



Bay Oxygen Research Group (BORG) Meeting

September 21st, 2026
12:00 PM – 1:30 PM

[Visit the meeting webpage for meeting materials and additional information.](#)

Purpose: This was the September monthly meeting for the Bay Oxygen Research Group (BORG) Action Team. This meeting started with Peter Tango (USGS) presenting the membership structure and timeline for the action team. Next, Rebecca Murphy (UMCES) showed the updated 4D flow chart and accepted suggestions. Lastly, Rebecca shared a progress update for the 4D interpolator development and documentation.

Minutes

I. Welcome, Introductions & Announcements

Lead: Peter Tango (U.S. Geological Survey, USGS)

Upcoming Conferences, Meetings, Workshops and Webinars

1. [Restore America's Estuaries' 2026 Coastal & Estuarine Summit](#) – September 22-25, 2026. San Francisco, California.
2. [Chesapeake Watershed Forum](#) – November 13-15, 2026. Shepherdstown, West Virginia.
3. [National Water Quality Monitoring Council Virtual Gathering](#) – March 9-11, 2027. Virtual.

Announcements

- With the updated structure and governance, the Bay Oxygen Research Group Action Team is moving into the Clean Water Goal Team. To stay up to date with the Clean Water Goal Team and their monthly meetings, please join the mailing list by emailing Allison Welch (awelch@chesapeakebay.net). You can also join the list for the Clean Water Goal Team Newsletter by following [this link](#).

II. [BORG Action Team Membership](#)

Lead: Peter Tango (USGS)

In this presentation, Peter shared the structure that is outlined in the Governance and Management Framework (GMF). In August, Peter shared the structure that the Clean Water Goal Team (CWGT) wanted BORG AT to adopt. However, BORG is an action team and therefore doesn't need to follow the structure outlined in the GMF. At this meeting, there were several questions that came up regarding this new structure and how it'd be applied to this group. Peter met with the Governance and Operations (GO) Team to get insight into this. They gave guidance that the action team leadership is able to determine their structure, which does not need to be the full 15-member voting structure.

Peter shared the current signatory members and announced that BORG leadership will be calling for at-large member nominations in early October. They are trying to get a diverse array of expertise throughout the membership to be an at-large voting member.

Request: If you would like to be considered for At-Large membership, please send the following

1. Contact information (name, affiliation, email).
2. Short bio (addressing the nominee's background).

to Allison Welch (awelch@chesapeakebay.net) and cc Peter Tango (ptango@usgs.gov), Rebecca Murphy (rmurphy@chesapeakebay.net), and Breck Sullivan (bsullivan@usgs.gov) by close of business on October 20.

III. Updated 4D Flow Chart

*Lead: **Rebecca Murphy** (University of Maryland Center for Environmental Sciences, UMCES)*

In this presentation, Rebecca shared the workflow chart for the 4D interpolator. The team updated the chart to make it clearer, especially on the location of the data lake and additional notes for each box. Rebecca wanted to know whether there are any additional edits that can make this diagram easier to understand. They plan to use this to help explain the tool and include it in documentation.

Rebecca walked through the flow chart. This begins with sourcing the dataset and organizing it, which becomes the “Data Lake.” Then, they run the interpolator by querying one year of data, by region. There are two generalized additive models (GAMs) that are fit which are brought together to get the mid-day dissolved oxygen (DO) with the pycnocline. This goes into the simulation, which is run one year at a time by segment. The parameterization step is then conducted so that hourly results and represent the high frequency data. This uses all of the historical data, and includes fitting the GAMs as well to estimate parameters in all space and time. This results in different parameters, like depth correlation, which is used with the mid-day DO result to get the hourly simulation output by year and segment. For an annual criteria assessment, interpolation results would need to be generated separately for each of the three years included in one assessment period.

There have been questions about how often the parameterization will be updated. The development team doesn’t know how often they would want to or be able to run it. They are hoping to do sensitivity tests on different time frames between updates to inform that decision.

No feedback was given.

IV. 4D Progress and Documentation Update

*Lead: **Rebecca Murphy** (UMCES)*

In this presentation, Rebecca shared updates on 4D development. Firstly, they have been working on documentation. The development team has added some appendices. Rebecca outlined the newest drafts that are available for reviews. The Scientific and Technical Advisory Committee (STAC) Review begins in November.

Rebecca also shared that they are continuing to review 4D interpolation results and compare them to the observed data, including Fishing Bay results.

