▶ Beyond 2025 Clean Water Team Steering Committee Symposium

February 28-29, 2024

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Agenda

Introduction and Scope

Approach of the Clean Water Team

Draft Set of Recommendations

Summary of Cross Cutting Considerations

Discussion

Clean Water (CW) Team Membership

Anna Killius, Chesapeake Bay Commission Beyond 2025 Steering Committee Co-Chair
KC Filippino, Water Quality Goal Implementation Team (GIT3) and STAC
Steve Williams, Delaware
Holly Walker, Delaware
Joe Wood, Water Quality Goal Implementation Team (GIT3) and STAC (CW Team Co-lead)
Bryant Thomas, Virginia
Evan Isaacson, At-large, Choose Clean Water Coalition
Lauren Townley, New York
Cassie Davis, New York
Lee McDonnell, EPA Chesapeake Bay Program Office (CW Team Co-lead)
Dave Montali, West Virginia
Peter Tango, STAR/USGS
Jill Whitcomb, Pennsylvania (CW Team Co-lead)
Kristen Wolf, Pennsylvania
Heidi Bonnaffon, Washington D.C., Enhance Partnering, Leadership, and Management Goal Implementation Team (GIT 6)
Kristen Fidler, Maryland
Eric Hughes, EPA Chesapeake Bay Program Office, Support Staff

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Bryant Thomas, Virginia

Evan Isaacson, At-large

Thank you!!

_____, West Virginia

Peter Tango, STAR/USGS

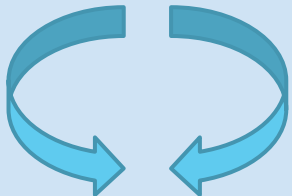**Jill Whitcomb**, Pennsylvania
(CW Team Co-lead)

Kristen Wolf, Pennsylvania

Heidi Bonnaffon, Washington D.C.,
Enhance Partnering, Leadership, and Management Goal Implementation Team (GIT 6)

Kristen Fidler, Maryland

Eric Hughes, EPA Chesapeake Bay Program Office, Support Staff

Introduction

- Reconsidering our accountability framework and how it influences implementation
- Empowering partners across the Chesapeake Bay watershed to identify and pursue effective solutions for achieving Chesapeake Bay Total Maximum Daily Load (TMDL) planning targets
- Effectively coordinating monitoring and restoration programs within and across the Chesapeake Bay Program partnership

Scope of the Clean Water Team – 5 Topic Areas

TMDL

Planning Targets

Accountability Framework

Modeling Updates

Progress Reporting and Milestones

Water Quality Assessment

Shallow Waters focus vs. Chesapeake Bay "deep channel" for Water Quality Standards Attainment

