



**Chesapeake Bay Program's (CBP)
Scientific and Technical Advisory Committee (STAC)
December 7, 2018 Quarterly Meeting Minutes
The Westin Annapolis Hotel – Annapolis, MD**

Friday, December 7, 2018 Minutes

Attendance (W: Webinar):

Members: Joshua Behr, Lee Blaney (W), JK Bohlke (W), Kathy Boomer, Charles Bott, Katherine Bunting-Howarth (W), Amy Collick (W), Alix Dowling Fink, Zach Easton (W), Lara Fowler, Kirk Havens, Carl Hershner, Jason Hubbard, Thomas Ihde, Thomas Johnson, Martin Lowenfish, Mark Monaco, Greg Noe, Marc Ribaud, Kenny Rose, Michael Runge, Adel Shirmohammadi, Kurt Stephenson (W), Tess Thompson (W), Lisa Wainger, Gene Yagow (W), Weixing Zhu (W)

Guests: Mark Bennett, Gopal Bhatt (W), Donna Bilkovic (W), Tony Buda (W), Kyle Curtis, Jen Dopkowski, Marjy Friedrichs, Jim George (W), Gina Hunt, Caitlyn Johnstone, Jeni Keisman, Lew Linker, Kristin Saunders, Gary Shenk, Emily Trentacoste, Guido Yactayo (W), Marjorie Zeff

Administration: Bill Ball, Rachel Dixon, Melissa Fagan, Annabelle Harvey

Call to Order – Lara Fowler (PSU)

Standing in for STAC Chair Brian Benham (VT), Fowler called the meeting to order at 9:30 am. She introduced the three new at-large STAC members; Lee Blaney (UMBC), Kenny Rose and Larry Sanford (UMCES-HPL). The Request for Proposals (RFP) to support STAC workshops for fiscal year 2019 was introduced, with the only change being the updated timeline. Fowler requested a motion to approve the RFP, as well as the October 2018 Executive Board meeting minutes and the September 2018 STAC Quarterly Meeting Minutes; both were approved.

DECISION: Fowler requested a motion to approve the October 2018 EB meeting minutes and the September 2018 Quarterly Meeting Minutes. Result: Motion carried.

DECISION: Fowler requested a motion to approve the Request for Proposals (RFP) for FY19 workshops. Result: Motion carried.

Recap of STAC September Quarterly Meeting – Lara Fowler

Fowler recapped the key discussions and presentations from the September meeting. The 2019 STAC meeting dates were presented in September and can be found on the STAC website. STAC received an update on the Executive Council letter and Executive Council Meeting in July. Both emphasized the importance of the partnership and highlighted where STAC would like the Partnership to focus in the coming year. There were 2 staffer presentations and Suzanne Dorsey (UMD) presented on engaging local stakeholders. Dinorah Dalmasy (MDE) outlined the Watershed Implementation Plan (WIP) Phase III planning progress from each jurisdiction.

Updates from the Principal's Staff Committee (PSC) – Rachel Dixon (CRC, STAC Coordinator)

Dixon updated the membership of the key actions of the PSC in the past months. The PSC met on October 12 and November 7, 2018. The meeting was mainly focused on the jurisdiction's ongoing development of their Phase III WIPs, specifically how each jurisdiction plans to outline local planning goals. The PSC meeting also continued a discussion on the watershed-wide WIP that will address inputs from Conowingo Dam (called CWIP). The PSC is in the process of detailing how that WIP will be funded, the timeline, and the details of the CWIP steering committee and governance structure

Approach to Prioritize CBP Science Needs – Kristin Saunders (UMCES) and Emily Trentacoste (EPA)

Saunders and Trentacoste are looking for STAC to weigh in on the guidance and prioritization of science needs for the Chesapeake Bay Program partnership, as well as provide insight on partners and potential funding sources. Scientific, Technical Assessment and Reporting (STAR) is the group at the CBP coordinating the process of prioritizing, with input from Goal Implementation Teams (GITs), STAC and other partners.

Trentacoste presented the proposed process timeline and current progress. They are aiming to present the final prioritized list of science needs at the Biennial Strategy Review System (SRS) Meeting on March 13-14, 2019. Brian Benham (STAC) and Scott Phillips (STAR) will lead that discussion, if the timeline is followed.

Acquisition of resources to meet these prioritized needs is a separate process; STAR plans to work with the Management Board to identify and allocate potential funding sources. The science needs that are already currently being addressed through the \$900,000 of GIT funding were removed from the list. Saunders and Trentacoste are currently conducting an initial resource assessment within the CBP, set to wrap-up by January 24, 2019. STAC is asked to provide any input on resources they may be aware of. Mark Monaco (NOAA) suggested considering short-term versus long-term funding sources and needs and to better leverage resources from federal offices.

