Improving Chesapeake Bay Program Monitoring Networks

PSC Monitoring Review: July 2021

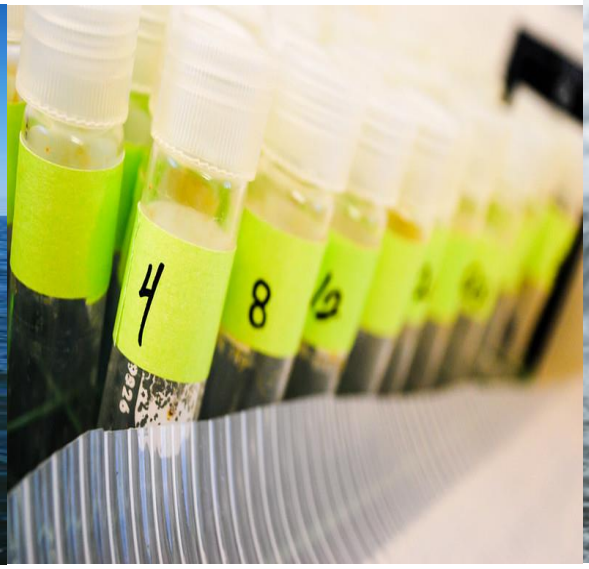




Photo Credit: Will Parsons (CBP)

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 Tango USGS@CBPO Chesapeake Bay Monitoring Coordinator ptango@chesapeakebay.net

Breck Sullivan: CRC STAR Staffer bsullivan@chesapeakebay.net

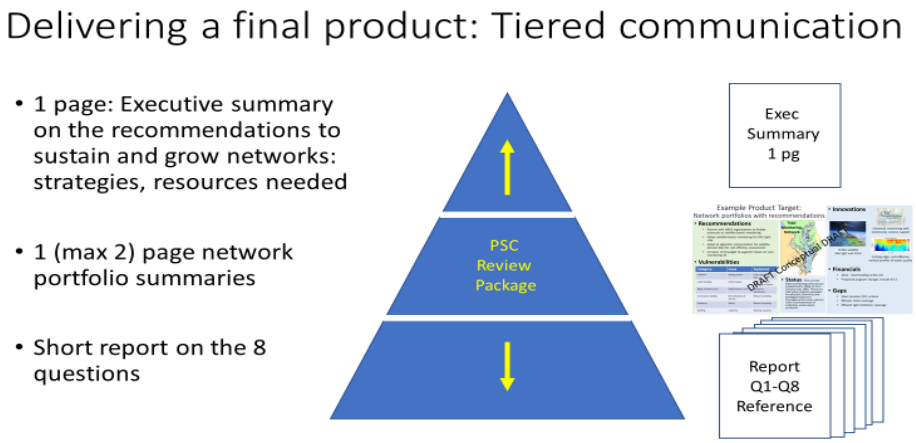
Leadership Team on the review

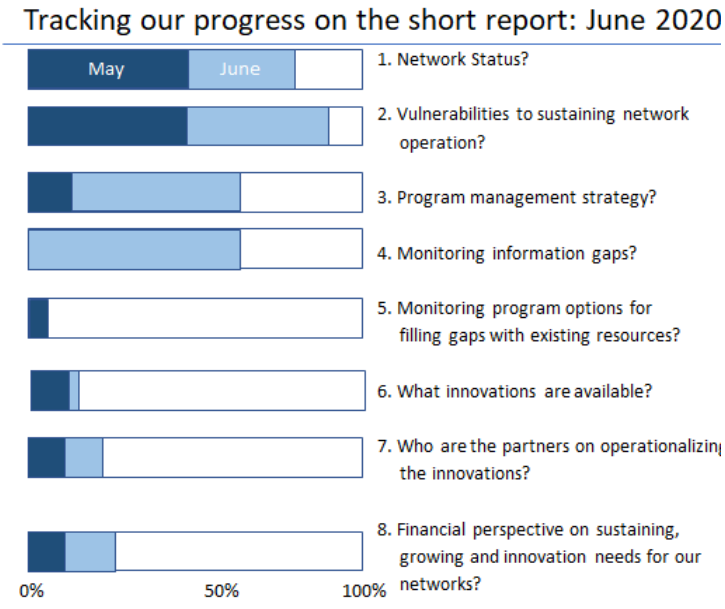
Your CBP leadership team on the review work is:

- 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 include 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.





