



THE ABSTRACT

A Monthly Update from the Scientific and Technical Advisory Committee

January 2016

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Recent STAC News

December 2015 STAC Quarterly Meeting

December 8-9, 2015

O'Callaghan Hotel – Annapolis, MD

STAC held the December 8-9th quarterly meeting at the O'Callaghan Hotel in Annapolis, MD. Lisa Wainger (UMCES), the new STAC Chair, led the two day meeting. STAC members agreed, at the September retreat, to incorporate each of the themes developed during that meeting into quarterly meetings throughout the year. Subsequently, climate change became the underlying theme for the December meeting.

The meeting began with Professor of Oceanography, Raymond Najjar (PSU) who presented a summary of recent research on the effects of climate change on the Chesapeake Bay. Following, Climate Change Coordinator, Zoe Johnson (NOAA) presented the Chesapeake Bay Program's (CBP) approach to climate change monitoring and assessment; and, the need to prioritize impacts and action strategies. To help guide the programmatic efforts underway, STAC members participated in a breakout session designed to assist the Climate Change workgroup prioritize action strategies, determine the biggest monitoring and/or research gaps, and identify Bay Agreement Goals and Outcomes most likely to be affected by climate change. The meeting also featured a retreat follow-up discussion, an update on the reviews and processes, and a

presentation of the high priority science needs of the CBP. STAC members should expect another theme identified during the September retreat incorporated into the next quarterly meeting.

The agenda, meeting materials, and presentations can be accessed on STAC's [December quarterly meeting webpage](#).

Noteworthy Climate Change Research

At the December quarterly meeting, STAC members were asked to provide any climate change research/publication/activities for inclusion in the STAC newsletter.

STAC member Marc Ribaud (USDA-Economic Research Service) provided the latest ERS report on climate change adaptation. The report, entitled "Climate Change, Water Scarcity, and Adaptation in the U.S. Fieldcrop Sector", discusses regional patterns of change in fieldcrop production and in the intensity and extent of irrigation under various climate projections of future temperature and precipitation patterns. More specifically, the study looked at changes in growing conditions and crop yields, changes in profitability due to shifting comparative advantages, and constraints on irrigation water supply. Click [here](#) to access the full report and additional resources.

Upcoming STAC Quarterly Meetings

- **2016 STAC Quarterly Meeting Dates**
 - March 15-16, 2016
 - June 7-8, 2016
 - September 13-14, 2016
 - December 6-7, 2016

Scientific Issues for STAC Discussion

STAC Staff would like to hear from you on emerging scientific issues for (1) inclusion in the newsletter, (2) discussion at future STAC meetings, and/or (3) other Chesapeake Bay Program (CBP)-related meetings.

- **Suggested Priority Scientific Issues for Future Proactive Efforts**
 - Climate change and its effect on restoration goals and actions
 - Adaptive management, including promoting innovation and addressing uncertainty
 - Assessing multiple stressors on living resources
 - Human dimensions, including improving communication of benefits
 - Emerging issues & potential for innovation in nutrient management

Please submit additional suggestions to STAC staff, Renee Kelly at (KellyR@si.edu).

On the Horizon

STAC Fiscal Year 2015 (FY2015) Workshops

STAC is hosting four workshops before mid-February. Information regarding those workshop is below.

1) Conowingo Infill Influence on Chesapeake Water Quality

This workshop will take place on January 13-14, 2016 at the Crowne Plaza Hotel (formerly the Sheraton) in Annapolis, Maryland. The objective of this workshop is to discuss the future status of the processes taking place in the Lower Susquehanna River reservoirs, so that we can predict how any particular future watershed- or reservoir-management approaches will impact the attainment of the Chesapeake Bay water quality criteria. The workshop will seek to determine what would be the best approach to modeling the process by which inputs to the reservoirs are transformed into outputs in the past, current, and in future conditions. The workshop will also formulate a plan of study, including field data collection related to mass balance and biogeochemical transformations, as well as experimentation that will improve understanding of the processes at play in these reservoirs.

2) Linking Wetland Workplan Goals to Enhance Capacity, Increase Implementation

This workshop will take place on January 14, 2016 at the Smithsonian Environmental Research Center (SERC) in Edgewater, Maryland. The workshop will identify ways to enhance the capacity of the CBP Wetland workgroup by facilitating a solution-oriented discussion with the workgroup and other key parties on the 2-year workplan for wetlands, key obstacles, potential opportunities to overcome those obstacles, and other parallel and related efforts. The objective is to demonstrate a pilot process on how other workgroups might similarly enhance their capacity to meet and implement their overall goals.

