



Water Quality Goal Implementation Team (WQGIT)

Monday, March 23rd, 2026

1:00 - 4:00 PM

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

Purpose: This is the monthly meeting of the Water Quality Goal Implementation Team (WQGIT). Meeting topics included updates on the Phase 7 timeline, hydrologic period and E3 Scenario development as well as educational presentations on water quality criteria, reference curves, the 4-D Interpolator, the Main Bay Model and the Multiple Tributary Models.

Actions & Decisions

Action: Save the date for a two-day hybrid Goal Team meeting June 22-23 hosted at the MDE office in Baltimore, MD. Additional details will follow.

Action: If you have any questions for presenters from the primers on water quality criteria assessment, the 4D Interpolator, the Main Bay Model, and the Multiple Tributary Models, please reach out to them or let Goal Team leadership know to help guide future presentations and discussions on these topics.

Action: Robin Glas, USGS will continue the current analysis and provide candidate periods for the Goal Team to consider what is most representative of long-term average conditions to utilize for the Phase 7 hydrologic period.

Action: Sector workgroups will continue developing their sector's E3 Scenario inputs and a recommendation for base year choice to the Goal Team over the next 4-6 months. Please reach out to Auston Smith, EPA (Smith.Auston@epa.gov) with any additional questions or feedback.

Minutes

I. Welcome and Announcements

Lead: Lee McDonnell, CWGT Co-Chair

II. Business, Workgroup & Phase 7 Decision Updates

Lead: Jeremy Hanson, WQGIT Coordinator

Jeremy gave an overview of announcements including the recent release of the [Bay Barometer](#), ongoing [feedback](#) collection on user experience with ChesapeakeProgress, upcoming grant proposal deadlines, and more highlighted on the [posted slides](#). Other major updates include:

- New leadership recently approved:

- o AgWG: Caitlin Grady, GWU and Jenn Fetter, PSU
- o WTWG: Sushanth Gupta, MWCOG and Christina Lyerly, MDE
- o CWIP SC: Ashley Hullinger, PA DEP and Christina Lyerly, MDE
- CWGT will hold a hybrid meeting June 22-23 at the MDE office in Baltimore, MD. Members are asked to save the date, and additional details will follow. The tentative plan is for a later start on the first day, to allow for commute.
- All main Phase 7 input decisions were wrapped up, mostly at AMT and WTWG, which are outlined in the latest [Decision Tracker](#) and [posted slides](#).

Materials: [Presentation, Oct 2025 – Feb 2026 Phase 7 Decision Planner](#) (version date 2.19.26)

Actions:

1. Save the date for a two-day hybrid Goal Team meeting June 22-23 hosted at the MDE office in Baltimore, MD. Additional details will follow.

III. Phase 7 Timeline Update

Lead: Lee McDonnell, EPA CBPO

Lee provided an update on the Phase 7 timeline. He noted that the complexity and location of revisions may have differing impacts on the model schedule and walked the group through a color-coded table showing key activities from 2026-2030. In particular, Lee noted that there was an AMT decision in February to include a new source of data for broilers. Data collection is still ongoing, but is expected by the end of March. As such, there may be a delay in the current schedule. Eyes remain “on the prize” for December 2027 to have a completed model and potential delays to this timeline are not known at this time. There will be multiple check-in points, specifically at the Modeling Workgroup, with the opportunity for discussion, input, and change.

