

Improving Chesapeake Bay Program Monitoring Networks



PSC Monitoring Review: June 2021



Photo Credit: Will Parsons (CBP)

Overview

An overview was provided to the Principal Staff Committee (PSC) at their March 2, 2021 meeting about the status of, and potential reductions to, the current Chesapeake Bay Program (CBP) monitoring networks. The CBP monitoring programs presented included the nontidal nutrient and sediment network, tidal water-quality monitoring network, submerged aquatic vegetation (SAV), tidal benthic monitoring network, and Citizen Science monitoring. In response to the status report, the PSC requested information be provided on what is needed to improve the CBP monitoring networks which has led to a 9-month review centered around 8 questions of status, vulnerabilities, innovations, and costs to sustain and grow network operations underpinning decision-support in the Chesapeake Bay Program Partnership. A team for each CBP network will address these questions and develop recommendations for the PSC. The review is being coordinated under CBP-STAR.

Materials: [Discussion Paper to Improve CBP Networks](#)

Contact:

[Peter Tanqo USGS@CBPO Chesapeake Bay Monitoring Coordinator ptanqo@chesapeakebay.net](mailto:ptanqo@chesapeakebay.net)

[Breck Sullivan: CRC STAR Staffer bsullivan@chesapeakebay.net](mailto:bsullivan@chesapeakebay.net)

Leadership Team on the review

Your CBP leadership team on the review work is:

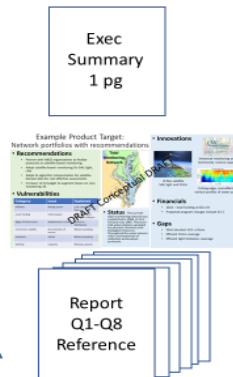
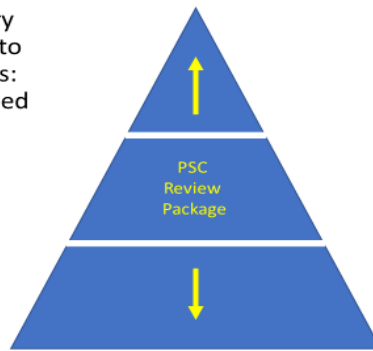
- Peter Tango, USGS Chesapeake Bay Monitoring Coordinator, STAR Coordinator
- Breck Sullivan, CRC, STAR staffer
- Scott Phillips, USGS, STAR Co-chair
- Lee McDonnell, EPA, CBPO Science Director
- Denice Wardrop, CRC, Director

Deliverable products development underway

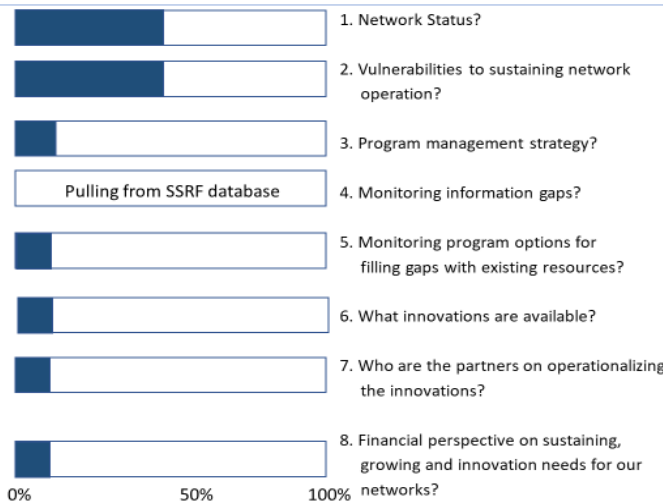
During May 2021, a framework of anticipated deliverables was provided to groups to target information input. Three elements of the deliverable package includes an Executive Summary, Network portfolios on each of the 6 networks, and a short report on the 8 questions targeted in the review. Progress on the report work is highlighted below.

Delivering a final product: Tiered communication

- 1 page: Executive summary on the recommendations to sustain and grow networks: strategies, resources needed
- 1 (max 2) page network portfolio summaries
- Short report on the 8 questions



