Scientific and Technical Advisory Committee
December 8-9, 2015 Quarterly Meeting Minutes
O'Callaghan Hotel - Annapolis, MD

Tuesday, December 8th Minutes

Attendance:

Members: Joshua Behr, Brian Benham, Donna Bilkovic (Telecommute), Kathleen Boomer, Charles Bott (T), Katherine Bunting-Howarth (Alternate), Amy Collick (T), Zachary Easton, Lara Fowler, Marjy Friedrichs (T), Kirk Havens, Maria Herrmann (T), Carl Hershner, Robert Hirsch, Susan Julius, Hamid Karimi, Peter Kleinman, Andrew Miller, Mark Monaco, Ray Najjar (A/T), David Newburn, Marc Ribaudo, David Sample, Adel Shirmohammadi, Jeffery Skousen (T), Kurt Stephenson, Lisa Wainger, Denice Wardrop, Gene Yagow

Guests: Rich Batiuk, Karl Blankenship, Chris Brosch, Olivia Devereux (T), Melinda Ehrich, Tim Garcia, Kyle Hinson, Zoe Johnson, Lee Karrh, Jeni Keisman, Brooke Landry, Lew Linker, Teri Myers (T), Ray Najjar (T), Daniel Pendick, Scott Phillips, Gary Shenk, Bill Stack, Rich Starr, Jeff Sweeney (T), Richard Tian, Bruce Vogt, Ping Wang, John Wolf (T)

Administration: Bill Ball, Rachel Dixon, Melissa Fagan, Natalie Gardner, Renee Kelly

Call to Order – *Lisa Wainger (STAC Chair - UMCES)*

Wainger called the meeting to order shortly after 10:00am. Following introductions, Wainger announced the nomination of Adel Shirmohammadi (UMD) and Donna Bilkovic (VIMS) to the Executive Board (EB). There were no objections. Both members were formally appointed to the EB. Wainger welcomed new STAC Federal appointee, Dr. Mark Monaco (NOAA). Monaco gave a brief introduction and rationale for accepting his nomination. Next, Wainger requested a motion to approve the October 2015 EB meeting minutes; motion approved. Wainger followed with a request to approve the September 2015 quarterly meeting/retreat minutes; motion approved.

VOTE: **Wainger** requested a motion to approve the October 2015 EB meeting minutes. Result: Motion carried.

VOTE: **Wainger** requested a motion to approve the September 2015 quarterly meeting/retreat minutes. Result: Motion carried.

Briefing on "Summary of Recent Research on Effects of Climate Change on the Chesapeake Bay" – *Ray Najjar (PSU)*

Najjar presented recent scientific research on the projected impacts of climate change on the Chesapeake Bay. Najjar started the presentation by reviewing Appendix A of the Chesapeake Bay Program's (CBP) Climate Resiliency Outcome's Management Strategy (MS). Najjar worked with the Climate Change Workgroup to summarize the state of the science regarding the effects of climate change on the Chesapeake Bay. Najjar's presentation also referenced updates

to the Estuarine, Coastal and Shelf Science article, "Potential climate-change impacts on the Chesapeake Bay". During Najjar's presentation, STAC members were asked to email him any related research/publications that were not referenced in the presentation.

Najjarr reviewed an outline of different climate change impacted scientific categories represented in the article. Within those categories, Najjar provided updates of the following: distinguished patterns of warming in Chesapeake Bay water and air, confidence in new climate models displaying rising temperatures due to increased emissions, accelerated sea level and Chesapeake Bay level rising, extreme weather events, and increases in high-flow events delivering more nutrients and sediment to the Chesapeake Bay. Concluding his presentation, Najjarr and STAC members participated in a discussion of science updates that were not included in the presentation. Specifically, Bruce Vogt (NOAA) offered to share additional fisheries material, related to the effects of climate change on finfish with Najjar. STAC Coordinator, Natalie Gardner (CRC) agreed to introduce Najjar and Vogt via email to facilitate future communication.

ACTION: **STAC members** have been asked to send research/publications related to the effects of climate change on the Chesapeake Bay to Najjar at rgn1@psu.edu.