Materials: [Presentation](#)

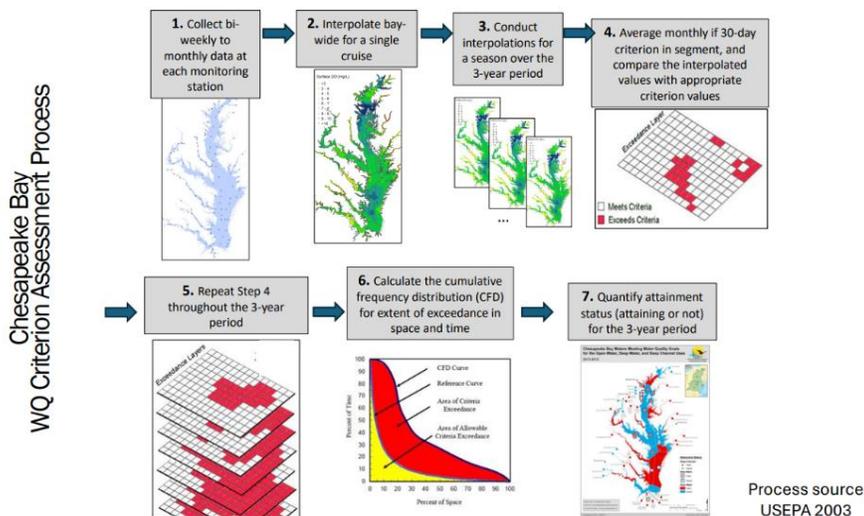
Discussion:

- Kevin McLean, VADEQ asked if there are more delays to model development, will the model review time be held as planned or will it be cut into.
 - o Lee responded they do not want to cut into the review. If a change to the timeline is needed, it would likely be taken to the PSC for recommendation. Since this is a tool that will drive us for the next 10-12 years, we do not want to shorten review time.
- KC Filippino, HRPDC noted that the land use time series review has taken longer to get to the partnership for review than initially planned and asked to ensure there is adequate time to review and discuss issues if needed.
 - o Lee responded that if something really wrong is found, we need to fix it. So, there is flexibility in the schedule to allow for this as needed.
- Joe Wood, CBF posed whether a separate or smaller group should meet to develop expectations around WIPs.
 - o Lee responded that’s a fine suggestion. He suggested the Milestones Workgroup could be a potential group to task with this.

IV. Reference Curves and Interpolator Primer

Lead: Peter Tango, USGS, and Kaylyn Gootman, EPA CBPO

Peter and Kaylyn provided the group with a “Chesapeake Bay Water Quality Criteria 101” primer. Peter’s presentation included relevant background material on criteria assessment, including a visual on the Chesapeake Bay WQ Criterion assessment process, the concept of allowable exceedances, and summaries of the reference and bio-reference curves. Kaylyn continued the “101” overview of the 4-Dimensional (4-D) Interpolator, which will be able to give 3D representations of dissolved oxygen throughout time, enabling the evaluation of both long- and short-duration water quality criteria. Kaylyn noted partnership uses of the interpolator, motivation for developing a new 4-D method, key differences and improvements between the 3D and 4D interpolators, partnership history of the 3D and 4D interpolators, and timeline for development.



Materials: [Presentation](#)

Discussion:

- Tish Robertson, VADEQ asked whether the 4-D interpolator will be used in conjunction with Phase 7 to assess all criteria, not just what was looked at in Phase 6.
 - Lee responded that if we are able to assess all DO criteria, it's important that we do that.
 - Lew Linker, EPA CBPO added that from a historical perspective, there is precedent for deciding this as was done with water criteria assessment classic and the 3-D interpolator. It would be a decision of the WQGIT/CWGT and others, not Modeling Workgroup. It may be practical to have a classic assessment next to the 4-D Interpolator assessment for comparison.
 - Tish added that it would be a great opportunity to test whether attainment of the three kinds of standard criteria really do predict attainment of all the criteria and designated uses. Looking at all criteria would be a benefit to all the states.
 - Tish noted the migratory fish spawning nursery use should be considered a part of the tiered implementation because it is tied to living resources. Since it’s a part