Nonpoint Source Management

Current and future restoration programs

Connecting local efforts with Chesapeake Bay goals and outcomes
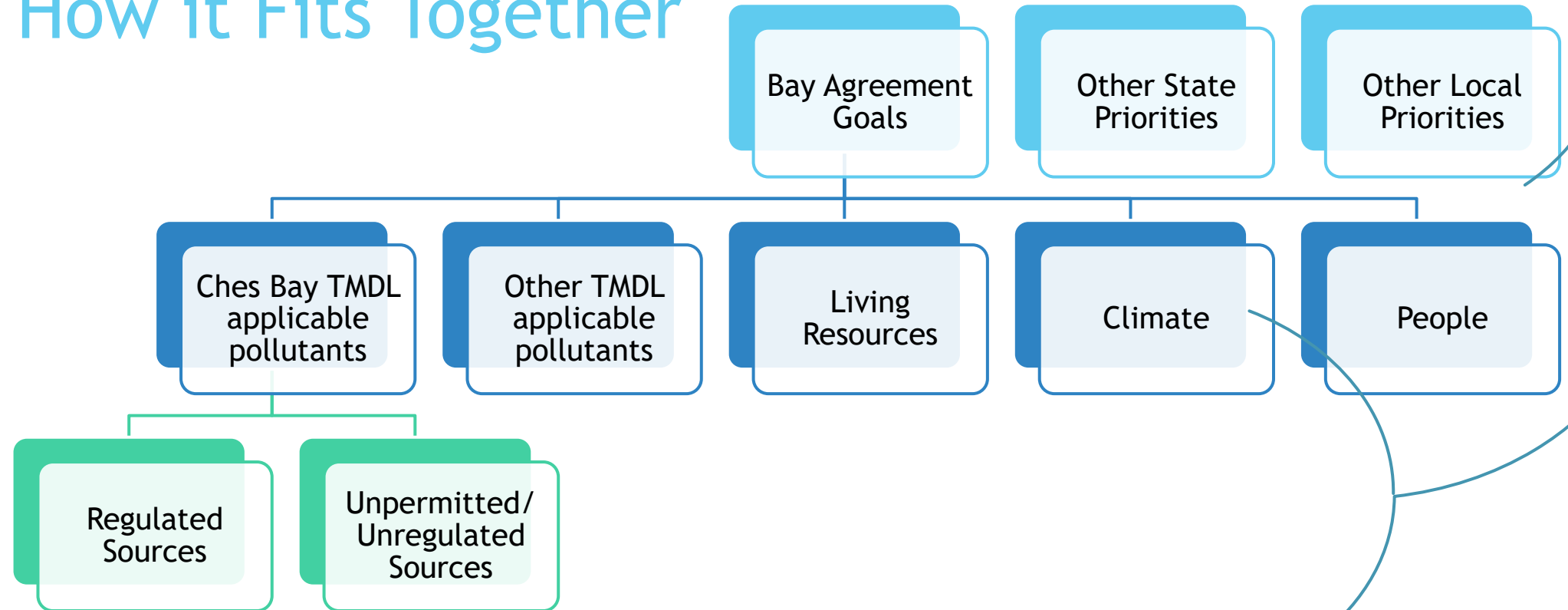
Water Quality Monitoring

Local water quality monitoring inclusion in Chesapeake Bay watershed

Trends analysis at local and non-tidal/tidal scales

Maintaining and growing water quality monitoring and assessment data collection to continuously inform decision-making

Water Quality Standards

Evaluation of current Water Quality Standards

Toxics and emerging contaminants

Scope of the Clean Water Team – How it Fits Together

- Bay Agreement Goals
- Other State Priorities
- Other Local Priorities

- Ches Bay TMDL applicable pollutants
  - Regulated Sources
  - Unpermitted/Unregulated Sources
- Other TMDL applicable pollutants
- Living Resources
- Climate
- People

Approach

- Clean Water Team met on November 8 to determine the 5 topic areas that would inform the scope of the recommendations.

- Based on the group discussion, Clean Water Team Co-Leads developed a set of "Framing Questions" for Subject Matter Experts (SMEs) to consider, as well as a list of documents to help inform the approach.

- Clean Water Team met with SMEs on November 30 to discuss their thoughts and ideas.
  - 15+ Subject Matter Experts were contacted. Most provided written responses and participated in the meeting, including those from USGS, EPA, and STAC CESR report authors

- Clean Water Team update was presented to the Water Quality Goal Implementation Team (WQGIT) on December 11, with feedback sought.

- Building on themes from the previous meetings, a preliminary discussion was held on January 3 regarding the recommendations, themes, priority initiatives, as well as follow up with SMEs for toxic contaminants (EPA) and living resources (UMCES).

- Clean Water Team update was presented to the WQGIT on January 22, with feedback sought.

Approach

- Clean Water Team met on January 25 to review and confirm four high-level recommendations. Two additional recommendations brought forth from the group were discussed as well.
  - Menti-Meter Polls were utilized to help gauge agreement amongst the group.
- Clean Water Co-Leads hosted a Chesapeake Bay Program (CBP) Listening Session, with approximately 90 attendees, on February 3 to review the five high-level recommendations.
  - Menti-Meter Polls were utilized to help gauge agreement amongst the attendees.
- With feedback from the Listening Session and from the previous four Clean Water Team meetings, the five recommendations were revised by the Clean Water Co-leads, with potential options for implementation and key questions to consider.
- Clean Water Team met for the fifth time on February 15 to discuss the proposed revisions and identify the Vision, Value, Vanguard throughout the recommendations.
- Clean Water Team update was presented to the Stakeholders Advisory Committee on February 22.
- Clean Water Team update was presented to the WQGIT on February 26.