ACTION: **Vogt** agreed to share additional fisheries material, specifically related to the effects of climate change on finfish with Najjar. Gardner will introduce Najjar and Vogt via email to facilitate future communication.

Prioritizing Climate Change Impacts and Action Strategies – *Zoe Johnson (NOAA-CBPO)*

The purpose of this session was to identify the primary climate impacts of most concern to the Chesapeake Bay resources, which could impact CBP's ability to attain the goals established in the 2014 Watershed Agreement. Johnson reviewed the CBP approach to climate change monitoring and assessment and the need to prioritize impacts and action strategies. Johnson also reviewed the climate resiliency goal and two outcomes associated with the Watershed Agreement. Johnson emphasized the importance of preparing to adjust goals and objectives to incorporate the impacts of climate change. Johnson presented a document which assessed all 25 MS for elements of climate change. Johnson continued the discussion by identifying key management actions that the Climate Change Workgroup would like STAC's input on.

To help guide the programmatic efforts underway by the Climate Change Workgroup, Johnson asked STAC members to break out into groups to discuss the following questions: What ecological impacts are of most concern in the resources managed by the CBP?, Which specific Watershed Agreement Goals and Outcomes will be affected most?, Where is there the greatest potential to increase resiliency through specific adaptation strategies?, and What are the biggest monitoring and/or research gaps? STAC members with similar expertise were placed into one of the four groups, which aligned with the Goal Implementation Teams (GITs). Each group was assigned outcomes relevant to the expertise of the group. Johnson asked members to rank resource vulnerability over time and rate the factors of risk in terms of the influence of impact on "goal attainment" regarding the outcomes their group was assigned. In addition, members were asked to identify ecological impacts for which there could be moderate to high degree of responsiveness to changes in management techniques and identify priority research and data

gaps. Groups report outs provided the most important conclusions made by each group. Group leads agreed to send typed responses to STAC staff, Renee Kelly (CRC). Kelly agreed to create a cohesive document of the breakout session notes. This document will be sent to Johnson, who will forward it to the appropriate workgroups. STAC members requested that Johnson send the research agenda to the membership, developed as part of the Climate Change Workgroup's two-year workplans, once it is completed. Johnson mentioned that this is only the beginning of a discussion of priority research needs. STAC will continue to invite Johnson to meetings as progress is made.

ACTION: **Group leads** will send typed notes to Kelly at (KellyR@si.edu) by COB Friday, December 18th. Kelly will forward a cohesive document of these notes to Johnson to share with the appropriate workgroups. **Update:** Cohesive document can be found here.

ACTION: **Johnson** agreed to circulate the research agenda to STAC members once it becomes available. In addition, STAC will invite Johnson to future QMs to continue the discussion of priority research needs for meeting the outcomes of the climate change MS.

CRC Staffer Presentation – *Kyle Hinson (Scientific, Technical Assessment and Reporting Team)*

CRC's Environmental Management Career Development Program provides early career professionals with a stepping stone to a future career in the fields of environmental science, policy and management, and outreach and education. Staffers provide technical and administrative support to the various CBP partnership committees, GITs and workgroups and not only gain a solid professional foundation from which to build their careers but also individualized development and career exploration opportunities. Hinson provided an update on current STAR activities as well as his own work and future plans.

USDA, EPA, and USGS Collaboration – *Scott Phillips (USGS), Tim Garcia (USDA), and Rich Batiuk (EPA)*

STAC distributed a memo in November 2014 requesting enhanced participation from federal agencies to improve CBP technical basis for pollutant modeling and accounting. Batiuk, Garcia, and Phillips provided an update of the progress made responding to STAC's memo. Batiuk presented recent collaboration efforts including: increased participation from United States Department of Agriculture (USDA) within the CBP Partnership, the addition of Garcia's liaison position within USDA, and continued successes breaking barriers which have prevented the sharing of farm specific information with the scientific and management community. Batiuk requested that STAC continue to enforce responsiveness from USDA, United States Geological Survey (USGS), and Environmental Protection Agency (EPA) regarding progress on enhancing cooperative efforts.

