



Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE
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Hon. Terry McAuliffe, Chair
Chesapeake Bay Partnership Executive Council

Dear Governor McAuliffe and Distinguished Members of the Executive Council,

Your independent Scientific and Technical Advisory Committee (STAC) is committed to providing you with scientific guidance in your efforts to restore and sustain the water quality and living resources of the Chesapeake Bay. With our 38 independent scientists, who volunteer their time, from over a dozen universities, scientific organizations, and agencies across the entire 64,000 square mile watershed, we welcome the opportunity to provide our scientific and technical expertise and to connect you to the best available information in the scientific community.

Last year volunteer STAC members contributed time and effort equivalent to over \$214,000 and conducted two reviews and seven workshops in support of the Chesapeake Bay Partnership. This coming year promises to be even more active with a planned workload of seven reviews and seven workshops. There are a number of key upcoming and emerging issues that STAC would like to relay. Below is a short description and STAC would be happy to brief you and your principal staff in more detail on any of these topics.

Key upcoming issues to prepare for

1. There will be a need for increased support of on-the-ground and in-the-water observation-based assessments of the performance of publicly funded as well as other activities initiated throughout the watershed. This is absolutely necessary for accountability, transparency, evaluation of management action efficacy, and guidance for improving effectiveness. We want to avoid supporting an activity for decades with no measurable result.
2. There will likely be a continuing increase in livestock production in the watershed and the associated issues of manure management and nitrogen and phosphorus inputs to our waterways. Over past decades we have concentrated on methods that intercept nutrients in runoff before they reach our waterways but there is a need, and an opportunity, for

innovative business approaches that market or re-purpose manure produced in the watershed in a sustainable manner.

3. There is a need to ensure economic efficiency and adaptation in restoration efforts to avoid those activities that are doomed to fail due to changing climate such as sea level rise and shifts in precipitation patterns. It is vitally important to assess how future changes may affect the sustainability of restoration activities prior to committing implementation funds.
4. As well-meaning and technically effective as many restoration activities may be, without the public's interest and support, they will be difficult to sustain. Understanding how people make choices and the motivation behind human behavior is critical. There is a need for increased focus on the science of behavioral economics. Prevention is almost always more economical than restoration.

Key overarching issues for you to be aware of

1. There is a need for vigilance in regard to contaminants of emerging concern such as microplastics and endocrine disruptors. Adequate resources to investigate and inform the public regarding the risk of contaminants should be allocated.
2. Partnerships between academia, government, and industry similar to the science review effort for the Conowingo Dam, have proven effective and efficient. Collaborative efforts such as the multi-state/multi-institution Chesapeake Research Consortium should be supported and expanded to make efficient use of resources.

As always, STAC is available to bring together subject area experts to brief you and your staff on any of these or other Bay-related topics as needed.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'KH', with a long horizontal line extending to the right.

Kirk Havens

Chair, Chesapeake Bay Program's Scientific and Technical Advisory Committee

Summary of this year STAC activities and anticipated next year efforts.

Reviews

- Review of the Lower Susquehanna River Watershed Assessment
- Review of the Final Report of the Sustainable Fisheries Goal Implementation Team Invasive Catfish Task Force

Workshops

- Management Effects on Water Quality Status and Trends
- The Peculiarities of Pervious Cover: A Research Synthesis on Allocating Pollutant Loads to Urban Land Uses in the Chesapeake Bay
- Designing Sustainable Stream Restoration Projects within the Chesapeake Bay Watershed
- Exploring Applications of Behavioral Economics Research to Environmental Policy-making in the Chesapeake Bay Watershed
- Re-plumbing the Chesapeake Watershed: Improving Roadside Ditch Management to Meet TMDL Water Quality Goals
- Assessing the Chesapeake Bay Forage Base: Existing Data and Research Priorities
- Innovative Monitoring Approaches

Future Activities

Reviews

- 2015 Chesapeake Bay Criteria
- Proposed revised James River chlorophyll *a* water quality criteria
- Application of WRTDS to watershed Water Quality trend analysis and explanations and General Additive Models (GAMs) to estuarine WQ trend analysis and explanations
- Chesapeake Bay Scenario Builder
- Phase 6 Chesapeake Bay Watershed Model
- Chesapeake Bay Water Quality/Sediment Transport Model (WQSTM)
- Approach being taken to factor climate change considerations into the 2017 Chesapeake Bay TMDL Midpoint Assessment

Workshops

- Accessing Uncertainty in the CBP Modeling System
- Conowingo Infill Influence on Chesapeake Water Quality
- The Development of Standardized Climate Projections for Use in Chesapeake Bay Program Assessments
- Comparison of Shallow Water Models for Use in Supporting Chesapeake Bay Management Decision-making
- Optimization for Enhancing Capacity to Support the Chesapeake Agreement Outcome through Increased Integration of Regional Science and Management Efforts
- TMDL Implementation Planning
- Integrating and Leveraging Monitoring Networks to Support the Assessment of Outcomes in the New Bay Agreement