Approach - SME Framing Questions
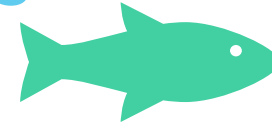
- **Water Quality Assessment**

  - How can / should other stressors in addition to total nitrogen, total phosphorus, and total suspended sediment be incorporated into the Water Quality Standards attainment?

    - Can we incorporate a biological condition gradient to non-tidal waters as part of evaluating progress toward bay goals using that local biological data?

  - What is the range of attainment (i.e. where, what percentage, and what criteria) of the current Chesapeake Bay Water Quality Standards that poses the greatest opportunity for living resource response?

  - What and where are shallow waters located and how have they been mapped?

    - How much of the adjacent watershed to the shallow waters is private and public lands?

Approach – SME Framing Questions

- **TMDL**
  - What are the quantifiable relationships between TMDL planning targets and shallow waters / living resource targets and can they be measured or modeled?
    - Can we identify receiving waters with the highest probability for improved near-term and with the richest set of living resources?
  - What does accountability look like in the future and how should it be measured?
    - How can the TMDL Planning Targets be reevaluated post-2025? What would be needed in order to accomplish the re-evaluation (e.g. new or revised modeling and monitoring tools, Phase 7 contemplation, etc.)?
    - Could we have a phased approach to planning targets that would incorporate far, near and immediate field targets? What would that look like?
    - Could we have different targets for shallow and deep channel, and/or for short-term and long-term to more clearly communicate and focus restoration? What would that look like?
    - What is the value of two-year milestone commitments and annual programmatic and numeric progress reporting? Can the reporting requirement and / or cycle be re-evaluated?
    - How can the partnership shift away from a hyper-focus on modeling that has little influence on implementation? Can we establish real-world (measurable) outcomes as a focal part of our evaluation process?
  - What is an acceptable approach to water quality standards assessment that promotes effective management, prioritizes most effective options, and provides opportunities for near term success?
    - What policies can be developed to identify and respond to regional drivers of water quality (e.g. population growth, mass balance issues in agricultural watersheds, etc.)?

Approach – SME Framing Questions

- **Nonpoint Source Management**

  - What can be done to better connect the Chesapeake Bay Program with EPA's Section 319 Program and jurisdictional Nonpoint Source Management Programs?

    - How can the partnership further connect local non-point source reduction efforts and focus areas (e.g., Effective Basins / Most Effective Basins, targeted watershed approach / rapid stream delisting, local Watershed Based Plans) with Chesapeake Bay goals and outcomes (e.g., measurable water quality improvements, habitat improvements)?

    - What can we do to further incentivize fine scale targeting that requires finer resolution than what is currently offered by Chesapeake Bay modeling tools?

    - The rate of modeled and measured non-point source load reductions progress has been very slow for reasons other than funding; what can the partnership do to accelerate these efforts?

    - What system-learning and innovation will lead to higher assurance in non-point restoration efforts?

    - What Best Management Practices (BMPs) are best suited to positively influence shallow water habitats?

  - How can the CESR recommendations regarding nonpoint sources and federal and state Nonpoint Source Management Programs be effectively integrated with an increased connection to measured outcomes?

    - What can we do to address substantive mass imbalance issues?

    - What can we do to improve our understanding of farm-scale nutrient dynamics?

Approach – SME Framing Questions

- **Water Quality Monitoring**

  - Can the Water Quality Monitoring Outcome in the Chesapeake Bay Watershed Agreement be recommended to be revised? What could that look like?

  - How can existing and future local or state monitoring networks be developed, evaluated, and / or leveraged to be included in future models?

    - How can local monitoring trends be compared to load change expectations under the TMDL with potential use in Watershed Implementation Plans (WIPs), progress evaluations, and / or milestones?

    - How can local and state monitoring networks be used for sandboxing, pay-for-performance, and / or other pilot programs to demonstrate water quality improvement?

    - How can water quality monitoring resources be used to promote learning about effectiveness of implementation?

    - How can citizen science be further integrated into the partnership's science-based decision-making?

