Integrating Science on Watershed and Estuarine Change: Support for the Mid-Point Assessment and Beyond

STAC Responsive Workshop Proposal
February 1, 2017

Requested by:

Scientific Technical Assessment and Reporting (STAR) team

Workshop Steering Committee

Joel Blomquist, U.S. Geological Survey (workshop co-lead)
Jeni Keisman, U.S. Geological Survey (workshop co-lead)
JK Bohlke, U.S. Geological Survey [STAC Rep – Confirmed]
Bill Dennison. University of Maryland Center for Environmental Science [STAC Rep – Confirmed]
Carl Friedrichs, Virginia Institute of Marine Science [STAC Rep – Confirmed]
Rebecca Murphy, University of Maryland Center for Environmental Science
Scott Phillips, U.S. Geological Survey
Jeremy Testa, University of Maryland Center for Environmental Science
Donald Weller, Smithsonian Environmental Research Center
Water-Quality Manager to be selected

Need and Description of Workshop:

Several intensive efforts are underway to better explain water-quality and submerged aquatic vegetation (SAV) trends in the Chesapeake ecosystem to support the Midpoint Assessment (MPA) of the Bay TMDL. Major efforts to explain the changes of monitoring results include studies of nutrients and sediment in the watershed and syntheses of estuarine changes including water quality and standards attainment, water clarity changes, and factors affecting SAV. The volume and complexity of emerging insights from these efforts creates a challenge for the Chesapeake Bay management community to assimilate into their decision-making processes. In addition, the science community needs to collectively reflect on these insights in order to further advance the understanding of watershed impacts on estuarine conditions. To accomplish these goals, the CBP needs a focused, intensive effort to communicate and integrate findings from different science efforts to inform development and execution of the Phase III Watershed Implementation Plans.

The proposed STAC workshop will provide the mechanism for having focused interchange between the scientists leading the efforts to explain water-quality change and with the managers who need to utilize and apply the results. The goals of the workshop are to:

- Review key findings from science efforts to explain change, to advance the long-term strategy to understand the ecosystems' response to watershed changes.
- Identify key findings supporting the MPA and the development of the Phase III WIPs.
- Identify future research directions in light of the most pressing science needs of water quality managers.

The workshop format will include:
1. Presentations from the major science efforts to explain trends
2. Discussion between scientists and managers of the implications, and potential application, to development and execution of the Phase III WIPs
3. Facilitated discussion on the most pressing science needs to support management actions for Chesapeake restoration.

Urgency of the Workshop:

The proposed timing of the workshop (late Fall, 2017) balances the need to include insights on explaining trends in water quality that are emerging in 2017, with the need to communicate those insights for the MPA and associated development of the Phase III WIPs (which are due in 2018) The insights on monitoring trends will help also inform implementation management practices (BMPs) from 2018 through 2025.

Understanding the factors affecting observed trends in water quality is critical to effective implementation of management practices for restoring water quality in Chesapeake Bay. In 2014, a STAC workshop - "Estimating Land Management Effects on Water Quality Status and Trends (MEOWQT)" – was held to examine the state of the science on explaining trends in water quality, and to discuss scientific strategies to inform management questions for the TMDL Mid-Point Assessment. Since then, a number of the recommendations outlined in the MEOWQT Workshop report have been implemented and new insights on factors affecting water-quality trends in the Chesapeake Bay Watershed and Estuary are emerging. This workshop is needed to communicate and apply the findings in a focused setting.

Questions to be Addressed During the Workshop

1. What are the key findings that have emerged from recent efforts to explain changes in nutrients and sediment in the Chesapeake Bay Watershed?
2. What key findings have emerged from recent efforts to explain measured changes in estuarine conditions and to link them to patterns in inputs from watershed?
3. Which of the findings will best inform the jurisdictions to prepare their Phase III WIPs?
4. What are some of the highest priority science needs that have to be addressed beyond the MPA?

Workshop Outcomes

The steering committee will work with workshop presenters to complete a summary workshop report that compiles the selected findings from the water-quality efforts that are of most interest to water-quality managers. The report will also summarize science needs to be considered beyond the MPA.

Targeted Workshop Participants

This workshop will involve the lead investigators studying nutrients and sediment in the watershed, changes in estuarine conditions, and factors affecting those changes. The workshop will also target participation of a selected array of agency program managers to ensure that workshop outcomes include effective strategies for communicating research insights to the management community. We envision water-quality managers from each jurisdiction, and selected representatives of the different land uses and settings being managed.

Workshop Logistics, Timing, and Location

The workshop will be scheduled for late Fall 2017 so that the outcomes of the workshop can be communicated throughout the Partnership in 2018. Target participation is approximately 50 participants. Preferred locations for the workshop are academic campuses such as UMCES, SERC, or VIMS, in order to both save costs and add to the working nature of the workshop.

Estimated Budget

Venue: $1500, Food: $3000, Travel/lodging for speakers: $4500, Total requested: $8500

Past STAC Workshops and Peer Reviews Related to this Proposal

The March 2014 MEOWQT STAC workshop laid a foundation for the larger explaining trends work underway across the watershed and findings being generated for this proposed workshop. The recent STAC Expert Panel review of the application of Generalized Additive Models (GAMs) to quantifying and explaining trends in tidal water quality is also informing related research.

Attachment: Letter signed by Scott Phillips, and Bill Dennison. STAR co-chair