Tracking our progress on the final report: May 2020



Report work



CBP Network Teams: Update on efforts to address the PSC request

Nontidal Network Workgroup

- The next meeting is [June 16, 2021](#). The tentative agenda for the meeting is:
 - **PSC Review continues** – thank you for input on status, vulnerabilities, outlining general framework for our painting the generic picture on our financial outlook.
 - **NTN operations** – How are we doing meeting sampling plans in 2021? Round robin of jurisdictions, agencies
 - **Watershed Science:**
 - **Follow-up thoughts on the WV filamentous algae problem?**
 - Other topic TBD
- Developing an inventory of partner support behind funding of each of 123 stations. The first round of information gathering is near complete.
- Due to level funding operations, an optimization exercise is being planned to consider prioritizing decisions for adjusting the network size on a 5-year time horizon.
- **Team homework:**
 - Doug Moyer has partner related site distribution of the NTN to share.
 - Dave Montali suggested we add data utility to our NTN status summary.
 - Ken Hyer presented on NRCS monitoring directions – include in our PSC review partner opportunities report section.
 - All – Provide examples of vulnerabilities to NTN table in Teams page.
 - All - Be prepared for a round robin how NTN operations are proceeding in 2021.
- Contact Breck Sullivan CRC Staffer, Peter Tango USGS

Bay Oxygen Research Group, BORG (4-D Water Quality Estimator Team)

- The next meeting is [June 17, 2021](#). Meeting time was adjusted to **2PM-3PM this month**.
- The tentative agenda for the meeting is:
 - **Stakeholder requirements** continued– what we learned so far, other considerations?
 - **Data needs – infrastructure development** - Peter Tango. We will review existing monitoring efforts and new vertical profiler deployments for consideration on how to support data needs of the water quality estimator.
 - **Alternative interpolator methods and their considerations** – Isabella Bertani
 - **ACTION ITEM:** Are there any methods we are excluding from consideration at this point?
- Proposed project timeline is 2 years of development of the initial tool (2021-23), and 2 years of application and education (2023-25).
- Methods underpinning the tool will be considered and reviewed in upcoming meeting discussions.
- **Team Homework:** Return in June 2021 with 1) continued input on stakeholder requirements for the new tool, and 2) any method alternatives to the approaches that have been discussed are welcome.
- Contact Breck Sullivan CRC Staffer, Rebecca Murphy UMCES, Peter Tango USGS

Hypoxia Collaborative (Vertical Profiler Network Development Team)

- **No June meeting. The next full team meeting will be in July.** Dates and agenda TBD.
- At the May 2021 meeting the group provided suggestions and discussion on locations for 2 new vertical profiler deployments as follow-up from the post-April meeting survey.
 - Location recommendations included 1 instrument array returning to CB4.3E, a second a CB4.3W.
- Recommendations were provided on sensor distributions at 2 m intervals after 1m initial depth on the array to align data at the same depths across sample sites.
- Other profilers are being planned for deployment after 2021 by MD DNR and interest by MARACOOS.
- QA programming considerations for ConMon data collection was overviewed by Durga Ghosh USGS
- **Team Homework:** Provide examples of vulnerabilities to the network in the table on the Teams page.
- Contact Justin Shapiro CRC Staffer, Peter Tango USGS, Bruce Vogt NOAA

Criteria Assessment Protocol Workgroup

- The next meeting is **June 18, 2021**, 10AM-12PM
- The tentative agenda for the meeting is:
 - **Discuss Homework #1: Tidal benthic monitoring program –**
 - What was lost for support of the Aquatic Life Use assessment when the Spring season monitoring was eliminated?
 - How strong of a recommendation can be made for restoring a Spring season IBI?
 - Generally speaking at this point – how are we doing with the 5 year outlook for sustaining summer IBI programming? What resources may be needed?
 - **Exploring SAV satellite-based assessment – recent workshop findings to consider in the future of bay assessments.** What considerations are needed for updating the protocol for using SAV cover in an assessment of our water quality standards if a method change occurred in the future?
 - **Sampling design to support DO criteria assessment –** sampling design considerations to support the 4-D water quality estimator. Open discussion after a short presentation from Peter Tango
- Homework #2 = Prepare for discussions the next 4 months – Summer reading:
 - On the topic of estimating light limitation via satellite assessment [Approximation of diffuse attenuation, K_d, for MODIS high-resolution bands: Remote Sensing Letters: Vol 10, No 2 \(tandfonline.com\)](#)
 - For chlorophyll work consider [A space-time geostatistical model for probabilistic estimation of harmful algal bloom biomass and areal extent - ScienceDirect](#) , and
 - Dissolved oxygen 4D interpolation [Fusion-Based Hypoxia Estimates: Combining Geostatistical and Mechanistic Models of Dissolved Oxygen Variability | Environmental Science & Technology \(acs.org\)](#)
- Contact Breck Sullivan CRC Staffer, Peter Tango USGS

Chesapeake Monitoring Cooperative (CMC)