Approach – SME Framing Questions

- **Water Quality Standards**

  - How could re-evaluation of the Water Quality Standards improve the effectiveness of our work?

    - What further recommendations for incorporation of toxics / emerging contaminants / temperature can be made (e.g., PFAS)?

    - Are the standards that are the focus of the current Chesapeake Bay Watershed Agreement the correct ones as we look to the future?

Chesapeake Bay TMDL – Accountability Framework

▶ **<u>Recommendation 1</u>**

Review and revise the accountability framework to improve our effectiveness, particularly in reducing nonpoint source pollution, and increase emphasis on measured outcomes and water quality data in our assessment of progress.

The Accountability Framework includes four key elements: 1) Jurisdictions' development of Watershed Implementation Plans (WIPs), 2) Jurisdictions' development of two-year milestones to demonstrate progress, 3) EPA's commitment to tracking and assessing progress, and 4) EPA's commitment to taking appropriate federal actions if jurisdictions fail to develop and implement WIPs or fulfill milestones. The Chesapeake Bay Program can review and revise the first three of the four framework components. The goal is to create space for jurisdictions to pursue opportunities that may improve water quality and living resource response but are not currently being incentivized when determining progress through the use of the Chesapeake Assessment Scenario Tool (CAST). Another primary objective is to identify resources needed to abide by the Accountability Framework and to effectively manage nonpoint sources of pollution.

For progress assessment, we recommend maintaining the use of CAST, but also incorporating multiple lines of evidence and additional measures of progress. Specifically, we recommend increasing emphasis on measured outcomes and water quality data in our assessment of progress.

Chesapeake Bay TMDL – Accountability Framework

▶ **<u>Recommendation 1</u>**

Potential Options for Implementation:

▶ Establish a new accountability framework that does not change the goals the partnership is accountable for but rather revises how we measure progress towards those goals. Specifically, shift evaluations of progress to have a stronger emphasis upon water quality monitoring and living resource-based outcomes. For instance:

  ▶ The WRTDS results highlighted in the Bay Indicator tools could play a key role in progress evaluations and by utilizing real water quality results it would create new opportunities for management and deemphasize attention from crediting.

  ▶ Our water quality goals target habitat improvements to support the life cycle needs of living resources, however, living resource response is not explicit. Implicitly, we expect from meeting those habitat targets we release living resources of primary stressors to achieving their carry capacity (I.e., if we are meeting requirements for survival, growth and reproduction, we should see measurable change in survivorship, abundances, distribution, growth rates, and reproductive capacity and outputs).

CESR on the "Accountability Framework"

▶ **Current CBP adaptive decision-making processes have limited capacity to effectively address the full range of questions required for effective water quality policy.** <mark>Effective water quality policy answers the following questions: (1) what is; (2) what if; and (3) what should be</mark>. The CBP has built a sophisticated adaptive decision-making process focused on TMDL implementation, the SRS, and an accounting process premised on the use of predictive, deterministic planning models. <mark>The current SRS process, TMDL accountability framework, monitoring program, and modeling are aimed toward answering questions 1 and 2.</mark> The existing analytical models and planning processes have limited capacities to systematically address the critical uncertainties and causes of the response gaps for these questions. **Current adaptive management processes have limited decision-making scope to address question 3.**

CESR on the "Accountability Framework"

▶ The water quality goal also adds an ==accountability framework==. However, the deterministic models providing single estimates of pollutant loads for all inputs, land uses, and ==management actions are not well suited for evaluating and addressing uncertainty==

▶ A formalized adaptive management approach currently exists: the SRS, complemented by the TMDL accountability framework. It is used to refine the existing implementation programs and accounting structure. However, ==the system does not provide adequate insights into potentially necessary policy changes at multiple levels ranging from devising new programs, rules, and accountability systems to making budgetary and funding decisions and revising goals.==

Chesapeake Bay TMDL – Tiered Approach

▶ **Recommendation 2**

Since the Chesapeake Bay Total Maximum Daily Load (TMDL) was developed to achieve attainment of tidal water quality standards for 92 segments, identify a tiered implementation approach recognizing pollutant reductions are needed throughout the watershed and can be phased over time consistent with state/regional workplans and resources. This approach will align with state and/or local water quality priorities, anticipated habitat, living resource, and watershed responses, cost effectiveness, and climate resiliency.