- of the Bay people are very familiar with it could make the modeling work more accessible to the public.
 - Joe Wood, CBF shared support for this idea of being able to see a more holistic response to the potential nutrient reductions and the way we frame or divide efforts and planning initiatives.
 - Matt Stover, MD DNR (in chat): I agree with Tish on this.
 - Dave Montali, WVDEP noted there is a lot to talk about with this, especially if we change our base condition. We have to use the 4-D Interpolator and Phase 7 to evaluate longer duration and shorter duration criteria.
- Dave Montali asked whether the bio-reference curves for deep water would need to be reassessed and updated with the 4-D interpolator.
 - Peter responded that new data in the past has not led to a change in the reference thresholds. If folks want to see the research to extend the data set and reevaluate it, then we have to do some recreation of the original analysis.
 - Kaylyn added that the deep-water bio-reference curve was able to be created because there was enough data detailing good and bad habitat condition. You need to have that mix to develop a reference curve for that particular designated use. There is opportunity to explore other designated uses. For places without a bio-reference curve, we have a solid foundation to fall back on the reference curve. They both give wiggle room for those allowable exceedances.
 - Peter responded (in chat): Maybe a better answer would be to reflect similarity to Lew's answer on the evaluation of all criteria - if the Partnership asks for any sort of re-evaluation as a priority, we can work to 1) re-evaluate DW bioref curve with extended data time series available in 3D world, 2) do the same with 4D for DW, 3) consider other DUs if/when we have suitable data, and maybe 4) revisit CHLA curve evaluation and whether to adopt recommendations, re-evaluate the assessment with 4D or both. A great thing - our assessments have been stable, the BIBI has been stable, and we can consider additional applications with shorter duration criteria going forward.

V. Break

VI. MBM and MTMs Primer

Lead: Lew Linker, EPA CBPO

Lew presented an overview of major aspects of the Main Bay Model (MBM) in Phase 7. He gave an overview of shallow water simulation in the MBM including living resources, SAV simulation, benthic algae simulation, shoreline erosion, and segmentation. He also shared general improvements in Phase 7, summarized below, and improvements to scenario operations. In Phase 7, three Multiple Tributary Models (MTMs) are being developed for the Potapsco/Back, Rappahannock and Choptank, which Lew highlighted and noted use cases for each. Finally, Lew shared how the use of tracers has evolved and is used in the application of the MBM.

Major refinements to the Main Bay Model include:

- Improved calibration due to longer (40-year) period of simulation and additional observed data including shallow water and vertical array programs
- Improved simulation of salt transport and representation of bottom water salinity due to refined local bathymetry
- Better tidal water column temperature based on short wave radiation interaction with suspended sediment

- Improved hydrodynamic simulation of salinity through bottom roughness determined by bottom sediment type
- Improved simulation of Conowingo inflow in the Dynamic Watershed Model and through the CoE-ERDC 2027 Conowingo Model
- Better simulation of flows through use of daily precipitation from PRISM with NLDAS hourly adjustments
- Improved input loads to Bay shallow waters due to inclusion of reservoirs and other refinements in the coastal plain GSN
- Improved representation of atmospheric deposition of nitrogen to the watershed, tidal Bay and coastal ocean with refined Airshed Model loads, particularly for ammonia
- Improved hypoxia simulation in the lower Bay due to addition of observed concentrations of DOC at the ocean boundary and other refinements

Materials: [Presentation](#)

Discussion:

- Joseph Zhang, VIMS emphasized the collaborative effort of the development of these components of the model.
- KC Filippino, HRPDC asked for clarification that the MTMs will not feed into and inform the MBM. Norm Goulet, NVRC also asked (in chat): Given that there are now only 3 MTMs will you still be able to effectively inform the MBM with them?
 - Lew responded there is an exchange of information and we are learning from them, but operationally we can't use them with the MBM because they take too long to run. We'd never be able to be responsive to the needs of making a plan given the time it takes.
 - KC asked how the MTMs are incorporated into the review in terms of necessity and priorities. Should they be included in the review, or are they more aligned with living resources models?
 - Lew responded the "must haves" are a full review of the watershed model and the MBM because those are the regulatory models. MTM are not regulatory, so they don't require that review. There may be some utility in bringing them along, but that's a downstream decision.
 - Joseph Zhang shared that the shipping access channel near Baltimore shown on a previous slide is a good example of the information going both ways between the two model components. We will try to incorporate any important lessons we learned from MTMs that we think will not slow down the MBM much.

