



Chesapeake Bay Program Hypoxia Collaborative Meeting
Monday, March 4th, 2024· 2:00 PM – 3:30 PM

Meeting Materials: [Link](#)

This meeting was recorded for internal use only to assure the accuracy of meeting notes.

Action Items/Next Steps

- ☐ Send feedback on proposed 2024 hypoxia monitoring stations to Jay Lazar (jay.lazar@noaa.gov) by COB March 11th, 2024.
 - ☐ Send feedback on GIT funding proposal to Peter Tango (ptango@chesapeakebay.net) by COB March 11th, 2024.
 - ☐ Discuss data analysis & integrity at a future collaborative meeting.
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Attendees (in no particular order):

Bailey Robertory (CRC)	August Goldfischer (CRC)
Bruce Vogt (NCBO)	Kevin Schabow (NCBO)
Jay Lazar (NCBO)	Peter Tango (CBP)
Aaron Bever (Anchor QEA)	Allison Dreiss (UMCES)
Andrew Keppel (MDDNR)	Breck Sullivan (CBP)
Dong Liang (UMCES)	Cindy Johnson (VADEQ)
Kaylyn Gootman (EPA/CBPO)	Margie Mulholland (ODU)
Marjy Friedrichs (VIMS)	Mark Trice (MDDNR)
Piero Mazzini (VIMS)	Rebecca Murphy (UMCES/CBP)
Renee Karrh (MDDNR)	Tom Parham (MDDNR)

Meeting Minutes

2:00 PM – Partner Announcements (All)

Time for Hypoxia Collaborative Partners to share updates/highlights on their recent work.

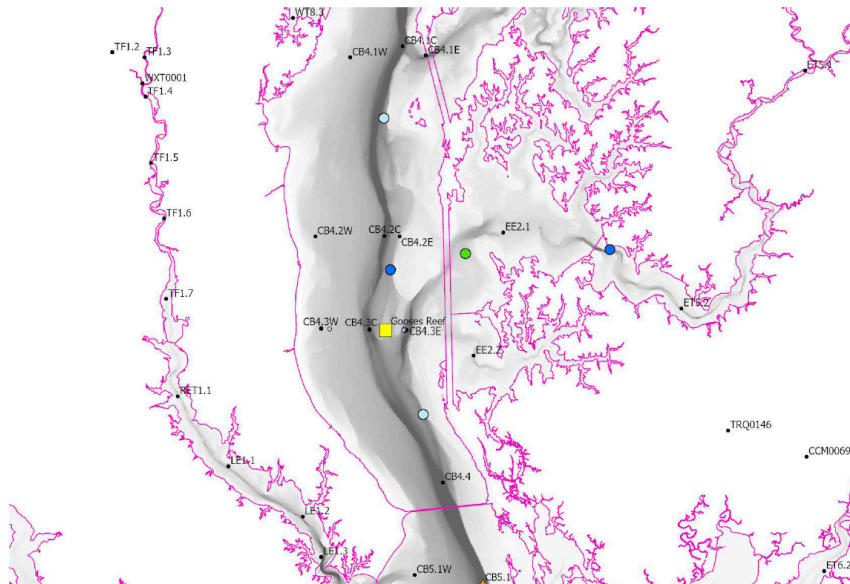
- **Peter Tango** gave an introduction, overview of the meeting, and asked if there were any updates.
- **Bruce Vogt**: Asked Marjy how things are going with her and Mary Fabrizio's project
 - o **Marjy Friedrichs**: Just getting started. Have some funding to develop new habitat suitability models. Going to apply them to the model output. Looking at past year vertical profile data and how to tweak the model in the future.
- **Peter Tango**: Fish GIT meeting and Criteria Assessment Protocol Workgroup meeting coming up
 - o [Criteria Assessment](#) March 7
 - **Peter Tango** went over the agenda
 - o [Fish GIT Information](#) March 20-21
- **Kevin Schabow**: Can we do an around the room roll call?
- Roll call: completed

2:10 PM – Proposed 2024 Hypoxia Station Deployment Plan (*Jay Lazar & Kevin Schabow, NOAA*) Presentation can be found [HERE](#).