3) Assessing Uncertainty in the CBP Modeling System

This workshop is scheduled for February 1-2, 2016 at the Environmental Protection Agency (EPA) Headquarters in Arlington, Virginia. This workshop will develop approaches to assess uncertainty in the suite of CBP models to support the Mid-point Assessment of the Total Maximum Daily Load (TMDL). The workshop objectives include: (1) explore and identify drivers of uncertainty in the Bay Program Partnership's modeling system, structure, parameters, data, and assumptions; (2) assess the available methods for conducting uncertainty analyses in the suite of models; and (3) develop recommendations and priorities for conducting uncertainty analysis of the models in support of the 2017 Mid-point Assessment model review.

4) Cracking the WIP: Designing an Optimization Engine to Guide Efficient Bay Implementation

This workshop will to take place on February 17-18, 2016 at The O'Callaghan Hotel in Annapolis, Maryland. The goal of the workshop is to develop the requirements of an optimization engine that can simplify and guide Bay jurisdictions' efforts to develop Watershed Implementation Plans (WIPs) and Milestones that minimize implementation costs while achieving the required reductions and maximizing co-benefits. The workshop will generate

recommendations for the best optimization method, key objectives, decision variables, an appropriate means of accounting for (i.e., modeling) the spatial and temporal interactions that will influence their effect on outcomes, the range to necessary constraints, and other data needs for a Bay optimization system.

In addition, planning for three additional STAC workshops has been underway for several months. The workshops below will take place before May 31, 2016.

- 1) Integrating and Leveraging Monitoring Networks to Support the Assessment of Outcomes in the New Bay Agreement
- 2) Comparison of Shallow Water Models for Use in Supporting Chesapeake Bay Management Decision-making
- 3) The Development of Standardized Climate Projections for Use in Chesapeake Bay Program Assessments

For additional information about the workshops above, contact Rachel Dixon at dixonra@si.edu or visit the [STAC workshop webpage](#).

STAC Reports

Each STAC workshop must result in the completion of a written report. These reports are developed by the workshop steering committees, published by STAC, and submitted to the Chesapeake Bay Program to advise management and restoration decisions. Visit the [STAC Workshop Publications webpage](#) to locate specific workshop reports.

Upcoming reports:

STAC is in the process of finalizing three workshop reports. Below is a list of reports that STAC plans to distribute before February.

- 1) Re-plumbing the Chesapeake Bay Watershed: Improving Roadside Ditch Management to Meet TMDL Water Quality Goals.
- 2) Evaluating Proprietary BMPs: Is it time for a State, Regional, or National Program?
- 3) Comparison of Shallow Water Models for Use in Supporting Chesapeake Bay Management Decision-making.

CBP Partnership-requested STAC-sponsored Independent Scientific Peer Reviews

STAC is currently sponsoring and planning two ongoing reviews. Details of both reviews are listed below.

- 1) Microbeads/Microplastics in the Chesapeake Bay

At the request of the Chesapeake Bay Commission (CBC), STAC sponsored a technical review panel to identify (1) sources of microplastics in the Chesapeake Bay, (2) known impacts of microplastics on aquatic life and human health, (3) data gaps, and (4) policy actions to reduce microplastics. The review panel has been gathering data and drafting a review report since early

November. Due to new federal legislation, the review panel recently modified the scope of this review to further emphasize the issues. Former STAC Chair, Kirk Havens presented the preliminary findings to the CBC on January 7, 2016 at their quarterly meeting. A final report will be distributed later this month.

2) Chesapeake Bay Water Quality Criteria Addendum

The CBP's Criteria Assessment Protocol Workgroup (CAP WG), under the Scientific, Technical Assessment and Reporting Team (STAR), requested a STAC review of the CAP WG technical report "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll *a* for the Chesapeake Bay and Its Tidal Tributaries 2015 Technical Addendum." A review panel has been formed and an information session is being scheduled for mid-January. The review is scheduled to be completed in early 2016.

Additionally, STAC is working closely with CBP representatives to plan for the upcoming CBP Partnership requested STAC-sponsored independent scientific peer reviews. The remaining review requests are expected in the coming months. These STAC reviews will help inform the Partnership's 2017 Mid-point Assessment. The list of upcoming reviews are below.

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

For additional information regarding the reviews above, contact Natalie Gardner at gardnern@si.edu or visit the [STAC review webpage](#).

Key Events

There are a number of relevant conference calls and meetings that STAC members should pay special attention to. All upcoming CBP related events can be found on the [CBP meeting calendar](#). Each listing provides logistical information and meeting materials, when available.