VII. Hydrologic Period Update

Lead: Robin Glas, USGS

Robin provided an update on the analysis being conducted to determine an updated hydrologic period for the Phase 7 model. The analysis uses rolling 10-year mean windows of streamflow records from River Input Monitoring (RIM) stations to determine a time period that is most representative of long-term average conditions. Robin showed multiple heat maps and other graphs to visualize the data, considering annual flow variability, low flow magnitudes, and high flow magnitudes. Next steps will be to look at a 3-year critical period, which would ideally fit inside the larger 10-year hydrologic period.

Materials: [Presentation](#)

Actions:

1. Robin will continue this analysis and provide candidate periods for the Goal Team to consider what is most representative of long-term average conditions to utilize for the Phase 7 hydrologic period.

Discussion:

- Lew Linker, EPA CBPO suggested that if there were no other considerations, looking at the Q95 heat map and focusing on the Susquehanna, Potomac, Rappahannock and Pamunkey Rivers which have strong influence on Bay water quality, the period of 1991-2000 looks good.
 - Robin responded that that period would be centered around 1995/1996, which appear more yellow than orange. A 10-year window centered around 2002/2003 may be a bit more characteristic. We are looking for orange on this heat map, ideally.
- KC Filippino, HRPDC asked for clarification on why the analysis starts at 1976.
 - Robin responded that there was a very large wet spike in 1976, so we wouldn't want to look earlier than that. The model runs start in 1985, and if we want to look at long-term conditions we might want to go later than that.
 - Robin confirmed that the analysis refers to water years.
- KC noted the “whys” and background would need to be presented to the group ahead of a decision.
 - Robin suggested presenting it as a lookup table with options optimized for different variables and metrics.
- Norm Goulet, NVRC asked if the future is going to be wetter, should we bias toward that?
 - Robin responded that she was told that we want to optimize to current conditions for this part of the analysis. Optimizing for present conditions is the safest way to go. Future scenarios are tricky. Knowing that the Northeast region is getting wetter faster than anywhere else in the US right now, mostly manifesting as extreme events, that will start to show in the Q95 metric, but not necessarily the long-term means.
 - Norm responded that the analysis starts off with that position that we're looking at current conditions and I'm not so sure we want to be looking at current conditions.
 - Lew responded that when we develop our scenarios for a 2050 condition, e.g., we use the best information to use a delta method. It is bound to be a wetter, higher load period. No matter which base condition we chose, we would always be using that delta method to look forward. The base condition becomes somewhat less relevant in that regard.

VIII. E3 Scenario Development Update

Lead: Auston Smith, EPA CBPO

Auston presented an overview of considerations for selecting a scenario base year, which is the year that trend analyses are based on to produce base conditions for other years. Two potential options are 2010, which was selected in the past in both 2010 and 2017 for consistency, or 2022, which would incorporate recent ag census data and reflect the current land use most accurately. Discussion included clarification that recommendations from sector workgroups on selection of a base year is desired and clarification on the process through to the PSC for this decision.

Materials: [Presentation](#)

Actions:

1. Sector workgroups will continue developing their sector's E3 Scenario inputs and a recommendation for base year choice to the Goal Team over the next 4-6 months. Please reach out to Auston (Smith.Auston@epa.gov) with any additional questions or feedback.

Discussion:

- Lee McDonnell suggested formalizing an ask to the source sector workgroups to develop these two scenarios or others that we'd like to see and get updates on those along the way before we need to finalize a decision.
- Norm Goulet, NVRC asked whether recommendations from sector workgroups on selection of a base year is desired.
 - Auston confirmed a recommendation is a good idea.
 - Norm asked, for the base year decision, is the CWGT making a recommendation to the PSC or is the CWGT making the decision?
 - Lee responded that it would be a decision by our group, but really a recommendation to the PSC.