NOAA Chesapeake Bay Program Office (NCBO) will provide an overview of the proposed 2024 hypoxia monitoring station locations with justification and reasoning for their placements.

- **Kevin**: Jay Lazar has done a great job of developing and running the project
- **Kevin**: We will be getting these platforms out in the water very soon. This plan is for this year running through late winter (we can determine later if we want to keep a subset in over winter). Buildout phase. Goal for next year is to have 10. Had 3 in the water previously and the working number for this plan is for 6 buoys for this season. This plan was developed by a large number of teams, leaders, and this collaborative. We should all see ourselves reflected in this plan. Given that, we are proposing deploying at 2 general geographies, the Potomac and Lower Choptank (3-4 segments). We feel strongly that these 6 stations are the logical next step considering different factors, including maintenance. We are looking for input on high level "red flags", if any, and where exactly in those locations that we want to go.
- **Jay Lazar**: Starting in the Choptank; reoccupy lower Choptank station (consistency), add an Upriver Station (adds another segment and a direct living resource connection), and add a Main Bay station for a deeper, main bay perspective. In alignment with all of the goals that we set up to work for

Choptank River Region



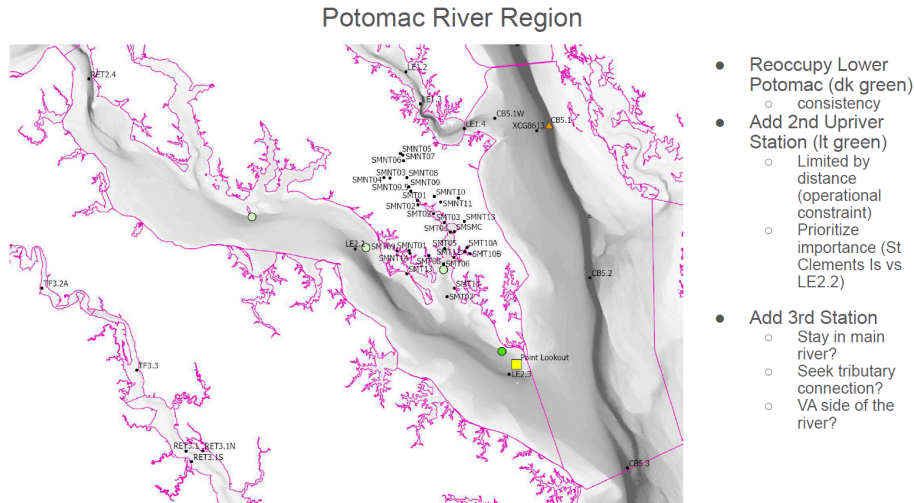
- Reoccupy Lower Choptank (green)
 - consistency
- Add Upriver Station
 - Adds another segment
 - Data interpolation across segment (EE2.1)
 - Direct Living Resource connection
- Add Main Bay Station
 - Adds another segment (CB4)
 - Near 3 station model location

*More details in the presentation.

- **Aaron Bever:** Fish tracking telemetry?
 - **Jay:** Yes

Questions, comments, or concerns on the Choptank locations?

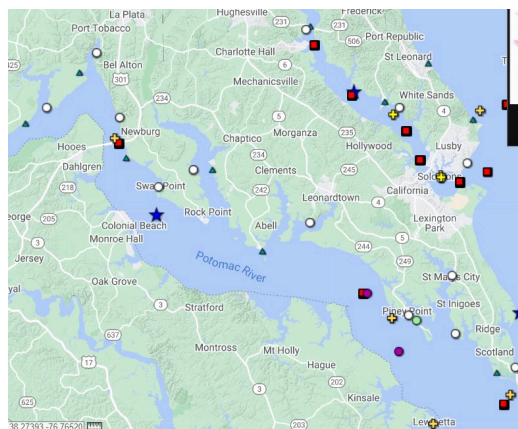
- **Marijy:** I agree that logistics are important and those locations look good to me
- **Jay:** We recognize the value in going deeper, but we can't put them in the navigable channel (as recognized on the chart) for commercial routes because we want them to last. There are very few places below 20 meters that aren't in a main channel.
- **Kevin:** We are happy to take feedback over the next week or so
- **Marijy:** I like the consistency of staying in the same place
- **Jay:** This will be a process of testing and evaluating what works and what doesn't. If you want to go beyond a 3 year period do any of these fit that bill



2:30 PM – Feedback from Collaborative (All)

Open discussion period for collaborative to provide any fatal flaw review of the proposed 2024 station locations.