The BORG AT has been working with the Criteria Assessment Protocol Action Team (CAP AT) on creating a module to perform cumulative frequency diagram (CFD) analysis on the 4D results. In this presentation, Rebecca showed an example of the reference CFD and results for a segment.

The development team is also working on interpolating temperature and salinity in order to compute some of the criteria. Lastly, Rebecca announced that they plan to create an interface for using the 4D interpolator.

Discussion Notes:

Q from chat: *Becky Monahan:* What's the timeline for an interface if the funding isn't secured?

- **A:** *Peter Tango:* I just found out about the funding last week. We were asked to put the proposal together. I feel like we are in a good place to not think about whether the funding is secured. We are looking to have something out of this process by July 2027. If that changes, we will address that and let you know.

Q: *Amanda Shaver:* I noticed the white boxes on the flowchart are datasets and products. Would that be something that the person is running it would get as an output? Is it something that would be delivered with the other results? If someone wanted to run through one year to get the hourly simulation and stop there, could the interface get that information? I'm curious how those datasets and products are going to be and where they will live.

- **A:** *Peter Tango:* The data lake is a significant product. There is more there than we might see on the datahub. I think that has potential as a product and is something we should talk more about. This would be similar to a product from the Nontidal Network. For those other items, I think that would be a good question for the interface process.
- **Response:** *Rebecca Murphy:* I've run the simulations on my computer for a handful of tests. When I run a year for a segment, I get an R file with the results. I look back at these when I am working with the results. However, you'd probably only want to look back at these if there is a problem so this could be something that is retained by the person who is running it. We generate diagnostics so we can look at the results in a more visual way.
- **Response:** *Jon Harcum:* The workplan asked us to develop a proof of concept so we could push through some of those issues and have some examples that get pushed out by the user interface. That might help inform Amanda's question. I don't think there is a reason to not make things available. The data lake is a processed version of data, not raw. Is that the right format for something the Bay Program should host? I think it is ready to analyze and that might not be the right thing to have publicly available. We should talk through that to make sure we're not giving the public the wrong idea of the data.
- **Response:** *Rebecca Murphy:* The workplan Jon mentioned was for the interface. There would be good points along the development process to talk about these files.

Comment: *Rebecca Murphy:* Expect to hear a lot from us in the next month or so. We appreciate all of the interaction with you all. We should have good development with documentation and discussions with CAP.

Comment: *Jon Harcum:* I know we have been releasing some documents to this group to review. I think there were a couple of folks who made comments about types of data in an earlier document. If folks are actively reviewing the documents and want to give comments back to us to inform our own edits, are there individuals who are doing that? Is there a timeframe to have comments in before the STAC Review?

- **Response:** *Rebecca Murphy:* We are working internally on a timeline for finishing the documentation. I think we will get close to the deadline with this work. Comments probably need to be in by a week before, but we will likely be providing documents close to that time as well. I would see the STAC documentation as a building block for the documentation that would be published for this tool.

Q from chat: *Becky Monahan:* Are there going to be opportunities to make comments after the STAC review?

- **A:** *Rebecca Murphy:* Yes.
- **A:** *Peter Tango:* I agree with what you are saying. While the STAC Review is ongoing, the panel is reviewing the first draft. Anything that hasn't been reviewed ahead of time by our team should be able to be incorporated. During STAC reviews, there is usually time to talk with STAC and ask questions. If there is anything that comes up during that time, we'd be able to bring it forward.
- **Response:** *Rebecca Murphy:* In the STAC review, they may be requesting edits and it would be fine if our group is also editing things at the same time.

Comment: *Peter Tango:* Also, if there are any big-ticket items that come up, we could bring it forward to STAC for consideration. I would say that we probably want something like October 21st as a deadline for the documentation that is available. That would give us about a 10-day window.

- **Response:** *Rebecca Murphy:* That sounds good to me.

V. Adjourn

Next Meeting: [November 16, 2026](#)

Attendees:

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|------------------------------------|--------------------------|
| • Allison Welch, CRC | • Gabriel Duran, CRC |
| • Amanda Shaver, VA DEQ | • Joe Morina, VA DEQ |
| • Andrew Keppel, MD DNR | • Jon Harcum, TetraTech |
| • Angie Wei, UMCES | • Marjy Friedrichs, VIMS |
| • Becky Monahan, MDE | • Peter Tango, USGS |
| • Clifton Bell, Brown and Caldwell | • Rebecca Murphy, UMCES |
| • Elgin Perry | • Tish Robertson, VA DEQ |