IX. Wrap-Up

Lead: Caroline Kleis, WQGIT Co-Staffer

X. Adjourn

Next Meeting: [Monday, April 27th, 2026](#)

Attendance

Lee McDonnell EPA CBPO (CWGT Co-Chair)
Greg Sandi, MDE (CWGT Co-Chair)
Jeremy Hanson, CRC (CWGT Coordinator)
Petra Baldwin, CRC (CWGT Co-Staffer)
Caroline Kleis, CRC (CWGT Co-Staffer)
Peter Tango, USGS
Kaylyn Gootman, EPA CBPO
Lew Linker, EPA CBPO
Robin Glas, USGS
Auston Smith, EPA CBPO
George Onyullo, DC DOEE
Holly Walker, DNREC
Sarah Lane, MD DNR
Cassie Davis, NYS DEC
Scott Heidel, PADEP
Kevin McLean, VA DEQ
Dave Montali, WV DEP
Scott Settle, WV DEP
KC Filippino, HRPDC

Amanda Shaver, VA DEQ
Arianna Johns, VADEQ
Tish Robertson, VADEQ
Joseph Morina, VADEQ
Samantha Cotten, DNREC
Cass Klingaman, NYSDEC
Angela Jones, DoW
Katie Brownson, USFS
Bo Williams, EPA CBPO
Megan Thyng, EPA
Kelly Gable, EPA
Ashley Geiger, EPA
Patrick Woolford, EPA
Doug Bell, EPA
Breck Sullivan, USGS
Rebecca Murphy, USGS
Peter Claggett, USGS
John Wolf, USGS
Alex Gunnerson, CBPO Contractor

Kevin DuBois, DoW
Joe Wood, CBF
Marel King, CBC
Mike LaSala, LandStudies
Emily Dekar, Tioga Co., NY
Christina Lyerly, MDE
Elizabeth Hoffman, MDA
Kristin Saunders, MD DNR
Guido Yactayo, MDE
Matt Stover, MDE
Anne Hairston-Strang, MD DNR
Tyler Trostle, PADEP
Ashley Hullinger, PADEP
Norm Goulet, NVRC
Jamie Mitchell, HRSD
Sabine Miller, DC DOEE

Joseph Zhang, VIMS
Qian Zhang, UMCES
Jimmy Webber, USGS
Eugenia Hart, TetraTech
Gabriel Duran, CRC
Allison Welch, CRC
Emily Young, ICPRB
Mary Stack, ICPRB
Sushanth Gupta, MCWOG
Marisa Baldine, ACB
Jess Blackburn, ACB
Mark Dubin, Virginia Cooperative Extension
James Shallenberger, SRBC
Terra Famuliner, RVARC
Karl Blankenship
Lisa Ochsenhirt, Aqua Law
CFC

Acronyms

ACOE: Army Corps of Engineers
AgWG: [Agriculture Workgroup](#)
AMT: [Agricultural Modeling Team](#)
BMP: Best Management Practice
CAST: [Chesapeake Assessment Scenario Tool](#)
CBP: Chesapeake Bay Program
CWIP SC: [Conowingo WIP Steering Committee](#)
CWGT: Clean Water Goal Team
DO: Dissolved Oxygen
DOC: Dissolved Organic Carbon
DWSM: Dynamic Watershed Model
E3: Everything, by Everyone, Everywhere
EPA: Environmental Protection Agency
GSN: Generalized Stream Network

MBM: Main Bay Model
MTM: Multiple Tributary Model
PSC: [Principals Staff Committee](#)
RENPS: Reducing Excess Nitrogen, Phosphorus and Sediment Outcome
SAV: Submerged Aquatic Vegetation
STAC: Scientific and Technical Advisory Committee
WIP: Watershed Implementation Plan
WQGIT: [Water Quality Goal Implementation Team](#)
WQSAM: Water Quality, Standards Attainment and Monitoring
WTWG: [Watershed Technical Workgroup](#)