- o **Jay:** Is it important to have 2 in the same main stem or is there value to bring something up into the St. Mary's?
 - **Marjy:** What are the depths of those four stations?
 - **Jay:** 10 at lower, 16 at upper, and 7-8 meters in the St. Mary's.
 - **Marjy:** Are there any Maryland continuous monitoring stations in the Potomac?
 - **Mark Trice:** I sent you screenshots of our prior sites if you want to reference. We have a site in Mallows Bay and at Saint George's Creek.
 - **Marjy:** We want them in places where the bottom and the surface look different. We could use the model to see how vertically stratified it is. Might give you a feel for which are more stratified than others.
 - **Mark** gave overview of map of locations (past and present) for MD stations



Purple dots are profiler, white dots previous continuous monitoring

- **Peter**: In thinking about any of these areas would you say there are many options and opportunities or are you thinking the ones we suggest are the best options?
- **Jay**: For the safety of the system and out of the way of boating traffic, I definitely look for deep water within segments. We're still trying to make sure we can do what we can in a 12ish hour day.
- **Kevin**: Each one of these buoys needs to be visited once every 2 weeks at a minimum. That is when we are going out with the crew and swapping out the sensors. This amounts to one long day in the Choptank and one long day in the Potomac. When factoring in weather delays and other issues that can impact field work, we can only commit to servicing buoys in two general geographies. Anything more stretches us beyond reasonable capacity with current resources.
- **Jay**: every 2 weeks might even be tough during the summer. It is not an easy thing to do and we are finding they are more limited.
- **Tom Parham**: We are looking for where we can splash our shallow water monitoring and having the Choptank would be a great site for Rebecca having 3 years of shallow water monitoring.
- **Marjy**: Rebecca what location would be best for the 4-d interpolator; one near or at a different location than a cont. monitoring station?
- **Rebecca**: The most important thing that we are talking about is continuous D.O values. So if it is near one, but goes down to 10m+ that is good, but we certainly don't need it during a shallow part.
- **Tom**: If we chose the Choptank with those stations we would also have the periphery sprinkled with continuous monitoring stations
- **Rebecca**: That sounds excellent. My only concern is the Choptank doesn't have those deep water segments. I do think it could be helpful to have all that coverage
- **Marjy**: Are we considering the uppermost point v. lower?
- **Jay**: Yes, I think a thought is having them configured latitudinally. For maintenance, we can get to either. If we can get something valuable by spreading them out we can prioritize it within this cluster that is manageable.
- **Aaron**: I am okay with any of these (re:Choptank). I would probably prefer having one to the North and South.
- **Kaylyn Gootman**: Just want to make sure we don't forget about short-medium term planning to get ahead of next year's field season, making sure we have a good sense of the roadmap for partners over the next few years.