Chesapeake Bay TMDL – Tiered Approach

- ## **Recommendation 2**

Potential Options for Implementation:

- Develop a framework where those areas that would net the greatest living resource response would be viewed as a priority or "tier", with the Chesapeake Bay TMDL Planning Targets as a secondary or tertiary priority. For instance, the living resource, human well-being, and future climate resiliency associated with these priority "tier 1" areas would be measured through biotic, water quality, and programmatic results.

- Investigate and develop a method that allows for multiple planning goals in tidal waters that satisfy all water quality criteria so they may be achieved in a step-wise manner (deep water/deep channel is currently the hardest to achieve, plan for LR responses as DWDC achievement is pursued). Specifically engage the partnership in prioritizing Bay TMDL applicable tidal waters attainment and develop near term goals (5-10 years?) for associated load reductions from the entire watershed while maintaining longer-term pollution reduction targets for attainment of all tidal bay waters.

CESR on the "Tiered Approach"

▶ Page 82: Currently the overriding approach driving water quality management is planning and implementing practices to reach the pollution targets for N, P, and sediment, which would meet WQS in all habitats, in all 92 segments. The current focus is on achieving criteria in the deep water habitats, with the assumption that attainment there will be the most difficult to achieve. The CBP could consider where pollutant reductions should occur first to accelerate the potential for living resource improvements.

▶ Tiered attainment of the TMDL and WQS based on critical habitats (such as shallow and open waters) or locations could provide early and more substantial living resource benefits and still contribute to baywide water quality improvements. Chapter 5 established living resource response likely varies by the location and timing of water quality improvement, so response could potentially be accelerated by prioritizing water quality improvement efforts in critical habitats. The implication is that with a focus on shallow and open water habitats full attainment of the WQS (including the deep water habitats) in the near future may not be necessary to achieve significant potential gains in living resource response.

▶ There are several approaches to prioritizing TMDL implementation and water quality attainment. The following list is illustrative, but not comprehensive. Achievement of TMDL targets could be prioritized according to location (segments) or habitat type for most living resources. Establishing different deadlines and staggered TMDL pollutant reduction targets may focus implementation efforts in areas projected to have the largest potential for improving living resource conditions. Granting temporary or permanent variances for segments or habitats where achievement is technically infeasible or exceptionally costly could allow resources to be shifted to areas where attainment is possible and with a higher living resource impact.

