Chesapeake Bay Program
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Hypoxia Collaborative Team Meeting - April 2026

April 28, 2026
11:00am - 12:00pm
Visit the meeting webpage for meeting materials and additional information.

Purpose: This meeting convened the Hypoxia Collaborative to review the work completed in 2025 and brainstorm future objectives for the team and the role that the collaborative will play in implementing these goals.

Minutes

I. Overview of 2025 & plans for 2026

Lead: Jay Lazar (NOAA)

Max Ruehrmund (NOAA) has been leading the field effort, the data quality control (QC), and review work, along with Elise Durr (CBT) and CJ Pellerin (ERT). This presentation shows a summary of their End of Year Report for 2025. Max began by showing a figure displaying the buoy and sensors, which can be found in the report. This year, they've updated their strategy to recover the buoys without damaging the cord. Max also shared the CTD-DO (conductivity, temperature, depth, with dissolved oxygen) Cast that they use to calibrate the buoy sensors. Next, Max shared the locations of the 2025 buoys, including working with partners at Virginia Institute of Marine Science (VIMS).

Next, Max dove into the data quality. They have organized data into three categories, good, bad, and suspect, which is outlined in the report. Max also presents graphs on the data quality at their different stations. He also shows how the quality changed in the last three years. Over time, they have gotten better at maintaining the system and quality control metrics. In 2025, they implemented an automated QC system, which explains the slight drop between 2024 and 2025 data quality.

For 2026, there are 5 planned locations. These are Sharps Island, Cholera Point, Piankatank River, and Rhode River. The Rhode River array will be new this year and will be an opportunity to try new equipment. Max opened the discussion to see if there are any recommendations for any other locations.

Dovetailing with Peter's presentation, Jay shared that they are learning their capacity limits, reaching the three-year mark for segments and developing protocols for partners.

Discussion:

Aaron Bever (from chat): Can I get the lat/lon of the new locations?

- Jay Lazar: We are finalizing that and will provide it when we do.

Peter Tango: Our criteria assessment protocols need to better understand what it means to have a full season of data knowing you are putting in the full effort.

- Jay Lazar: We have operationalized it in a way that we are confident in but recognize that some things are still being piloted.
- Peter Tango: Thank you all. It's great to see the progress over time and better understand the attention needed to collect this data.

II. Goals & Outcomes of the Hypoxia Collaborative

Lead: Peter Tango (USGS)

Peter began by sharing the Hypoxia Collaborative's current scope of work, which is the management applications of the hypoxia monitoring network including water quality criteria assessment and condition of fish habitat. In 2021 - 2025, there was a developmental phase, including segment selection and deployment. This period allowed for better understanding of project costs, capacity limits and maintenance needs. These capacity limit lessons led to the idea of expanding the monitoring by working with several institutions, which is being enacted now. Peter also shared the estimated costs of the program, which was estimated to be about $1 million a year in 2022 for a 10 array network.

When looking to the future, Peter tied this to the water quality criteria assessments which need three year blocks of monitoring data in the monitored segments and the six year planning horizon under the new management strategy development. This will need to guide segment selection and will need to be included in the Water Quality Standards Attainment and Monitoring workplans and management strategy. The management strategies will be completed in coordination with the CAP WG in May to August 2026, while the workplans have a more flexible timeline. Also, the modeling community has requested sustaining a reference site for calibration and verification. CB4.3 has been the target site, which will need to be confirmed. There is also the need to coordinate with the Thriving Habitat, Fisheries and Wildlife Goal. There are also site selection considerations which will be informed by the UMCES GIT Funded project that is currently in progress.

Discussion:

Marjy Friedrichs: It is so helpful to maintain a long-term station. I would like to see CB4.3 maintained.

- Rebecca Murphy (from chat): I agree, CB4.3 is a very helpful spot
- Peter Tango: How does the field team feel about accessing that spot?
- Max Ruehrmund: It's good.

Mark Trice: FYI, our 4 Choptank conmons and 1 vertical profiler were deployed on 4/2. and we have reprogrammed our dataflow software interface to have that up and working

Bruce Vogt: Management strategies. We can talk more about this offline. Are you saying that BORG, Hypoxia Collaborative, and CAP WG are going to work together on the management strategy? How are each of those groups tackling pieces of this? How do you see feedback from this group feeding into the management strategy?

- Peter Tango: The CAP WG has areas of interest for monitoring based on the criteria assessment achievement. We're talking about where we should invest next and whether

that will be from NOAA or whether we should reach out to the wider partnership. You will be able to tell us where your capacity is over the next few years. That can be worked together with the workgroup recommendations. The CAP WG and BORG will need to have the 92 segments monitored. We also need to talk about that and how that could be accomplished.

Breck Sullivan (in chat): This may not be today's meeting discussion, but in this theme of management strategies and outcome support, I would also like to know how this group would like to be structured because Clean Water Goal Team Chairs are suggesting it be moved from STAR to this Goal Team. Is it is still its own workgroup or is under a "tidal workgroup" with BORG and ITAT? other ideas.