- **Dong Liang**: Is there any consideration on the statistical power of the stations? Considering “over-monitoring.”
- **Kevin**: We are suggesting 3 locations here, just choosing between these, and then it would be 3 in the Lower Potomac.
- **Bruce Vogt**: These are covering 3 different segments here, which are unique in that sense.
- **Dong**: Have you looked at existing data from last year to see how similar they are across different segments?
- **Rebecca**: No, the three from last year in plotting the vertical profiles are different in terms of their level of variability. We are using them all now as we look at variabilities in D.O. Most dots are different, so I am confident it isn’t oversampling.
- **Marjy**: When we were looking at plotting depth time figures from both the model and the data they were similar. Would it be possible to look at summer 2023 for these 5 stations and see how different they are?
- **Aaron**: It would be easy, but it would take a while. We would have to go back in and re-run stuff.
- **Marjy**: We could look at the daily average. Would that be difficult?
- **Aaron**: No
- **Marjy**: That would be a possibility to compare those sites. Is there any possibility of putting anything far up on the left?
- **Jay**: That alone adds 2 hours. This configuration right now is a 12 hour day.
- **Marjy**: What about the bottom right? Too near the shipping channel? Too far away?
- **Jay**: There is a shoal just to the southwest of that point that would be on the edge. We could start to look at it but we would probably run into similar issues. Fuel costs are already limiting.
- **Kevin**: The plan is to keep our boat down in the general vicinity of the Potomac to help keep the work days to approx 12 hours with travel and time on the water.
- **Tom**: What were the two sites you recommended from the paper to understand mainstem hypoxia?
- **Jay**: The two points on the map are how we reasonably estimate hypoxia. I think that we will continue to have challenges in the open water main bay area. Maybe there are opportunities for other technologies to work on that.
- o **Bruce**: We are pretty far behind schedule. We have heard some good suggestions. What is the best way forward from here? Are people comfortable enough with these or do people want to send in maps with their preferred locations?

- o **Peter:** Is there a necessity for sites this year vs next? Prioritization.
- o **Bruce:** What we choose here is a planned 3-year appointment.
- o **Jay:** Until we are told otherwise.
- o **Dong:** If the goal is for interpolation there is value in spatial balance and cluster design
- o **Bruce:** We will give everyone a week for additional feedback. There are some constraints and we have to keep in mind we can't do more than 1 day of effort.
- o **Kevin:** We're getting these in the water in a month so we need to get these locations to the US Coast Guard soon and for permit purposes. USCG is likely to provide input on location as well. It is another step. If we can get feedback by next week that is ideal.

Action Item: Send all feedback to Jay Lazar NO LATER THAN Monday March 11

2:40 PM – Data Analysis & Integrity (NCBO, All)

Brief presentation of data protocols followed by discussion of all data related issues, including but not limited to: addressing data gaps for analysis purposes; data collection, calibration, management and analysis; significant digits – in sensor outputs and data analysis; subsampling of data to meet assessment needs; and any other data related topics.

- *Moved to a later date due to time*

3:10 PM – GIT funding proposal discussion

Presentation can be found [HERE](#)

Discussion of proposed model-assisted optimization analysis for a high frequency sensor water quality sampling design strategy for long term and near term to support bay habitat and criteria assessment at the segment scale.

- **Peter:** Want to have a plan in place for a foundation for where we want to go moving forward. This is a stepping stone to take a subset of areas in the bay and give a stronger basis to the designs that we are planning moving forward and opportunities to assess how helpful locations are. There are several proposals being developed to seek GIT funding for projects.
- **Peter:** Diverse interests in our stakeholder community. Limited resources also required planning to balance interests
- **Peter:** proposal suggestions
 - o Limited resources (10 arrays)
 - o Assuming 10 can be divided for meeting multiple stakeholder needs
 - o D.O criteria assessment needs support from on-shore and offshore data collection

- o Model based evaluation of monitoring needs
- o Couple optimization with nearshore continuous monitoring
- o Optimize do condition assessment
- o Are there biases
- Expected output: stability in work planning with documented annual deployment strategy for next 10 years
- Approach optimization documented
- 5-10 segments where sample designs predetermined
- Remaining 6-7 could be committed to modeling calibration and verification reference sites.
- We are looking to solidify this month.
- **Marjy**: Love the ideas
- **Tom**: You might want to put in there that 2028 is when the 4D estimator is supposed to be done which may free up the amount of spaces you can sprinkle these things. Question for Jay...what are the lifespan of these things?
- **Jay**: Replacement is something we do. We are trying to figure out their lifespans, but it depends on how fouled they get. Last year we had 10 sensors for the 10, so there was no backup. We try to swap them out regularly, but we are trying to figure that out.
- **Kevin**: With our budget plan we do have replacement costs built in
- **Bruce**: Peter when do you need an answer on the GIT funding with STAR?
- **Breck**: I just reached out to Lee and Lucinda and am trying to get a confirmed date. It's only the 7 provided questions
- **Bruce**: Get feedback to Jay and Peter soon, by next Monday!

3:30 PM – Adjourn