Phillips discussed the USGS-USDA-EPA collaboration efforts with the Scientific, Technical Assessment & Reporting (STAR) team. STAR is currently focused on assessing and explaining water quality changes for the Midpoint Assessment. STAR is collaborating with USDA and EPA to access data and further define water quality trends measured in the Chesapeake Bay. Phillips described current work occurring with producers/farmers to implement better

management practices (BMPs) and data collection. Natural Resources Conservation Service (NRCS) representatives and local farmers are providing local data and details to help explain measured trends. Phillips concluded with the greatest needs for explaining water quality trends. These need include: better information about manure/fertilizer application, uptake by crops, effects of BMPs, and the change in (Nitrogen (N), Phosphorus (P), and sediment) mass over time.

Garcia provided updates from the Conservation Effects Assessment Project (CEAP) team. Garcia mentioned that the CEAP team promised a meeting to present findings and data from farm specific sites. STAC members with relevant modeling expertise and interest in this meeting should contact Garcia to develop questions, integrate multiple data sources into a modeling tool, and create an agenda for the meeting. The CEAP team is also working to create a national policy for data sharing. This type of policy would resolve some of the barriers preventing data sharing for the purpose of conservation within the Chesapeake Bay. CEAP is also building a data product that will be shared with the EPA in May. This collaboration, and future collaboration efforts have been agreed to by the CEAP team.

Batiuk, Garcia, and Phillips each agreed that there is still much opportunity to increase collaboration. Access to the vast amount of data will improve verification programs and speed up restoration efforts.

ACTION: Batiuk requested that STAC continue to enforce responsiveness from USDA, USGS, and EPA regarding progress on enhancing their cooperative efforts.

ACTION: STAC members with relevant modeling expertise and interest in the upcoming CEAP meeting should contact Garcia to assist in developing questions, integrating multiple data sources into a modeling tool, and creating an agenda for the meeting anticipated for late January/February. Send contact information to Garcia at (timothy.garcia@md.usda.gov).

STAC September Retreat Recap and Follow-up Effectiveness Discussions – *Lisa Wainger (STAC-UMCES) and STAC staff*

Wainger briefly reviewed the outcomes of the September retreat. Wainger presented the two main themes of the retreat, the five "lurking" issues that STAC identified needing more attention, and the different methods identified to improve STAC effectiveness. Wainger presented next steps following the retreat, which were: to consider the policy need of the CBP, determine how to use the "lurking" issues as quarterly meeting themes, and consider using the retreat outcomes to frame the FY16 STAC request for workshop proposals (RFP). STAC staff, Rachel Dixon (CRC) presented the approved FY16 RFP document with upcoming due dates. Dixon shared the recent additions to the document and requested STAC's feedback. STAC members suggested edits to the "FY16 Topics for Submission" section. Members agreed that the list of suggested topics were too specific and would deter submissions of other important proposals. STAC wants proposals to remain creative, informative to the community, and also support decision making in the CBP. Wainger encouraged members to inspire innovative workshops throughout the CBP. Dixon will incorporate all STAC suggested amendments into the FY16 Workshop RFP document. Due to time limitations, STAC staff agreed to continue the effectiveness discussion with STAC during the morning session of day two.

ACTION: Dixon will incorporate STAC's suggested amendments into the FY16 Workshop RFP documents, prior to its distribution on December 14th.

Evidence for an ongoing substantial decrease in the N:P ratio in inputs to Chesapeake Bay Loadings – *Bob Hirsch (STAC-USGS)*

Hirsch presented an evaluation of trends in average river inputs of total N and total P, along with inputs from waste water treatment plants downstream of the Fall Line monitoring sites, and also direct inputs from atmospheric deposition. Hirsch provided background information and assumptions that went into his presentation, emphasizing that his evaluations were not peer reviewed. Hirsch mentioned that the evaluation was based on results published by the CBP and USGS, with the implicit assumption that the Bay is a well-mixed body of water. The preliminary evaluation suggested a substantial decline in the N:P ratio (which can have important ecological implications). Hirsch continued with a discussion of what role the filling of Conowingo reservoir is likely playing in the change in the N:P ratio. Hirsch questioned how much of the trend is a result of what is coming from the Susquehanna watershed at large, and how much has to do with the way that the downstream reservoirs modulate the loadings coming in from upstream. The importance of this, according to Hirsch, is that if there are significant ongoing changes in the way the reservoirs modulate the movement of N and P downstream, and there should be good representation of the relevant processes for the future in order to set the right target loadings for the watershed upstream of the reservoirs.