▶ It should be stressed, however, that the CBP has devoted limited analytical effort to inform such policy discussions about ecosystem living resource responses to TMDL pollutant management (Hood et al., 2021). Additional investment in analytical capabilities and models could make important contributions to a tiered or prioritized approach to the TMDL (for more details, see the discussion of analytical tools in section 6.6 and Rose et al. [2023]).
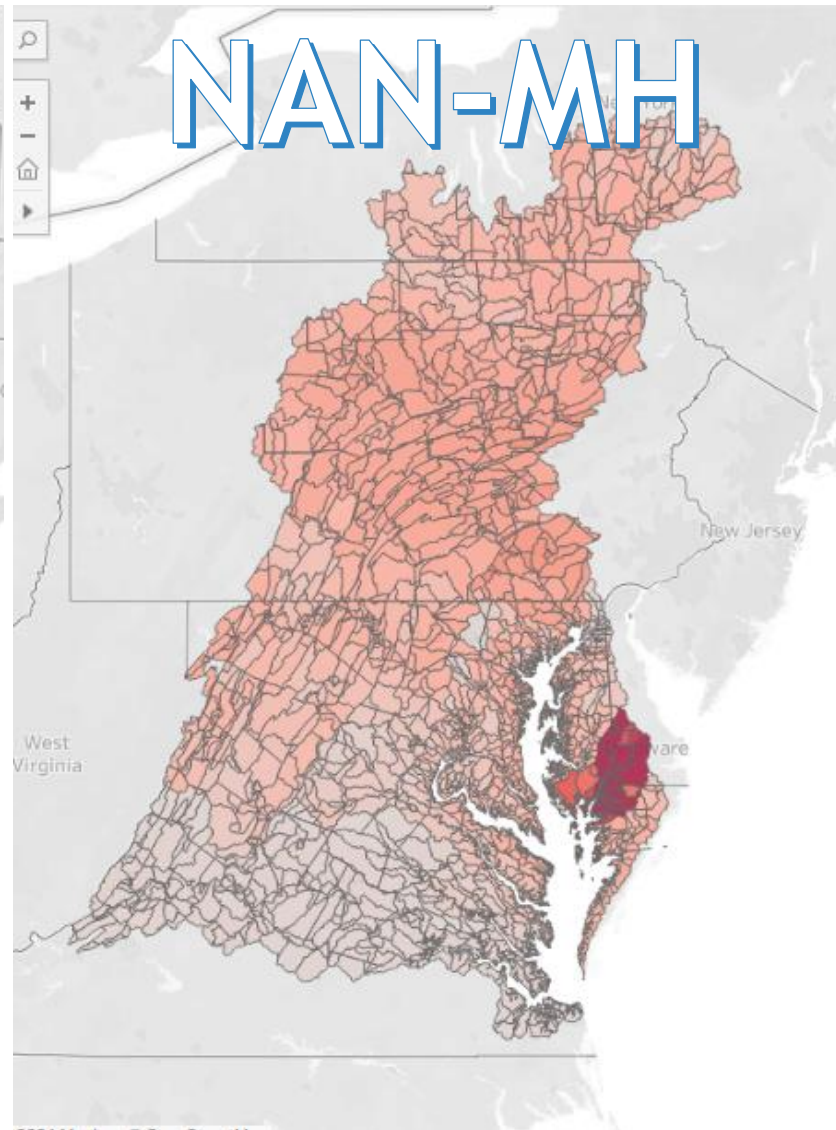
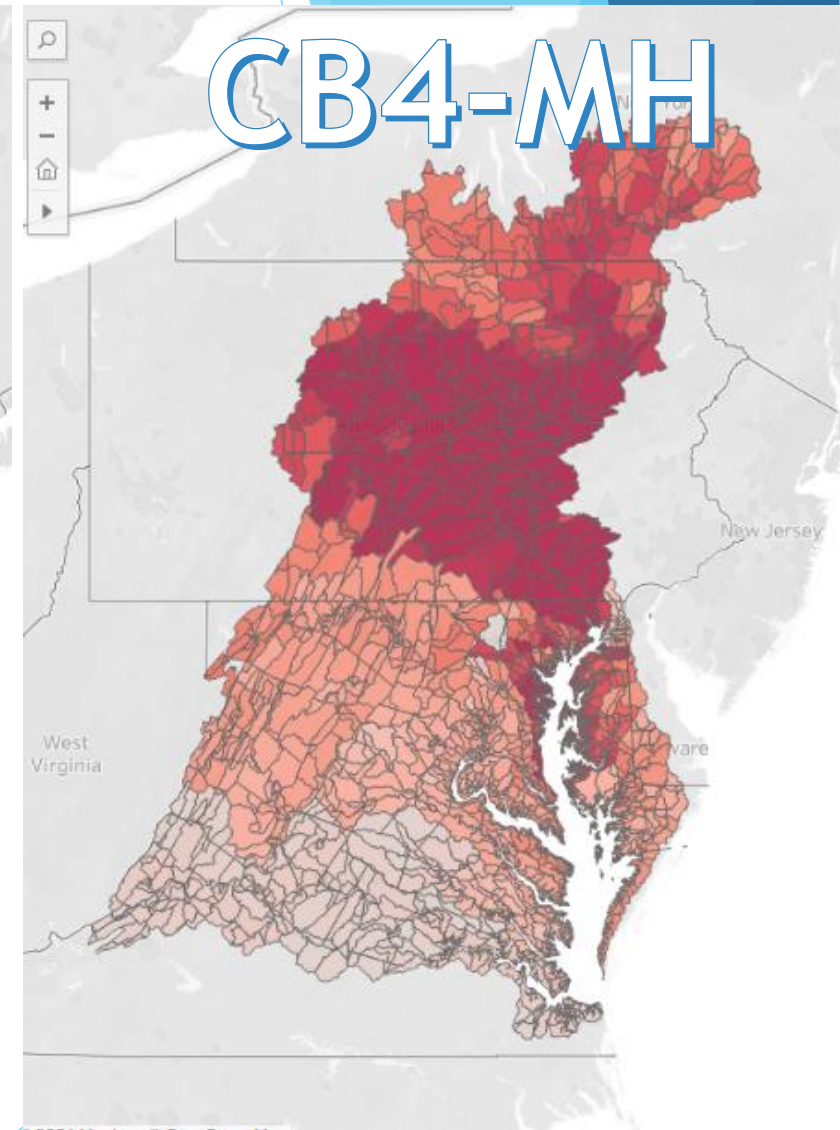https://gis.chesapeakebay.net/modeling/geoisoruns/
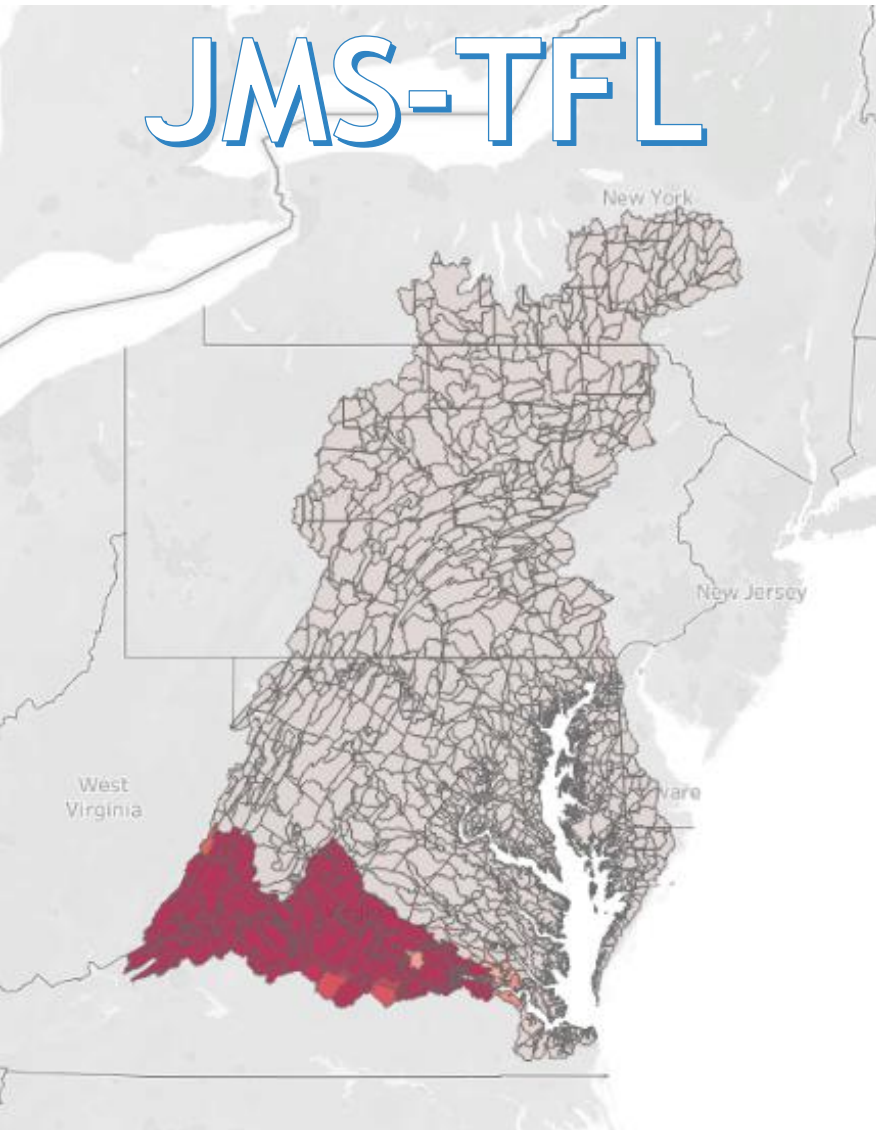
Water Quality Monitoring and Water Quality Assessments