STAR Updates

STAR is continuing to work with the Goal Implementation Teams (GITs) on understanding the science support needs identified in the Bay Program's management strategies (MS). The most recent STAR meeting, held on December 3, 2015 discussed science needs to support the habitat outcomes and updates on the development of the Indicator Framework. STAR presented the science needs/priorities of the Bay Program at the December STAC quarterly meeting. STAR

and STAC are using these needs to prioritize coordination efforts to engage additional science providers to help fill these gaps.

The next STAR meeting is scheduled for January 28th. If you have any questions regarding STAR activities, please contact STAR Coordinator, Peter Tango at ptango@chesapeakebay.net or visit [STAR's webpage](#).

GIT Updates

***The following updates are provided by the Chesapeake Bay Program. Some GITs do not have recent updates to provide at this time.**

Sustainable Fisheries Goal Implementation Team (GIT 1)

The Fisheries GIT held a semi-annual full GIT meeting on December 14th to discuss oyster restoration, workplan development, cownose ray research, blue catfish diet studies, and forage indicators funded by the CBP via the Chesapeake Bay Trust (CBT). In addition, the Fisheries GIT and NOAA Chesapeake Bay Office are compiling research presented during the Cownose Ray workshop held October 22, 2015. A comprehensive report is being created to help inform future management decisions and is projected to be completed in late January.

Tetra Tech recently completed a review and synthesis project on the habitat requirements for 13 lesser-studied fish and shellfish species as part of CBP contract with Tetra Tech to support the MS. This project directly supported actions outlined in the fish habitat workplan. Results of the Tetra Tech project were presented to the Fisheries GIT on December 11th.

More information on the Fisheries GIT can be provided by Bruce Vogt (NOAA) at bruce.vogt@noaa.gov or on the [Sustainable Fisheries GIT webpage](#).

Habitat Goal Implementation Team (GIT 2)

The Habitat GIT is close to announcing nomination of a new Vice Chair. Current Vice-Chair, Jana Davis (CBT) will assume the role of Chair with the intent for a new Vice Chair to transition into the position over the next year. In addition, a number of upcoming events are of primary focus for the Habitat GIT including: The Delaware Wetlands Conference (February 4), The 72nd Annual Northeast Fish & Wildlife Conference (April 3-5), and The Conservation Fund's Balancing Nature and Commerce in Rural Communities and Landscapes Course (May 3-5).

For more information regarding the Habitat GIT, please contact Jennifer Greiner (USFWS) at Jennifer_greiner@fws.gov or visit the [Habitat GIT webpage](#).

Water Quality Goal Implementation Team (GIT 3)

The WQ GIT held a meeting December 14-15, 2015. There are a subset of action and decision items from that meeting that the WQGIT plans to highlight with the Management Board (MB). Click [here](#) for a full summary of those actions and decisions. In addition, the WQGIT was able to confirm James Davis-Martin (VA DEQ) as the new Chair and Teresa Koon (WV DEP) as the new Vice-Chair. These changes will be submitted to the MB for approval in January 2016.

The most recent WQGIT meeting took place on January 11, 2016. The meeting focused on changes to the language of the Governance Protocols, approval of the Land Use Workgroup's proposed membership definition, presentation of a revised timeline for the completion of the ongoing BMP expert panels, and more. During this meeting, Davis-Martin reviewed the STAC workshop proposal timeline and briefly discussed possible WQGIT proposal topics.

For more information regarding the WQGIT, please contact Lucinda Power (EPA) at power.lucinda@epa.gov or visit the [WQGIT webpage](#).

Maintain Healthy Watersheds Goal Implementation Team (GIT 4)

The Healthy Watersheds (HW) GIT submitted drafts of the HW, Land Use Options Evaluation and Land Use Methods and Metrics workplans to the MB in mid-December. While there has been overwhelming participation from most partners and jurisdictions, there are still key action items missing in the HW workplan from the Commonwealth of Virginia, West Virginia and Delaware. The HW GIT is still waiting for additional input from EPA Region III.

In addition, the Forestry Workgroup (FWG) under the HW GIT, met on December 2nd. The meeting discussed the schedule for completing workplans for MS and coordination efforts to implement workplan actions. For a full summary of actions and decisions from this call, contact Tuana Phillips (CRC) at Phillips.tuana@epa.gov or click [here](#).

Finally, the Bay Journal recently released an article about crediting land conservation; the article highlights the results of Phase I of the HW Forestry TMDL Forest Retention Study that the HW GIT funded. You can read this article online, at the following link: [Crediting land conservation toward Bay cleanup goals gains traction](#).