Hirsch concluded with an important quote from Schindler signifying that there is no documented case in history where reducing N is essential to curbing eutrophication, therefore P studies are important. Hirsch presented additional questions for STAC including: Whether or not the CBP and science community is sufficiently invested in better understanding the future of P storage and release from the reservoirs?, Are those same groups interested in better monitoring and modeling the storage, release, and transport of P from the soils, shallow groundwater, rivers and wetlands above and below the River Input Monitoring (RIM) sites?, Is the CBP prepared to adapt to these P observations?, and Is STAC sufficiently focused on these issues?

STAC Members Work Session

STAC members were given time at the end of the meeting to discuss next steps, upcoming events, or move actions forward within their relevant STAC activities. Several groups formed and had meaningful discussions during this time.

Wednesday, December 9th Minutes

Attendance:

Members: Joshua Behr, Brian Benham, Kathleen Boomer, Katherine Bunting-Howarth (A), Amy Collick (T), Alix Dowling Fink, Zachary Easton, Lara Fowler, Marjy Friedrichs (T), Maria Herrmann (T), Robert Hirsch, Hamid Karimi, Andrew Miller, Mark Monaco, David Newburn, Marc Ribaudo, David Sample, Adel Shirmohammadi, Jeffery Skousen (T), Kurt Stephenson, Lisa Wainger, Gene Yagow

Guests: Rich Batiuk, Peter Claggett, Melinda Ehrich, Tim Garcia, Mary Gattis, Kyle Hinson, Zoe Johnson, Jeni Keisman, Brooke Landry, Rebecca Murphy, Ray Najjar (T), Daniel Pendick, Scott Phillips, Gary Shenk, Bill Stack, Rich Starr, Ping Wang (T), John Wolf

Administration: Bill Ball, Rachel Dixon, Melissa Fagan, Natalie Gardner, Renee Kelly

Overnight Developments & Work Session Report-out – *Lisa Wainger (STAC-UMCES) and Natalie Gardner (STAC-CRC)*

There was no official report-out from the previous day's work session. Wainger provided time to discuss overnight developments. One request made was for workshop proposers to articulate how their proposal would fit into the adaptive management framework. Wainger said that this is an unspoken expectation of proposals.

Gardner presented suggested improvements to internal operations to improve effectiveness. Recent changes that have, or will take place, include: the distribution of meeting packets with linked documents instead of attachments, electronic calendar invites, summarizing and highlighting high level findings for STAC reports when distributed, distribution of a STAC letter to CBP with each report (highlighting recommendations), linking STAC activities to the CBP calendar, and incorporating more working sessions into quarterly meetings. Gardner explained the importance of the STAC website workzones, membership pages, and publications database. STAC staff will distribute detailed "how to create a workzone" instructions. Gardner requested that STAC members update their profile on STAC's website, or send updated pictures, biographies, and relevant contact information to STAC staff. If no updates are received, STAC staff will locate that information online and import it to STAC's site. STAC members provided suggestions for the STAC website. Gardner will make the following changes: update the calendar on STAC's website, reverse the chronology of the scrolling "Upcoming STAC Activities" section, and improve the accessibility of the publications database. STAC staff will also ensure future activities are linked to the calendar on the CBP website. Additional suggestions should be sent to Gardner.