▶ **Recommendation 3**

Establish and promote effective cross-program coordination for water quality monitoring to inform watershed health, and water quality restoration programs focusing on data-driven decision-making. Promote the use of state and local monitoring and assessment for incorporation into program goals, as appropriate, which may include learning, status and trends analyses, and evaluation of meeting water quality and living resource goals.

Water Quality Monitoring and Water Quality Assessments

- **Recommendation 3**

Potential Options for Implementation:

- Investigate the current coordination strategy between the multi-layered water quality monitoring programs at the local, state, and federal levels.

- Identify case studies that demonstrate significant coordination between local, state, and federal coordination.

- Make community science an integral part of the partnership reporting and evaluation process and encourage greater community science engagement.

- Recognize the value of diverse indicators to inform management effectiveness.

Nonpoint Source Management

- **<u>Recommendation 4</u>**

Provide opportunities to increase nonpoint source implementation and incentivize effective and innovative nonpoint source management across all sectors. Demonstrate measurable ecosystem responses, target and empower small-scale watershed restoration that addresses the needs of the community, and promote outcome-based efforts. Address known challenges associated with nutrient mass imbalances to include fertilizers and unknown sources.

Nonpoint Source Management

▶ **<u>Recommendation 4</u>**

Potential Options for Implementation:

▶ Incentivize approaches to small-scale watershed restoration through providing funding and staff resources, targeted and enhanced water quality monitoring (Next Generation / Super Gauge Stations), and communicating importance of these efforts through the social science lens through use of demonstration sites, workshops, etc.

▶ Identify and support partnership endorsed approach to tracking mass imbalances. A variety of options are available to address these imbalances, including implementing technologies that reduce nutrient inputs, improving manure distribution (from surplus to deficit areas), and exporting nutrients from the watershed.

▶ Include assessment of mass imbalances as a part of the accountability framework. To the extent there are new or revised WIPs, mass imbalances could be a required element of the WIP: (1) identification of watershed; (2) identification of known sources; (3) address any uncertainties regarding potential sources; (4) identification of existing and potential policies (nutrient input policies, other BMPs, export programs); and (5) adaptive management plan to provide reasonable assurance.

Nonpoint Source Management

▶ **Recommendation 5**

Identify opportunities to expand on existing local liaisons programs that connect, empower, and inform the federal, state, and local partners to grow awareness, educate, provide administrative and technical assistance, and increase implementation efforts across the watershed.

Nonpoint Source Management

▶ **Recommendation 5**

Potential Options for Implementation:

▶ Identify and evaluate existing networks within and outside of the Chesapeake Bay Program partnership.

▶ Incentivize, through funding, opportunities to leverage and expand on programs, connecting localities with needed resources to improve fiscal health while advancing restoration initiatives.

▶ Engage local communities in volunteer opportunities for stewardship activities to accomplish implementation goals.

▶ Co-produce assistance tools to maximize their local utility and application complementing regional management needs.

▶ Ensure long-term institutional knowledge capacity within the public service sector recognizing short and long-term turnover within a skilled workforce.

▶ Develop and modernize staff capacities with education and training support to address changing workforce requirements through time supporting science, management and policy advances, understanding and implementation activities.

▶ Subsidize actions fostering local benefits embedded in the fabric of state, federal, and regional implementation needs and efforts.

▶ Foster social equity with equal opportunities to resources and assets across socio-economic and cultural landscapes of the region.

▶ Develop or expand on a network of networks to connect small watershed groups throughout the Bay and share best practices.

▶ Identify successful small watershed groups, what's working, what's not, how can successful programs be replicated throughout the watershed?

▶ Map organizational capacity of small watershed groups/interventions that improve watershed health.

Summary of Cross-Cutting Considerations

- All recommendations connect with climate, people, and living resources.

- Chesapeake Bay Watershed Agreement:

  - While the Clean Water Team was focused primarily on the Water Quality Goal, the five recommendations link with other Goals within the Agreement – Sustainable Fisheries, Vital Habitats, Stewardship, Land Conservation, Climate Resiliency, and Environmental Literacy.

Group Discussion