The proposed approach for prioritizing science needs utilized the GIT funding project criteria, which incentivizes science needs that cross-cut among outcomes, adaptive management and connecting science and management strategies. Many STAC members found this prioritization process highly subjective and the proposed timeline optimistic. Kenny Rose (UMCES) suggested the GIT funding project criteria prioritizes funding rather than science-based needs, and cautioned using a scoring method to rank science needs. Lara Fowler would like to see a broad list of science needs that could be distributed to science networks to encourage collaborations and grant funding. To continue receiving feedback from STAC, a smaller group of STAC members volunteered to provide further input into the initial prioritization process leading up to the January 29, 2019 GIT Chair's meeting. For all of STAC, the science needs list will be sent out and the CBP are looking for feedback until December 14, 2018.

Saunders also wants to coordinate previous STAC recommendations with science requests. Bill Ball and STAC Staff are able to assist in the identification of relevant STAC workshop and research recommendations in conjunction with the ongoing development of the STAC Recommendations Database.

ACTION: Bill Ball (CRC) and STAC Staff will review the current list of CBP science needs and identify which STAC workshops or reviews had relevant recommendations.

ACTION: **STAC Staff** will share the current spreadsheet of CBP science needs with STAC when it becomes available.

ACTION: **Bill Ball, Mark Monaco (NOAA), Tom Ihde (Morgan State), Carl Hershner (VIMS), Kirk Havens (VIMS) and Kurt Stephenson (VT)** volunteered to form a small group of STAC members to provide further input during the CBP science needs prioritization process.

STAC Workshop Report Out: December 2017 Integrating Water Quality—Jeni Keisman (USGS)

Keisman provided STAC with a summary of the workshop “Integrating Recent Findings to Explain Water Quality Change: Support for the Mid-Point Assessment and Beyond” held in December 2017. The original workshop goal was to have a targeted discussion of remaining research gaps and receive feedback on prioritization from managers. While this goal was not met entirely, direct communication between researchers and managers through a sincere exchange of information was key for relationship building. Watershed and estuarine researchers need to also collaborate and communicate more to integrate analysis of ecosystem trends and their explanations. Keisman noted that several participants expressed need for this exchange of information on a regular basis, but perhaps outside of a STAC workshop. Bill Ball noted that the CRC is prime for this type of meeting and he is available to help foster ground-up movements for strategic research and information sharing. Jason Hubbard (WVU) emphasized that workshops are only effective if they stay focused and deliberate and suggested that some thought on the current workshop system might help have outcomes that are more effective.

STAC Workshop Report Out: April 2018 Fish Habitat Workshop—Gina Hunt (DNR)

Hunt provided STAC with a summary of the workshop “Factors Influencing Fish Habitat Function in the Chesapeake Bay Watershed: Application to Restoration and Management Decisions” held in April 2018. The substantial work leading up to the workshop was highlighted, particularly the collaboration between NOAA and USGS to identify and collate available data sources on factors contributing to tidal and non-tidal fish habitat quality that could be used to develop a regional fish habitat assessment. Hunt also presented an overview of the GIT-funded project that is building off the work started at the workshop. Greg Noe (USGS) and others emphasized that this collaborative project is critical in helping determine priorities for resources over the next several years in focusing on ‘living resources’. Looking ahead, a local government representative on the CBP’s Fish Habitat workgroup will be holding a meeting on bringing science down to managers and the first one will be focused on land conservation in April 2019. She is looking for any suggestions from STAC of relevant science that would fit this session. The aim is to create something usable by local governments, including upgrading tools or new tools. There are currently assessments underway for fish habitat; what habitats are in bad shape, what would be prime for restoration versus conservation. The next assessment will be in 2020 and they are working to connect regional assessments with what is going on nationally.

STAC Workshop Report Out: November 2018 Establishing Multifunctional Riparian Buffers—Lara Fowler (PSU)

This recent workshop – “Establishment of Multifunctional Riparian Buffers: How do we accelerate the path to 95,000+ acres with the greatest economic, social and environmental impact?” aimed to bridge the divide between science, managers, and producers of both niche crops and full-scale farms. There were science and management outcomes, but also important connections and conservations between these groups. The breakout groups focused on each perspective and what each group could do to further the implementation of riparian buffers. Multifunctionality was a major point, including working with sportsman and other recreational buffer uses. The two graduate students who organized the workshop are currently working on the report.

Climate Science Needs from the Climate Resiliency Workgroup – Mark Bennett (USGS) and Jennifer Dopkowski (NOAA)

The Management Board has asked STAC to weigh in on climate resiliency needs, with Bennett scheduled to present a list of prioritized climate resiliency research topics (with STAC input) on the January 17, 2019 MB meeting. The Climate Resiliency Workgroup (CRWG) conducted an internal survey of climate research needs and generated a list of 9 categories that were ranked in order of relative importance:

- Design and function of BMPs under new climate reality
- Better understanding of precipitation changes with regards to intensity, annual amounts, seasonal impacts, storm events and stormwater management
- Social Science- human behavior- implications of the human response to climate change, flooding, sea level rise, as well as motivation and needs of communities to adapt
- Better understanding of sea level rise and subsidence impacts in changing climatic conditions
- Green infrastructure performance including increased sediment due to climate change
- Changing climate conditions and their impacts on wetlands
- Climate impacts to key aquatic fish species abundance, life cycle and habitat
- Changing climate conditions and their impacts on SAV
- Changing climate conditions and their impacts on invasive species