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

Homework for all network teams:

- Pull together details on financials
- Address what gaps need to be filled to improve the CBP monitoring networks
    - Review needs in Science Needs Database
    - Update science needs with any monitoring gaps missing
    - Update language of current monitoring needs to include utility and urgency of need
    - Consider any synergies between monitoring needs and existing monitoring data
    - Contact Breck Sullivan with updates and comments

Nontidal Network Workgroup

- **The next meeting is July 21, 2021**. 1-2:15. The agenda for the meeting is:
    - **Network Optimization Assessment – Insights and Directions: Matt Cashman.**
        - Due to frequent level funding of NTN operations, an optimization exercise is being planned to consider prioritizing decisions for adjusting the network size on a 5-year time horizon
    - **Groundwater networks and temperature assessments? Discussion – All.**
        - The STAC Water Temperature workshop is underway. The workshop team is seeking 1) a basic understanding of groundwater monitoring in the Chesapeake Bay watershed, 2) if temperature data exists, 3) if temperature trends are assessed and 4) considerations for an air:groundwater temperature ratio as a conservation or restoration targeting tool.
- **Team homework:**
    - Complete science needs homework assignment (Provide track changes or email Breck Sullivan with comments):
        - Review Monitoring Science Needs Spreadsheet.
        - Are there any Nontidal monitoring gaps missing?
        - Are there synergies between Nontidal work and Cross-GIT monitoring gaps?
    - Offline discussions about the Deer Creek station.
    - WVDEP is experiencing another year of algal blooms on the Cacapon River. They continue to look for recommendations on further sample collections and BMP implementation to understand and control the issue.
- Contact Breck Sullivan CRC Staffer, Peter Tango USGS

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

- There is **NO** July Meeting.
- The 4-D Leadership Team is meeting August 3, 11-noon.
- Development of a requirements document will be underway over the next 3 months.
- Exploratory tests of methods will be conducted to inform a decision in autumn on the development path forward.
- Proposed project timeline is 2 years of development of the initial tool (2021-23), and 2 years of application and education (2023-25).
- **Team Homework:**

    - Continue discussion and providing method alternatives for the 4D estimator and have Isabella present at the next meeting to be held in September or October.
    - A STAC Workshop session on Advanced Monitoring – the committee is considering a session on the interpolator advances and directions
    - Send Rebecca Murphy (rmurphy@chesapeakebay.net) or Peter Tango any thoughts on development of the tool.
- Contact Breck Sullivan CRC Staffer, Rebecca Murphy UMCES, Peter Tango USGS

Hypoxia Collaborative (Vertical Profiler Network Development Team)

- Dates and agenda are being developed for either a **July or August meeting. TBD**.
- The next agenda will include
    - an update on the deployment of 2 NOAA profilers during summer 2021
    - considerations for sampling design for expanding the network to address needs of fish habitat assessments, model calibration to boundary conditions on the hypoxic zone, and water quality standards attainment assessments evaluated through the 4-D interpolator.
    - We may discuss the PSC Draft Report vulnerabilities to network operation table and request input on anything missing from the table.
- Ongoing work includes drafting a report to document the near-term plan for the profiler sites, QA/QC considerations and sampling designs for network buildout.
- **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 July 22, 2021**, 1 - 3PM
- 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
    - ***Tentative* Tidal Monitoring Gaps –** Breck Sullivan will provide a short overview of monitoring gaps captured in the CBP Science Needs Database to help address question #4 of the 8 questions in the PSC review.
- Resources for your summer reading pleasure:

    - On the topic of estimating light limitation via satellite assessment Approximation of diffuse attenuation, Kd, 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)

- Check out a full report of CMC's achievements from 2015 – 2021 here.
- **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.
    - Workplan refinement continues regarding the new award Scope of Work.
- 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.

- **Data Integrity Workgroup (DIWG):** Next meeting TBD in September.
- **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.
- **Climate Resiliency Workgroup (CRWG):** Recent feedback from the group suggested considerations about additional, high value and complementary data needs in the monitoring program include:
        - Carbonate chemistry
        - Air temperature
    - Peter will be speaking with the Nontidal Network WG in July regarding Groundwater monitoring networks and groundwater temperature assessments as a potential targeting indicator for conservation and restoration being discussed in the STAC Water Temperature Workshop involves the ratio of Air Temperature: Groundwater Temperature.
- **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 6 months. **Contact: Hillary Smartwood CRC and Lucinda Power EPA**
- **STAR:** 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.

- **Modeling WG:** The quarterly meeting was held on July 6 & 7, 2021. The first day focused on the development of the Phase 7 Watershed Model which will be fully operational by December 2023. An additional presentation centered around quantifying co-benefits of ecosystem services associated with BMPs with results communicated via CAST. The second day focused more on the estuary which included a presentation on the completed 12 Tributary Summaries.
- **Toxics WG:** Peter Tango USGS and Scott Phillips USGS updated the group on June 9, 2021 regarding the PSC Monitoring Review. Feedback from the group suggested considerations about additional and complementary data needs in the monitoring program including:
    - integrated mercury monitoring network
    - PFAS methodology and assessment
    - Determine whether the jurisdictions compile existing PCB outfall monitoring data for NPDES dischargers
    - Continue jurisdictional monitoring for PCB occurrence to assess need for new local TMDLs and progress related to reducing PCB loads
    - **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.

- The Workshop Committee is holding its first meeting **August 3, 12-1pm**.

Contact: Peter Tango USGS