**Criteria Assessment Protocol Workgroup**

July 22, 2021
1:00 p.m. – 3:00 p.m.

Webinar*:

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Meeting Materials:
https://www.chesapeakebay.net/what/event/criteria_assessment_protocol_workgroup_june_2021_meeting

Location: Conference Call

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*This meeting will be recorded for internal use to assure the accuracy of meeting notes.*

**AGENDA**

**10:00** **Welcome, introductions & announcements** – *Peter Tango, Chair Criteria Assessment Protocol workgroup, USGS@CBPO*

**Announcement:** Register for the July 28, 2021, 10AM-4PM ET Virtual Event. The NASA Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) Applications team invites the science, applications, and decision-making communities to their first community focus session.
This one-day event invites active participation and round-table discussion on future uses of PACE satellite data products to support research & applied sciences in the context of water quality and water resources. The objectives of the event are:

- Increase awareness of PACE data, research, and applications related to water quality and water resources.
- Understand the data challenges that water professionals may experience when using PACE satellite data and identify ways to address data barriers before launch.

- Explore advanced & exploratory PACE products that may add value to the research and applied science user community.
- PACE community development, encouraging engagement/inclusivity with the user community, other earth missions, resource managers, decision-makers, and capacity development.

**10:10** **Discussion on Homework #1 related to the PSC Monitoring Review: Tidal benthic monitoring program needs - sustaining, adjusting, growing on a 5-year time horizon.**

Historically, the tidal benthic monitoring program conducted sampling during the spring and summer seasons. Programming was reduced in 2009. Since 2010, only summer season monitoring and assessment has occurred. Summer season results have supported jurisdiction's Clean Water Act evaluations of impairment for Aquatic Life Use among segments and designated uses in the bay. Spring season provided pre-hypoxia insights each year on the benthic community distribution and composition.

**Action:** On a 5-year time horizon, are resources planned sufficient to sustain summer-only monitoring supporting the Aquatic life designated use assessments? If not, define the needs for sustaining the summer season program.

**Action:** Rate the contribution of an added investment to restore the spring benthic monitoring dimension of the program as it pertains to developing a well justified recommendation to the PSC regarding gap filling resources in the benthic monitoring and assessment program. Consider multiple data uses, e.g, hypoxia impacts, fish forage, invasive species/food web dynamics, biodiversity assessment, etc.

Tom Parham stated he initially thought the fishery folks would be interested in this data. He has reached out to them to see what they want, and he continually hears they are trying to understand fish food. Besides nutrient information, there is not a lot available. There is a little bit of phytoplankton data, but there is no zooplankton. He has worked with them to use the available summer benthic data to look at food availability during the summertime period. He has not heard interest in the spring data. Maryland recently went through a process with the Board of Public Works to set up a 5-year benthic contract to look at the title waters. In terms of adding spring data, it would take a while to get it to go through. Also, if anyone is interested in trends for the spring benthic data, it is going to take a while to get a base data set suitable for trends. It would also be very expensive.

Peter Tango commented he has been on multiple panels discussing the procedure of a new zooplankton program, and almost every year, someone brings up the need for it. However, if people are not asking to reinstate it in other venues and it comes with all these challenges, it is okay to not bring it back.

Lucrecia Brown said in D.C. they have never used benthic for tidal water. They have only used it for nontidal. She doesn't foresee them wanting it or incorporating it. They do collect phytoplankton and zooplankton. They do not use it, but they send the data to the Chesapeake Bay Program.

Tish Robertson said she has not received any word from their management in Virginia to broaden what data they use. She knows they are already stretched thin so there probably isn't interest in the spring collection. Upper management may be interested if it would change the assessment results, but she doesn't think that would happen. She mentioned they have not been pressed by the EPA to create TMDLs for the benthic communities listed as impaired. They have not explored how there could be physical disturbance and other stressors besides nutrients.

Ken Moore commented from the standpoint of science, it would be nice to have some of the information from the spring collection, but he understands that it might not come from this group. Tom Parham mentioned there is spring data from the 1980's to 2009 so some analysis may still be done to see changes in recruitment and impacts of climate change.

**10:45** **Exploring SAV satellite-based assessment – recent workshop findings to consider in the future of bay assessments.**

In summary - satellite-based SAV assessment is feasible when appropriate images are acquired and available. However, a regular and reliable operational protocol for consistent, high quality satellite image acquisition at the times and places needed by the survey does not exist. Satellite image assessment algorithms (i.e., AI algorithms), are also being advanced and tuned for Chesapeake Bay waters but are also not ready. As we look to the future, can we work together to document what considerations are needed for updating and applying an alternative protocol for assessing SAV cover for use in our water quality standards attainment assessment? Such insights will be a model for any significant update in methods for the water quality standards assessment program.

**Action:** Initiate a key list of requirements needed to address a protocol change should SAV or other parameter assessments develop new methods.

Lucrecia Brown asked how often the satellite surveys will be done. In DC, 1 season could be great for SAV, but another season it all could be gone. Peter Tango said at minimum the satellites go over every 9 days, and therefore, there it is captured approximately twice a month. They are targeting to be able to reproduce the annual assessment. There are opportunities with other satellites being discussed with daily over flights.

Carl Friedrichs commented Dave Wilcox presented on the pilot comparison, and it seemed discouraging due to cloud coverage, tidal issues, and relative infrequency. At that point, the images available fell short of replacing a survey by air. Peter Tango commented one of the issues was Dave received the wrong targets he called. A group is working to pick apart the findings and improve it. At some point, he expects to have an assessment Bay-wide, but it will not happen this year or next year.

Fred Irani commented the maps of SAV with red lines around them seem to be binary showing there is presence or there isn't presence of SAV. Is the density of the SAV being evaluated? Also, how much appears as SAV or is it just shallow water. Peter Tango stated yes, density classes are assigned to SAV beds. For the shallow water element, there are calibration stations, and they do comparisons of what is known on the ground to the imagery.

**11:10** **Sampling design to support DO criteria assessment – Peter Tango**

Peter Tango will provide a presentation on the evolving vertical profiler network and considerations for building out the network design on high frequency sensor assessments.

**Action:** Initial discussion on sampling design considerations to support the new 4-D water quality estimator.

Carl Friedrichs asked what he meant by profiler. Is he talking about the set of sensors done for the pilot work with Doug Wilson? Peter Tango said he is talking about the profiles gathered by Doug. Mark Trice would call Doug's approach a vertical array.

Mark Trice and Cindy Johnson commented MD DNR and VA DEQ do not have any work progressing in this topic area.

Matt Stover sees value in an effort to gather sampling design for the estimator, and it would be complimentary work the Fishing Bay project.

**11:50** **Closing Remarks and Next Steps**

Future meetings will continue the discussion of different methods.

**12:00PM** **Adjourn**

**Participants:** Breck Sullivan, Becky Monahan, Ken Moore, Mark Trice, Carl Friedrichs, Peter Tango, Caroline Donovan, Matt Stover, Dave Parrish, Fred Irani, Lucretia Brown, Rachel Kidwell, Renee Karrh, Richard Tian, Thomas Barron, Tish Robertson, Tom Parham, Juan Vicenty-Gonzalez, Rachel Kidwell