For more information regarding the HW GIT, please contact Phillips or visit the [HW GIT webpage](#).

Fostering Stewardship Goal Implementation Team (GIT 5)

The Citizen Stewardship workgroup is preparing to field test an index that will provide a metric for the Citizen Stewardship Outcome in the Bay Agreement. The workgroup will be meeting in late February to discuss preliminary results from the field test and discuss goals and directions for the workgroup.

The Environmental Literacy workgroup is planning an April meeting with the Chiefs of Education to discuss the importance of creating and sustaining high-quality environmental literacy programming as part of the ongoing education reforms across subject areas.

The Public Access team is continuing to make progress on the Public Access site development workplan, as well as preparing for the development of the Public Access data Quality Assurance and Application Integration project. The group will be collecting data on new access sites developed in 2015 by January 15th.

For more information regarding the Fostering Stewardship GIT, please contact Amy Handen (NPS) at ahanden@chesapeakebay.net or visit the [Fostering Stewardship GIT webpage](#).

Enhancing Partnering, Leadership, and Management Goal Implementation Team (GIT 6)

The Enhancing Partnering, Leadership, and Management GIT has been facilitating the process of GIT funding distribution. The CBT was identified as the organization to administer the funds for GIT funding projects. The CBT released and closed the RFP for FY15 GIT funding projects. Preliminary budget information suggests that a similar level of funding will be available for FY16.

Additionally, the Local Leadership workgroup has been actively developing the workplan for the Local Leadership MS. A project to design a local leadership education program has been funded through FY15 GIT Funding. The next workgroup meeting is scheduled for January 20th.

Finally, potential revisions to the Governance Document have been collected since the last update in July 2015. The GIT plans to discuss the revisions at their April monthly meeting.

For more information regarding the Partnering and Leadership GIT, please contact Greg Allen (EPA) at allen.greg@epa.gov or visit the [Enhancing Partnering, Leadership, and Management GIT webpage](#).

Continuing STAC Effectiveness: Feedback from Mark Monaco!



At the most recent STAC quarterly meeting, members had the pleasure of welcoming a new addition to the committee. New federal appointee Dr. Mark Monaco, the Director of the National Oceanic and Atmospheric Association's (NOAA) Center for Coastal Monitoring & Assessment, joined STAC to offer his expertise in marine spatial ecology. Monaco has worked for NOAA since 1984 and leads and manages more than sixty federal and contract staff that conduct research, monitor, and assess the distribution and quality of habitats and the

ecology of living marine resources. Although Monaco is new to the STAC, he is not new to the advisory committee scene. Monaco has most recently served on the Gulf Coast Ecosystem Restoration Council, the NOAA Habitat Conservation team, and the steering committee for NOAA's Integrated Ecosystem Assessments program. Monaco's vast experience with advisory committees makes him an extremely valuable attribute to STAC's membership.

Furthermore, Monaco mentioned that his decision to join STAC was attributed to his own personal interest in Bay issues and his hope to directly liaise the work being done at NOAA's Cooperative Oxford Laboratory (COL) with STAC. The work at COL will link water quality issues to the impacts on living marine resources. During STAC's September 2015 retreat, members and guests agreed that additional attention to living resources would be beneficial in communicating benefits of Bay restoration activities and ensuring that water quality restoration goals are aligned with living resource needs. For this reason, Monaco's involvement with STAC will be extremely beneficial to increasing support for the Bay Program.

As mentioned, Monaco's first meeting with STAC was this past December. When asked about his initial reaction to STAC, Monaco responded, "When I think of an advisory committee, I don't think of a cast of thirty people. So when I walked into the meeting, I thought man this is a lot of people to hear advice from!" After participating in his first STAC meeting, Monaco understood why so many members were critical to STAC's success. Monaco learned that priority issues in the Bay are extremely complex, and a group with as many members and as diverse as STAC is, is necessary to help solve those issues. Monaco currently leads a team of National Centers for Coast Ocean Science (NCCOS) scientists conducting an ecological assessment of the NOAA Habitat Focus Areas for the Choptank River Complex. During his interview, when asked what he was working on specifically related to the Bay and/or STAC, he replied with the following list: (1) characterizing the ecological conditions habitats in the Choptank; (2) a long term monitoring program looking at contaminants, specifically within the tissues of oysters found in the Chesapeake Bay; and (3) NOAA's ecological forecasting work to predict and understand the impacts of hypoxia, pathogens, harmful algal blooms, and habitat modifications on the coastal ecosystems. The complexity of STAC's issues and the future of management will undoubtedly benefit from Monaco's expertise and current research.