- Amanda Shaver (in chat): We will be able to share some ideas soon about how we think this workgroup could be rolled into a larger tidal monitoring workgroup to consider all the data needs to be able to assess and conduct trend analyses.
- Breck Sullivan: We can talk about this at another time, but there are proposals to move all the STAR workgroups into Clean Water Goal Team (CWGT) and possibly restructure it. We have a slideshow from a recent STAR meeting that shares our thoughts for the new structure compared to the CWGT proposal. They are hoping to put Hypoxia under the Integrated Monitoring Networks Workgroup, which it is currently, but this group doesn't meet or do anything. It might combine with BORG and ITAT. It would be good to get thoughts from the group soon on this topic if people have time to review it and share thoughts outside of the meeting.
- Bruce Vogt: Let's sideline this for an offline discussion and then we can share what we think with the group later. It's important and we need to talk about where it aligns with the new habitat goal team.
- Breck Sullivan (from chat): If people are interested in the discussions around structure, here is a presentation with the options provided by the Clean Water Goal Team Chairs and the initial thoughts from STAR Leadership: https://www.chesapeakebay.net/files/documents/STAR-and-CWGT-Structure-4.22.26.pdf Clean Water Goal Team wants to make final decisions by May 18th, so we need to provide different options probably a week before (May 11th).
- Marjy Friedrichs (from chat): One comment - I find these (relatively small) calls to be super useful. As the organization of all the workgroups changes, I hope we can continue to meet as this group, at least once in a while. I think it's more efficient to have calls every couple months on our own, rather than calls more often (every month all year) where we only have a small part of the agenda of a larger group, if that makes sense.

III. Updates from Partners

Lead: Bruce Vogt (NOAA)

➢ **VIMS Buoy Data Usage & Lessons Learned** *Aaron Bever (FW)*

Aaron shared how they are using the vertical profiler data in the Chesapeake Bay Environmental Forecast System (CBEFS). They use this to ensure data quality, receive high frequency bottom DO measurements, and confirm marine heat waves. When comparing their model results and the array results, they can see the abrupt changes that they won't get in discrete monitoring. This is used to ensure the model is running correctly and is accurately predicting short-term cycles.

For their marine heat waves forecasting, they received unexpected results for April 2025. The profiler surface and bottom data was used to confirm that those areas were experiencing warmer temperatures, which confirmed their results. Aaron also shares an example where the data was used to show where the model can be improved.

Mark Trice: How is heat wave defined?

- Aaron Bever: A marine heat wave uses the 90% climatological temperature for the day and the water temperature needs to be above that number for five days. It depends on the day and season.
- Bruce Vogt: Based on that definition, we have noticed some in the winter.

➢ **VA NEERS Update** *Eduardo Miles (VIMS)*

They did a small pilot buoy with three sensors and there was a very short deployment. The system is very good, if there is no fowling. The sensors don't have an anti-fowling measure so they fowl very quickly. They had to be in the field weekly or biweekly to get good quality data. In the three months we deployed, we had the same issue of high fowling on the sensor. In their experience, it is not good to put anything around the sensor because you can create another ecosystem. They wrapped it in a copper net, even though they don't like to, and there was fowling inside. The last 3 months were field intensive. North Eastern prevented maintenance of the sensor for 2 weeks which led to fowling. Overall the system is good, but can be field intensive with high fowling. Next year, they will place it in the Piankitank (500 acres of artificial oyster reefs - buoy will be near the reef). It will lead to a better idea of the system and intensity of the field.

➢ **4-D Interpolator Update** *Rebecca Murphy (USGS)*

The 4-d interpolator development team uses the vertical array data extensively in the development and application of the interpolator. They are building a new oxygen interpolation tool for the Chesapeake Bay. The assessment process will evaluate more criteria than currently evaluated.

Rebecca shared the interpolation structure, which uses many types of monitoring data. They have split the development in four different parts to get hourly oxygen throughout a grid covering the whole Bay. The vertical array data is being used in almost every step in the method. The high frequency data is parameterized in each part of the interpolation. It is particularly useful because it is some of the only high frequency data in deep waters.

Rebeca provides an example of the parameterizing uses. Rebecca shares the process for using high frequency data to create the daily cycles in the interpolator. It's also been used to compare with the hourly results to ensure accuracy. Rebecca shared the draft output of the interpolator compared to the vertical array data. The arrays provide insight into variability that cannot be found using the fixed stations alone.

IV. Wrap-Up

Lead: Bruce Vogt (NOAA)

Action Items:

- Follow up on living resource connections - the more specific things we can tie to the better (e.g. blue crab stock assessment and hypoxia data) - more conversation needed

- Clear that the data has multiple uses - more specific examples may be helpful to share with Lee (EPA) and sustain funding for these projects
- The internal team needs to get together to talk about structure moving forward.

V. Adjourn

Next Meeting: TBD

Attendees:

- Aaron Bever (FW)
- Allison Welch (CRC)
- Amanda Shaver (VA DEQ)
- Breck Sullivan (USGS)
- Bruce Vogt (NOAA)
- Carl Friedrichs (VIMS)
- Christina Garvey (CRC)
- Cindy Johnson (VA DEQ)
- Dong Liang (UMCES)
- Eduardo Miles (VIMS)
- Elise Durr (CBT)
- Jay Lazar (NOAA)
- Marjy Friedrichs (VIMS)
- Mark Trice (MD DNR)
- Mary Stack (ICPRB)
- Max Ruehrmund (NOAA)
- Peter Tango (USGS)
- Piero Mazzini (UMCES)
- Rebecca Murphy (UMCES)
- Tish Robertson (VA DEQ)