Gardner then reviewed the current structure of the STAC monthly newsletter, The Abstract. Gardner presented ideas for improving The Abstract. Staff suggested adding: CBP responses to STAC reports, STAC member's current work or member institution, *ad hoc* requests, and summaries of STAC reports. Gardner requested feedback from STAC members. STAC members suggested: adding a table of contents, shortening the length of updates, including links or summaries to STAC member or colleague research/projects related to the theme of the most recent quarterly meeting, and including links to read more about a topic. One STAC member suggested that each Abstract contain a section related to the most recent STAC meeting. STAC members were asked to send any research/publications/activities regarding climate change to be summarized and/or linked in the STAC newsletter. The STAC members do not need to be actively participating in the item they choose to share. STAC staff plans to request similar information contingent on the theme of each meeting. STAC staff will incorporate STAC's suggestions into The Abstract. Send all information pertaining to The Abstract to Kelly.

ACTION: Gardner requested that **STAC members** update their profile on the STAC website, or send updated information to (KellyR@si.edu). To access your profile, visit www.chesapeake.org/stac and click on MySTAC. You may log into MySTAC by using your email address as the username and entering "STACmember2025" as the password.

ACTION: **STAC staff** will distribute more detailed information on "how to create" and utilize the MySTAC workzones via email.

ACTION: **Gardner** will update the STAC website with suggestions made during the December quarterly meeting. STAC staff will also ensure all future STAC activities are linked to the calendar on the CBP website. Any additional suggestions for STAC's website should be sent to Gardner at (gardnern@si.edu).

ACTION: **STAC staff** will send electronic calendar invites for all upcoming STAC activities. These invites are intended to help STAC members with annual planning by putting early holds on the calendar. More detailed information about each activity will be distributed closer to each activity's date.

ACTION: **STAC staff** will incorporate specific suggestions made at the meeting into future Abstracts. STAC members should send additional suggestions to (KellyR@si.edu).

ACTION: **STAC members** have been asked to send any research/publications/activities regarding climate change to be summarized and/or linked in the STAC newsletter. Send all information to (KellyR@si.edu) by COB January 6th, to ensure inclusion in the January 2016 Abstract. STAC staff plans to request similar information contingent on the theme of each quarterly meeting.

High Priority Science Needs of the Bay Program – *Melinda Ehrich (STAR-UMCES) and Scott Phillips (STAR-USGS)*

STAC and STAR agreed that the best way to streamline science support for the GITs would be for STAR to gather information on the research, monitoring, assessment, indicators, and modeling needs and compile and synthesize that information, through collaboration with STAC, and work with the GITs to prioritize. Phillips and Ehrich presented STAR interactions with the GITs on their science needs of the Watershed Agreement, status of indicators and monitoring outcomes, high priority science needs, and next steps for STAC and STAR. Specific challenges include: lack of capacity to support the science needs of the GITs, current CBPO resources have water-quality focus limiting the assistance for other needs. Phillips asked STAC to consider ways to strategically prioritize science needs, better coordinate existing activities, and determine ways to expand the science capacity of the CBP. Short-term next steps for addressing the science needs included: utilizing information from upcoming STAC workshops to align resources and expand monitoring needs, identify existing efforts, develop a process for defining priorities, and expand the capacity of STAR. Long-term steps could include: collaborating with new partners, proposing future STAC workshops to address the science needs, and provide incentives and funding to build science capacity.

STAC agreed that they could easily coordinate with STAR and the GITs to support the science needs. The first action suggested was to develop a process for coordinating all efforts throughout the CBP. Funding alternatives were also discussed. Finding multiple partners would be useful for providing funds and expanding the longevity of a program. STAC could help identify research activities already taking place to support the program, which would reduce the need for additional funds. Phillips is interested in receiving more of STAC's initial thoughts and feedback regarding likes and dislikes of the current priority science needs. STAC will send feedback via email to Phillips. STAC requested that the high priority science needs be summarized in a one-page synthesized document. Phillips and Ehrich agreed to produce this document and distribute it to STAC. STAC will forward this document throughout their networks to help identify current activities that might already support some of the science needs.

ACTION: Phillips requested that STAC members send initial thoughts and feedback regarding their likes/dislikes of the current priority science needs selected by the GITs. Send comments to Phillips at (swphilli@usgs.gov).

