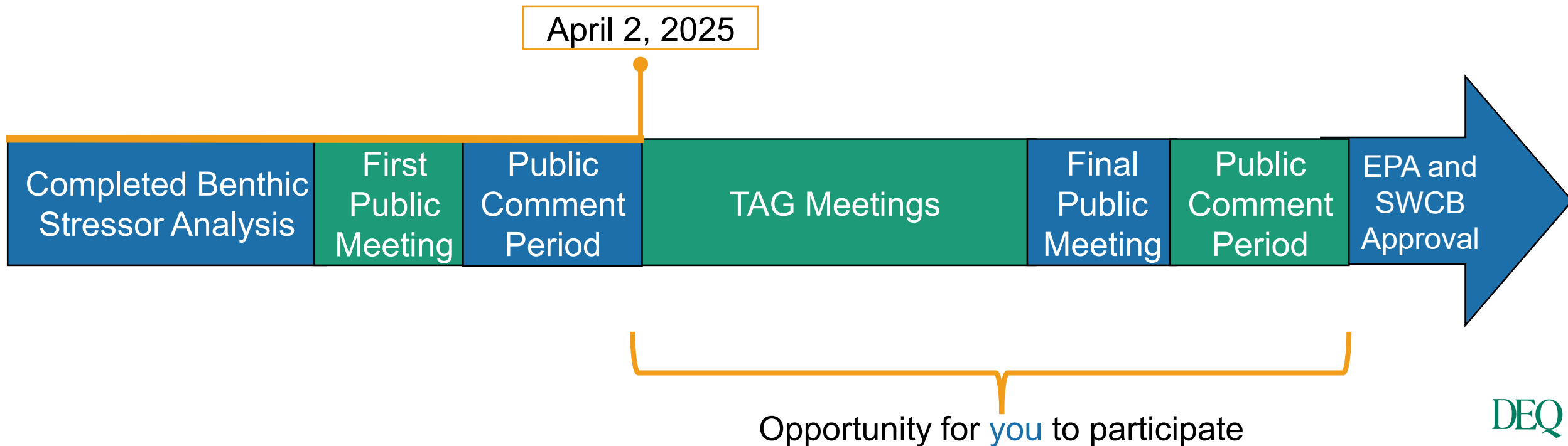
Public Comment  
Period / 30-Days to  
express interest in  
joining the TAG

Members will  
be notified  
that they are  
in the TAG

Members will be  
polled to determine  
preferences for the  
first TAG meeting

Meetings will likely occur  
between the summer of  
2025 though 2026,  
potentially 2027

# What happens next...





# Comments, Thoughts, & Questions



- + AIR
- WATER
  - + Chesapeake Bay
  - Water Quality
    - + Standards
    - + Monitoring
    - + Assessments
    - TMDL Development
      - Draft TMDLs
      - Approved TMDLs
      - **TMDLs Under Development**
        - PCB TMDLs

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## TMDLs Under Development

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Cleanup studies – also called TMDLs and TMDL alternatives – are best developed in collaboration with watershed residents, permittees and other interested stakeholders. Among many possible benefits, stakeholder input helps to ensure that cleanup plans are reasonable, realistic and reflect local insight. Public meetings and other advisory group meetings provide an opportunity for stakeholders to learn about the process and provide their input.

For information on PCB TMDLs under development, visit the PCB TMDLs [page](#).

Below are the current TMDL and TMDL alternative development projects underway. Meeting materials associated with each project are also included below.

### Resources

[Data and GIS Portal](#)

### Contacts

**Mark Richards**  
TMDL Team Lead  
(804) 659-1126

To express interest in joining the TAG:

[aerin.l.portner@deq.virginia.gov](mailto:aerin.l.portner@deq.virginia.gov)  
901 Russell Drive Salem, VA  
24153

The 30-day public comment period ends **May 2<sup>nd</sup>**

To learn more about TMDLs or access previous meeting materials, visit DEQ’s website: <https://www.deq.virginia.gov/our-programs/water/water-quality/tmdl-development>

