



**Chesapeake Bay Program**  
**SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE**  
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July 23, 2018

Hon. Larry Hogan, Chair  
Chesapeake Bay Partnership Executive Council  
Maryland Office of the Governor  
100 State Circle  
Annapolis, Maryland 21401-1925

Dear Governor Hogan and Distinguished Members of the Executive Council,

The Chesapeake Bay Program (CBP) partnership is globally recognized as a model for the management and restoration of large aquatic ecosystems. The Scientific and Technical Advisory Committee (STAC) welcomes the opportunity to serve the partnership by advising it on critical aspects of Bay conservation and restoration. STAC is a network of experts – volunteer scientists from academic institutions and public agencies – representing all major jurisdictions in the Chesapeake Bay watershed. STAC is a vital element of the partnership’s commitment to developing evidence-based policy and implementing effective management.

The expertise provided by STAC to the partnership is a good value. Last year, STAC members volunteered some 4,000 hours (valued at roughly \$300,000). STAC routinely bridges political boundaries and engages other scientists throughout the region and from across the country who also offer their time and expertise to bring the best available science to the partnership. In the past year, much of STAC’s efforts have been directed towards scientific peer reviews associated with the partnership’s TMDL Midpoint Assessment. A list of STAC’s specific activities and products from this past year is provided as an attachment to this letter.

The continuing evolution of the Chesapeake Bay Watershed Model and the incorporation of climate change considerations in developing TMDL goals are two specific examples of how STAC has supported efforts to advance the Bay’s restoration and improve the health of its tributaries. Through various workshops and scientific reviews of these management tools (via independent panels of experts), STAC has highlighted the importance of using multiple models to evaluate risk and thus advance the outcomes of TMDL-based watershed management. The Phase 6 Chesapeake Bay Watershed Model, which the partnership adopted in early 2018, incorporates many of STAC’s recommendations.

In addition, for nearly a decade, STAC has encouraged the partnership to consider the effects of climate change on water quality and ecosystem health, and to ensure that restoration successes continue as we move forward. While many of STAC’s recommendations in this regard have been adopted, more work is needed if we are to assure long-term resilience of the Bay. Specifically, better understanding, predictive tools, and adaptive approaches are still needed in order to respond effectively to existing and future climate-related threats.

In 2018, STAC will initiate a new “science synthesis” effort to support critical needs identified in consultation with the CBP. On topics of key importance to the Bay, STAC will assemble teams of experienced researchers to summarize the state of knowledge, identify gaps in current understanding, and help point the way forward in applying new scientific understanding to management efforts. The first topic to be pursued is climate change, chosen in response to the expressed concerns of the Bay partnership during the Principals’ Staff Committee meeting in March 2018 and in acknowledgement of the importance of improved understanding of climate science. The specific focus of this initial effort will be to develop a framework for incorporating climate change impacts in the Phase III Watershed Implementation Plans.

Further, STAC understands that restoring the Bay is providing major benefits throughout the entire watershed, including promoting economic development and protecting human health. To that end, STAC continues to explore how best to quantify supplemental or “co-benefits” that are produced in the process of implementing best management practices for nutrient and sediment reduction. These co-benefits come in the form of reduced flood risk, improved seafood quality and quantity, improved water clarity, and enhanced recreational use of local waterways, to name a few. STAC is committed to working with the partnership to apply the best available science to enable decision makers to meet multiple beneficial outcomes while reducing TMDL implementation costs.

Especially encouraging in the past year has been the accumulating evidence that the Chesapeake Bay restoration effort is bearing fruit. We are seeing improved aquatic habitat, increased fish and crab abundance, and increased prevalence of seagrasses. These successes validate the sustained commitment and persistence of the Bay partnership over more than three decades, aided by the dedication and commitment of Mr. Richard Batiuk. Mr. Batiuk, who is retiring this summer, has been a long-time champion for the application of quality science to inform management decisions. Moreover, he has excelled at communicating the importance of science-informed management, across the Bay watershed, nationally, and globally. A steady commitment to engaging dedicated individuals in this role will be of vital importance to the continued success of our collective efforts.

STAC thanks the partnership for its ongoing commitment to using scientific evidence to design and implement effective management of this valuable ecosystem and its watershed. STAC looks forward to working with you, the Executive Council, and the rest of the partnership to continue to apply independent science to effectively restore and conserve the Chesapeake Bay for the benefit of its myriad stakeholders.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Brian Benham". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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

Attachment

## **Summary of STAC Activities June 2017 – July 2018**

### *Independent Scientific Peer Reviews Requested by Chesapeake Bay Program (4)*

- Proposed revised James River Chlorophyll a Water Quality Criteria
- 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

### *STAC-sponsored Scientific and Technical Workshops (6)*

- Monitoring and Assessing Impacts of Changes in Weather Patterns and Extreme Events on BMP Siting and Design
- Consideration of BMP Performance Uncertainty in Chesapeake Bay Program Implementation
- Integrating Recent Findings to Explain Water Quality Change: Support for the Mid-Point Assessment and Beyond
- Chesapeake Bay Program Modeling in 2025 and Beyond: A Proactive Visioning Workshop
- Factors Influencing Fish Habitat Function in the Chesapeake Bay Watershed: Application to Restoration and Management Decisions
- Revisiting Coastal Land-Water Interactions: The 'Triplet' Connection

## **Planned Activities August 2018 – June 2019**

### *STAC-sponsored Scientific and Technical Workshops (5)*

- Chesapeake Bay Program Climate Change Modeling 2.0
- Establishment of Multifunctional Riparian Barriers: How do we accelerate the path to 95,000+ acres with the greatest economic, social, and environmental impact?
- Assessing the Environment in Outcome Units (AEIOU): Using Eutrophying Units for Management
- Microplastics in the Chesapeake Bay and its Watershed: State of the Knowledge, Data Gaps, and Relationship to Management Goals
- Integrating Science and Developing Approaches to Inform Management for Contaminants of Concern in Agricultural Settings

## **Reports Published by STAC June 2017 – July 2018 (9)**

### ***Links to reports are available on STAC's website at [chesapeake.org/stac](http://chesapeake.org/stac)***

- "Cracking the WIP": Designing an Optimization Engine to Guide Efficient Bay Implementation
- STAC Criteria Addendum Review: Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries: 2017 Technical Addendum
- Scientific and Technical Advisory Committee Peer Review of *Revised* James River Chlorophyll-a Criteria and Assessment
- STAC Chesapeake Bay Watershed Model Phase 6 Review
- Quantifying Ecosystem Services and Co-Benefits of Nutrient and Sediment Pollutant Reducing BMPs
- STAC Review of the Chesapeake Bay Program Partnership's Climate Change Assessment Framework and Programmatic Integration and Response Efforts
- STAC: Chesapeake Bay Water Quality and Sediment Transport Model (WQSTM) Review
- Consideration of BMP Performance Uncertainty in Chesapeake Bay Program Implementation
- Monitoring and Assessing Impacts of Changes in Weather Patterns and Extreme Events on BMP Siting and Design