- In April 2021, the CMC successfully completed a 6-year cooperative agreement which established the foundation to create a cohesive community science monitoring network in the Chesapeake Bay region and connect these data to the Chesapeake Bay Program partnership decision-support framework.
- **In May 2021, the CMC was awarded a new 6-year cooperative agreement from EPA** to continue the integration and expand the capacity of the community monitoring network.
 - A kick-off meeting was held in May to review the Scope of Work on the new proposal. The scope of work will focus on working closely with STAR to identify and address gap needs identified in the SRS process and the SSRF science needs database.
 - The CMC is currently working with the Stream Health Workgroup and Wheeling Lab to leverage the community monitoring network to fill in benthic data gaps needed for the nontidal Chessie BIBI, and will expand this model for collaboration with other workgroups.
- The CMC's Chesapeake Data Explorer is a publicly available database housing community-based data in one centralized, easily accessible location. The database has grown to contain over 400,000 data points (in early 2021), primarily water quality and benthic macroinvertebrate data.
 - Data from the Chesapeake Data Explorer are vetted through the CBP's Data Upload and Evaluation Tool (DUET). These data are available for download on the CBP Data Hub. CMC data uploaded for 2018-2020 are currently being used in the CBP Water Quality Standards Attainment Assessment.
- Contact: Liz Chudoba ACB, Peter Tango USGS, Breck Sullivan CRC

CBP Supporting Groups

Note: For the most up-to-date information on meetings, minutes, and agendas, please go to the CBP calendar of events located [here](#) and the individual group websites.

Past Meetings:

- **Data Integrity Workgroup (DIWG):** A presentation regarding the monitoring review, guidance DIWG can provide the effort, and approved 2021-22 STAC Workshop on advanced monitoring approaches was presented at the [April 13, 2021 meeting](#).
- **Status and Trends Workgroup (S&TWG):** During the [June 7, 2021](#) meeting, watershed agreement outcomes in immediate need of data to support their indicator reporting were highlighted.
 - Wetlands, Brook trout, Black duck and Stream Health were referenced for monitoring support. While the core work on the PSC review is focused on the water quality monitoring program, a final chapter to the review documentation will identify additional monitoring program support needs across all GITs noted during the 9-month review process with the partnership.

- **Climate Resiliency Workgroup (CRWG):** A presentation regarding the monitoring review and summary of what the current monitoring networks can provide to support CRWG monitoring was provided by Peter Tango and Breck Sullivan on [Monday, May 17, 2021](#). Feedback from the group suggested considerations about additional and complementary data needs in the monitoring program including:
 - Carbonate chemistry
 - Air temperature – assessing management of urban heat islands
- **Water Quality Goal Implementation Team (WQGIT):** A presentation regarding the monitoring review and approved 2021-22 STAC Workshop on advanced monitoring approaches was provided by Peter Tango USGS on [Monday, May 24, 2021](#). Future updates regarding recommendations developed during the review process will be provided over the upcoming 7 months. **Contact: Hillary Smartwood CRC and Lucinda Power EPA**
- **STAR** – A brief update on progress with the PSC review was provided at the [May 27, 2021](#) meeting. Note, a workplan update on the monitoring review process was presented by Lee McDonnell EPA to the PSC on [June 2, 2021](#). **The PSC supported the workplan as presented.** Monthly updates to STAR on progress with the review are expected throughout the remainder of the year. **Contact: Peter Tango USGS, Breck Sullivan CRC, Scott Phillips USGS**

Upcoming Meetings:

- **Integrated Trends Action Team (ITAT):** TBD
- **Modeling WG:** The next quarterly meeting is [July 6 & 7](#). **Agenda: TBD.**
- **Toxics WG** – Peter Tango USGS and Scott Phillips USGS will update the group on [June 9, 2021](#) regarding the PSC Monitoring Review to support discussions about 1) leveraging existing monitoring opportunities to address toxics data needs to support watershed-wide PCS and Hg indicator development, 2) initiating new sampling programs or surveys, and 3) network sampling designs. **Contact: Emily Majcher USGS and Scott Phillips USGS**
- **Submerged Aquatic Vegetation (SAV) Workgroup:** Meeting schedule will be updated when they schedule their next meeting. No meetings are on the SAV WG calendar at this time. **Contact: Brooke Landry MD DNR**

STAC 2021 – 2022 Advanced Monitoring Workshop

A workshop proposal was submitted to the Scientific and Technical Advisory Committee (STAC) in February 2021 and approved in March 2021 with Peter Tango as the chair of the proposal. Official work under the proposal begins in July 2021. This workshop will be used to evaluate opportunities to use research findings for assessing key water quality parameters supporting water quality standards attainment assessments in the tidal waters of the Chesapeake Bay.

Contact: Peter Tango USGS