ACTION: Ehrich and Phillips agreed to produce and distribute a synthesized document summarizing the high priority science needs of the CBP. Once available, STAC members will forward this document throughout their networks to help identify any current activities that might support some of the science needs.

CBP response to the STAC workshop recommendations: Estimating Land Management Effects on Water Quality Status and Trends (MEOWQT) – *Jeni Keisman (USGS)*

Keisman began the presentation with an overview of the MEWQT workshop. The purpose of the MEOWQT workshop was to identify improved technical approaches for explaining the effect of management actions, and the degree they are influencing water-quality changes in the watershed and estuary. The three main objectives of the workshop were to generate recommendations on: enhancing trend detection methods, identifying information that is needed to better explain trends, and suggesting quantitative approaches for an integrated approach to explain trends in the tidal waters and watershed. Keisman individually reviewed each of the seven recommendations from the workshop. Keisman then discussed the CBP's responses to the recommendations including: accomplishments meeting recommendations, future plans to meet recommendations, the creation of the Integrated Trends Analysis Team, and collaborative projects underway. Keisman concluded with acknowledgements to all partners involved with the workshop, report, and follow up activities.

CBP response to the STAC workshop recommendations: Designing Sustainable Stream Restoration Projects within the Chesapeake Bay Watershed – *Bill Stack (Center for Watershed Protection) and Rich Starr (USFWS Chesapeake Bay Field Office)*

Stack and Starr provided a joint presentation of the CBP's response to the STAC workshop recommendations from the "Designing Sustainable Stream Restoration Projects within the Chesapeake Bay Watershed" report. Stack began with an overview of the workshop and its primary purpose. Stack reviewed the six recommendations provided in the workshop report. Three of the recommendations were grouped together. Workshop participants recommended the development of a unified, science and function-based stream restoration methodology process to

guide the assessment, design, implementation, and monitoring of stream restoration projects. Starr was already participating in an ongoing effort to develop a function-based stream restoration project process between Maryland Department of the Environment (MDE) and U.S. Fish and Wildlife Service (USFWS). The key activity for addressing these recommendations is through the Stream Health Outcome Biennial workplan. The workplan is broken out into five key management approaches with fourteen key actions. Stack reviewed a few specific management approaches with respect to their performance target. Starr provided background and detailed explanation of the collaborative efforts underway between MDE and USFWS to develop the science and function-based stream methodology process.

Updates on Review Questions/Progress since September Retreat – *Bill Ball (CRC) and Natalie Gardner (CRC)*

Ball and Gardner provided a joint presentation on review updates and processes. Ball presented the tentative timeline for STAC workshops and the "STAC Midpoint Assessment Review Process" document. Ball provided and update of the Criteria Addendum review. Ball discussed the request made by the *ad hoc* review committee after initially reviewing proposed questions. STAC requested that the CBP make questions more general and open-ended. The STAC *ad hoc* review committee and CBP worked together to develop a template for creating and categorizing review questions, utilizing a three tiered question approach. Ball presented the rationale for the tiered approach with three main points. These guidance documents will be sent to the review requestors to guide the type of questions the review panels should focus on. Ball presented the three type of questions that will make up the tiered template. The question categories are: clarity of the charge and documentation, review of approach within the given context, and review of conceptual approach and longer-term recommendations. Ball displayed a comparison of how the initial review questions changed after implementing the Tier 1, 2, and 3 style of review questions agreed to.

Gardner presented the "Roles and Responsibilities for STAC Midpoint Assessment Reviews" document. This document outlined, in detail, the roles and responsibilities of each member involved in a review. STAC members suggested the following amendments: clarifying how the *ad hoc* review committees will be created for each review, emphasize that the review panel can consist of experts from outside the watershed, and further define the role of the review panel chair. Concluding this presentation, STAC staff agreed to amend the documents based on member feedback. Once amended, STAC staff will post these documents on STAC's website.

ACTION: STAC approved both documents with the exception of a few amendments. **Gardner** will incorporate the amendments into the documents prior to finalization. In addition, the final documents will be reviewed and then posted on STAC's website.