



## CBP Model Workgroup January Quarterly Review

Day 1 – January 6, 2026

Event webpage: [Link](#)

For Remote Access – Microsoft Teams Link: [Join the meeting now](#)

Meeting number: 218 786 089 375 59 Password: eb3tK9qi

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

**10:00 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: 1) refinements in the representation of P7 land uses, 2) extension of the calibration to the full 1985 to 2024 period, 3) updates in the use of monitoring data in the model calibration and verification, and 4) refinements in the trend component of the Generalized Stream Network (GSN) routing.

**10:30 Discussion of the Phase 7 Model Progress**

**10:40 Progress on Phase 7 Loading Sensitivities and Transport and Attenuation Factors – Joseph Delesantro, ORISE-CBPO and Conor Keitzer, UMCES**

Joseph will compare calibrated and literature-based parameterization of modeled loading sensitivity values, highlighting key differences in their performance and interpretation. Joseph will also provide updates on feature selection and parameterization of transport and attenuation factors. Progress will be discussed in the assessment of phosphorus trend sensitivity to landscape connectivity, pH, ionic strength, and naturally weathered phosphate. The preliminary results are presented to evaluate how the updated sensitivity values and transport/attenuation factors affect model performance.

**11:10 Discussion of Phase 7 Loading Sensitivities and Transport and Attenuation Factors**

**11:20 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 and SWMM public domain watershed and stormwater models, respectively, under different future climate hydrologic conditions to determine potential change in relative pollutant removal efficiency of current CBP-approved NPS and stormwater management BMPs. Sensitivity scenarios

with the field scale APEX model will examine the response of nutrient management and cover crop BMPs to future rainfall and temperature conditions.

**11:40 Discussion of CBP BMP Efficiencies Under Changing Environmental Conditions**

**11:50 LUNCH**

**12:50 Progress in CBP Artificial Intelligence and Machine Learning – Joseph Delesantro – EPA ORISE-CBPO**

A summary of the findings of the recent STAC workshop *Leveraging Artificial Intelligence and Machine Learning to Advance Chesapeake Bay Research and Management: A Review of Status, Challenges, and Opportunities* and a brief overview of the progress in CBP Modeling machine learning and artificial intelligence activities will be presented.

**1:00 Discussion of Progress in CBP Artificial Intelligence and Machine Learning**

**1:10 Proposal for a New Hydrologic Long Term & Critical Period – Lew Linker, EPA-CBPO**

A proposal to update and replace the current CBP 1991-2000 long term hydrologic period and the 1993-1995 critical period will be discussed.

**1:30 Discussion of a Proposal for a New Hydrologic Long Term & Critical Period**

**1:40 Advances in Nutrient Mass Balance Analyses – Robert Sabo, EPA-OW**

Two recent papers advancing a national and a Chesapeake watershed assessment of nutrient mass balances will be presented:

*The US EPA's National Nutrient Inventory: Critical Shifts in US Nutrient Pollution Sources from 1987 to 2017.* <https://pubs.acs.org/doi/10.1021/acs.est.5c08196>

*And Net declines in nonpoint source pollution into one of the world's largest estuaries.* [In preparation.](#)

**2:05 Discussion of Advances in Nutrient Mass Balance Analyses**

**2:15 ADJOURN**



## Modeling Workgroup January Quarterly Review

Day 2 – January 7, 2026

Event webpage: [Link](#)

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

**10:05 Update on Main Bay Model (MBM) Progress – Zhengui Wang, Joseph Zhang, and Jian Shen, VIMS**

The MBM calibration has been extensively refined since the last Quarter. The improvements will be presented along with the latest version a new 35-year run (1985 - 2020) that will be useful for MTM boundary conditions and for long-term assessments of Chesapeake water quality and trends.

**10:45 Discussion of the Main Bay Model (MBM) Progress**

**10:55 Testing Spin Up Requirements for the MBM and A Bluefish Benchmark for the MBM – Richard Tian, UMCES-CBPO**

Testing the spin up requirements to equilibrate Chesapeake sediment nutrient flux as well as a benchmark case of running the MBM at the CBPO (Bluefish) will be presented. In addition, an initial random forest assessment for SAV in the tidal fresh CB1TF segment at Watershed Implementation Plan (WIP) and sea level rise conditions will be reviewed.

**11:15 Discussion of Spin Up Test & Bluefish Benchmark**

**11:25 Update on Conowingo Model Development – Earl Hayter, Jodi Ryder, CoE-ERDC and Matt Rowe, MDE**

Progress in the development of the Conowingo Model as well as initial results of the Conowingo sediment sampling will be reviewed.

**11:45 Discussion of the Conowingo Model Development and Application**

**11:55 LUNCH**

**12:50 Progress on Patapsco/Back MTM – Harry Wang, Breanna Maldonado, VIMS and Jeremy Testa, UMCES**

Progress on the Patapsco/Back MTM will be reviewed.

**1:10 Discussion of Patapsco/Back MTM Progress & P7 linkage**

**1:20    Transport and Retention Processes and Their Water Quality Implications in the Middle–Lower Rappahannock River – Qubin Qin, East Carolina University and Jian Shen, Zhengui Wang, and Pierre St-Laurent, VIMS**

Progress on the Rappahannock MTM will be presented by the Rappahannock MTM Team and the current water quality calibration using the latest version the Phase 7 Watershed Model will presented.

**1:40    Discussion of Rappahannock MTM Progress**

**1:50    ADJOURN**