Modeling Workgroup July Quarterly Review

Day 1 – October 7, 2025

Event webpage: Link
For Remote Access – Microsoft Teams Link: Join the meeting now
Meeting number: 258 051 248 108 **Password:** 8X5to4
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This meeting will be recorded for internal use only to assure the accuracy of meeting notes.

10:00 Announcements and Amendments to the Agenda – Mark Bennett, USGS and Dave Montali, Tetra Tech

10:05 Phase 7 Watershed Model Progress – Gopal Bhatt, Penn State-CBPO
Gopal will provide an overview of the Phase 7 Watershed Model progress over the last Quarter. Key advances in the Phase 7 Dynamic Watershed Model (DWSM) development will be presented including: (a) implementation of organic nitrogen and phosphorus scour in rivers to better represent high flow TN loads, (b) adding a trend component to the Generalized Stream Network (GSN) routing, and (c) incorporation of BMPs with CAST removal efficiencies aggregated up to key load sources.

10:35 Discussion of the Phase 7 Model Progress

10:45 Progress on Phase 7 Nutrient Inputs and Sensitivities – Joseph Delesantro, ORISE-CBPO with Conor Keitzer and Rosh Nair-Gonzalez, UMCES
Updates to load sensitivity to input values and key inputs of agricultural fertilizer, manures, and atmospheric deposition (to forest) will be presented. In addition, finalizing the sanitary sewer exfiltration estimate method and overall results will be discussed as well as phosphorus trend sensitivity to pH, ionic strength, and naturally weathered phosphate by physiographic region.

11:15 Discussion of Phase 7 Nutrient Inputs and Sensitivity Progress

11:25 Future Environmental Conditions and CBP BMP Efficiencies – Maya Struzak, Sarah Fakhreddine, and David Rounce, Carnegie Mellon and Michelle Miro and Krista Grocholski, RAND
Progress will be presented on application of the APEX field scale watershed model under different future climate hydrologic conditions to determine potential change in relative pollutant removal efficiency of current CBP-approved NPS management BMPs. In future 2026 Quarterlies the SWMM stormwater model will be applied at field level scales to examine CBP stormwater BMPs efficiencies to future environmental conditions.

11:50 Discussion of CBP BMP Efficiencies Under Changing Environmental Conditions

12:00   LUNCH

1:00   Watershed Modeling Using Machine Learning Techniques – Chaopeng Shen and Kim Van Meter, PSU
Progress in a cooperative Agreement for Penn State PIs to support and collaborate with CBP scientists and modelers using machine learning and/or other appropriate techniques will be described.

1:20   Machine Learning Discussion

1:30   Update on Conowingo Model Development – Earl Hayter, Jodi Ryder, CoE-ERDC and Matt Rowe, MDE
Progress in development of the Conowingo Model will be presented.

1:40   Discussion of the Conowingo Model Development and Application

1:50   Closing Out Efficient Multi-Objective Optimization Procedures – Kalyan Deb, Pouyan Nejadhashemi, Ritam Guha, and Auden Garrard, MSU
Last steps and closing out of the CBP optimization project.

2:05   Optimization Discussion

2:15   ADJOURN

Modeling Workgroup July Quarterly Review

Day 2 – October 8, 2025

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10:00 Announcements and Amendments to the Agenda – Dave Montali, Tetra Tech and Mark Bennett, USGS

10:05 Assessment of Atlantic Croaker Present and Future Habitat in the Chesapeake– Colin Hawes and Marjy Friedrichs, VIMS
An assessment of Atlantic croaker habitat under present and future conditions in the Chesapeake will be presented. Future directions for the assessment as well as assessment of other Key Chesapeake species such as Bay anchovy and striped bass will be discussed.

10:35 Discussion of Atlantic Croaker Present and Future Habitat Assessment

10:45 Update on Main Bay Model (MBM) Progress – Zhengui Wang, Joseph Zhang, and Jian Shen, VIMS
Progress in many arears of MBM development will be presented. An overall assessment to date of the improvement seen in the sequence of combined watershed and MBMs from Phase 6 to the Phase 7 January 2025, April, and July versions of the models will be reviewed.

11:25 Discussion of the Main Bay Model (MBM) Progress

11:35 Assessment of Sea Level Rise Scenario Methods for the MBM – Richard Tian, UMCES-CBPO
An initial assessment of sea level rise (SLR) scenarios using the Main Bay Model (MBM) will be presented including an assessment of residual currents under SLR conditions and approaches to changing ocean boundary conditions for SLR scenarios.

11:55 Discussion SLR Scenario Methods

12:05 LUNCH

1:00 Progress on Patapsco/Back MTM – Harry Wang, Breanna Maldonado, VIMS and Jeremy Testa, UMCES

Progress on the Patapsco/Back MTM and linkage with Phase 6 will be reviewed. Plans to move forward with water quality calibration using the latest version the Phase 7 Watershed Model will be discussed.

1:15   Discussion of Patapsco/Back MTM Progress & P7 linkage

1:25   Progress on the Rappahannock MTM & P7 Linkage – Qubin Qin, East Carolina University and Jian Shen, Zhengui Wang, and Pierre St-Laurent, VIMS
Progress on the Rappahannock MTM will be reviewed by the Rappahannock MTM Team. The application of using merged high-resolution Rappahannock River and the main Bay models will be presented. Preliminary water quality model calibration using Phase 6 loading will be discussed.

1:40   Discussion of Rappahannock MTM Progress

1:50   Progress on the Choptank MTM – Jian Zhao, William Nardin, Elizabeth North, Larry Sanford, Jeremy Testa, UMCES and Jiabi Du, Texas A&M
Progress on the Choptank MTM and P7 linkage will be described by the Choptank MTM Team and plans to move toward water quality calibration with the latest version the Phase 7 Watershed Model will be discussed.

2:05   Discussion of Choptank MTM Progress

2:15   Potential Phase 7 Application of 4-D Interpolator – Richard Tian and Rebecca Murphy, UMCES-CBPO
A presentation on a) how the current 3D Interpolator is used to assess CBP WQ standards; b) what the 4D Interpolator is; c) how the 4D Interpolator could be compared to the current 3D Interpolator in the assessment of Chesapeake Bay water quality standards; and d) thoughts on how to integrate the 3D and 4D Interpolators.

2:45   Discussion of Potential Phase 7 Application of 4-D Interpolator

2:55   ADJOURN