The ultimate goal of this prioritization is to receive dedicated funding from the Chesapeake Bay Program to address these needs. Bennett is looking for STAC to weigh in on these above priorities and decide on how broad research needs should be presented – either using these broad categories or more specific research questions. Kathy Boomer (TNC) suggested to keep needs relevant to management and decision-makers. Bill Ball advocated for a separation between ‘operational science’ (short-term) and ‘translational science’ (long-term). These science needs value short-term over the long-term needs, while STAC tends to look from a long-term perspective and are equipped to provide those ‘translational science’ needs. Both have value and should be incorporated in the prioritization process. STAC gave additional suggestions for the list including more specific questions under impacts of climate on Best Management Practices (BMPs), understanding management implications and solutions to each of these, and not to lose fish and SAV related concerns behind institutional thinking. The degree of uncertainty surrounding climate science and research was expressed as a major concern for many STAC members and it was suggested that decision-making under uncertainty is an important need that should be communicated to the Management Board. Bennett and Dopkowski asked for a STAC member to be present during the January 2019 Management Board meeting to help communicate the outcomes of this discussion.

Outcomes from September ‘Climate Change Modeling 2.0’ Workshop—Gary Shenk (USGS), Marjy Friedrichs (VIMS), Tom Johnson (EPA), Mark Bennett (USGS)

In September 2018, STAC held a workshop on “Chesapeake Bay Program Climate Change Modeling 2.0”. During the workshop, participants were divided into three breakout groups to focus on different aspects of the climate assessment framework in the CBP’s modeling tools. Gary Shenk presented on behalf of the Watershed Model Breakout Group. Recommendations from this group are to improve the nutrient response to flow and sediment change, change the N and P speciation, incorporate the effects of climate change into the BMP effectiveness estimates, and introduce uncertainty into the decision process. The need to change the N and P speciation was identified as a potential topic for the STAC-sponsored “Science Synthesis”.

For the Estuarine Model Breakout Group, Marjy Friedrichs emphasized how the requirement for ‘one number’ for management purposes is problematic, and highlighted the importance of uncertainty in climate science. The group also recommends continuing work on the relationship between sea level rise and hypoxia.

Tom Johnson presented for the Climate Impact Breakout Group, with the following recommendations; understand the quality of a model by the context in which it is being used, climate change should be viewed as an iterative risk management problem, need short-term (2025) and long-term assessments, use the models not just in a management context, but in a transparent community modeling approach, and CBP and/or STAC might find it useful to develop a climate research framework for science as well as communication. Johnson’s group suggest that for a potential STAC synthesis, BMP uncertainty or management effectiveness would be useful topics.

There was discussion on a real-time model that would quickly link inputs and outputs. Adel Shirmohammadi (UMD) agreed that a two-way modeling system could be useful; put in a desired outcome and find out what needs to happen on the landscape to reach that outcome. This would allow managers and researchers to look at a desirable endpoint and see how changing climate affects that. Fowler suggested that the CRC looks into resources to discuss the new climate reality with other regions facing the same questions (Baltic, Tampa, Puget Sound, etc.). She pointed out the importance of understanding the timeline for climate impacts, as the time table continues to accelerate.

Discuss Climate Science Needs and STAC Climate Science Synthesis—*Full Membership*

Fowler began the discussion by noting that many of the priorities that are being considered are dependent on the definition of the “new climate reality”. Each variable in the priority list has a level of uncertainty and would need to include the responses by various resources. Many STAC members expressed continuing concern regarding the issue of decision-making under uncertainty; the consequences and costs of uncertainty, how to adapt to variable outcomes, and how to communicate uncertainty to managers. Uncertainty is not “not knowing”, but rather a range of accepted variability that should be accounted for to manage risks. It was proposed that a possible STAC synthesis topic could be to collate different theories and current climate information to characterize uncertainty. Uncertainty and decision-making could also be a theme of a future STAC meeting and there was STAC-wide support for that. Gary Shenk (USGS) emphasized STAC’s effectiveness in changing CBP behavior through robust discussions through a formal mechanism such as a workshop, review or synthesis.

As next steps, the Climate Resiliency Workgroup has time at the January 17, 2019 Management Board to discuss priorities and STAC members could present the synthesized findings from the Climate Change Modeling 2.0 Workshop. A STAC representative at this meeting could answer any questions and speak directly for STAC on climate science needs. The Executive Board with work with a STAC member who is available for the January MB meeting to synthesize points from the workshop to be presented on January 17th.

ACTION: A representative from STAC will attend the January 17 Management Board meeting, along with Mark Bennett (USGS), to convey STAC’s input on the climate change research needs. This input will be representative of the discussion had at the quarterly meeting and from the ‘Climate Change Modeling 2.0’ workshop. Bill Ball (CRC) volunteered to be the STAC representative.