Modeling Workgroup Quarterly Review

July 9, 2024

Event webpage: Link
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Meeting number: 295 745 787 863 **Password:** uyD6uX
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To enter the webinar, please open the webinar link first.
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 Review of the STAC Climate Change 3.0 Workshop – Gary Shenk, USGS-CBPO
Gary will review the guidance and findings from the STAC Climate Change 3.0 Workshop.

10:25 Discussion of the STAC Climate Change 3.0 Workshop

10:35 Phase 7 Watershed Model Overview – Gary Shenk, USGS-CBPO
Gary will provide an updated timeline for completion of the Phase 7 Model in time for the 2026 partnership review.

10:50 Discussion of the Phase 7 Model Overview

11:00 Update on CalCAST Development – Isabella Bertani, UMCES-CBPO
Isabella will describe the progress made in work on improving CalCAST with a focus on updating and expanding land uses and load sources to match those used in CAST.

11:20 Discussion of CalCAST Development

11:30 Progress in Phase 7 WSM Development – Gopal Bhatt, Penn State-CBPO
The NHDplus 100K scale Phase 7 Dynamic Watershed Model (DWM) is using a nested model segmentation of streams and rivers with a hybrid structure for the simulation of water quality processes using HSPF and non-iterative routing models. Gopal will survey the progress being made on the step 1 mechanics of water quality calibration and plans for step 2 during the next quarter for linking of watershed model flows and loads with the estuarine model.

11:50 Discussion of Phase 7 WSM Development Progress

12:00 LUNCH

1:00 Development of Efficient Multi-Objective Optimization Procedures – Kalyan Deb, Pouyan Nejadhashemi, Gregorio Toscano, and Hoda Razavi, MSU
Progress on the integration of web-user and decision-making interfaces, and tasks for multi-state implementation using machine learning and parallel computing platforms will be presented.

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1:20 Optimization Discussion

1:30 Stormwater Management in a Changing Climate SWM & AG BMPs – Michelle Miro and Krista Grocholski, RAND
Progress on applying existing, well-documented, open source, and public domain stormwater and/or watershed models under different future climate hydrologic conditions to determine relative change in pollutant removal efficiency in existing CBP-approved stormwater management BMPs under future climate conditions will be discussed.

1:45 Discussion of Stormwater Management in a Changing Climate SWM & AG BMPs

1:55 Updating and Improving Loading Sensitivity to Inputs, Phosphorous Loading Processes, and Related Activity Update – Joseph Delesantro, ORISE-CBPO
We will discuss a proposed plan for improving load sensitivity to N inputs based on relevant literature and models. We will also discuss phosphorous (P) loading processes and highlight potential opportunities to improve P modeling. Finally, progress in improving N application estimation to crops and inclusion of sanitary sewer exfiltration and marine discharges to N inputs will be reviewed.

2:15 Discussion of Updating and Improving Loading Sensitivity to Inputs, Phosphorous Loading Processes, and Related Activity Update

2:25 ADJOURN

Modeling Workgroup Quarterly Review

July 10, 2024

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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 and Joseph Zhang, VIMS
Progress on the MBM water quality (ICM) living resource modules of oysters, SAV, and tidal marshs will be presented.

10:35 Discussion of the Main Bay Model (MBM) Progress

10:45 Phase 7 Update of Model Criteria Assessment – Richard Tian, UMCES-CBPO
Richard will provide progress on a water quality assessment of the entire tidal Bay.

11:00 Discussion of Whole Bay Criteria Assessment.

11:10 Decarbonization Sensitivity Scenarios on GLIMPSE-GCAM-CMAQ – Jesse Bash, Chris Nolte, and Dan Loughlin, EPA-ORD
Initial work on decarbonization sensitivity scenarios on the atmospheric chemistry models of GLIMPSE, GCAM, and CMAQ will be described. Once estimated nitrogen deposition loads under estimated conditions of reduced carbon emission from stationary, mobile, and area sources are available from CMAQ the Phase 6 Watershed and Estuary Models will be run to understand the influence of reduced atmospheric nitrogen loads on water quality.

11:30 Discussion of Decarbonization Sensitivity Scenarios

11:40 Overall Review of CBP MTM Work and Progress on the East Coast Tracer Model – Nicole Cai, ORISE-CBPO
Nicole will reprise her work with the CBP Multiple Tributary Models as well as progress on a regional cross-scale model of US East Coast estuaries. The purpose of this study is to investigate the connections among different water bodies, which will provide useful information and insights such as a quantified approach to assess the influence of coastal ocean atmospheric deposition to nitogen loads at the Chesapeake Bay boundary.

12:00 Discussion of East Coast Tracer Model

12:10 Documentation of Algal Temperature Correction for Algal Growth – Carl Cerco, Arlluk
Carl will describe progress on the documentation of algal temperature correction for algal growth.

12:25 Discussion of Algal Temperature Correction for Algal Growth

12:35 LUNCH

1:10 Initial Progress With the Patapsco-Back MTM – Harry Wang, VIMS and Jeremy Testa, UMCES
The Patapsco-Back MTM Team, one of the three MTMs supported by a five year grant, will describe progress on the MTM.

1:25 Discussion of Patapsco-Back MTM

1:35 Progress on the Rappahannock MTM – Qubin Qin, East Carolina University and Jian Shen, Zhengui Wang, Pierre St-Laurent, VIMS
Progress on the Rappahannock MTM will be reviewed by the Rappahannock MTM Team.

1:50 Discussion of Rappahannock MTM Progress

2:00 Progress on the Choptank MTM – Jian Zhao, William Nardin, Elizabeth North, Larry Sanford, Jeremy Testa, UMCES and Jiabi Du, Texas A&M
Initial work on the Choptank MTM will be described by the Choptank MTM.

2:20 Discussion of Choptank MTM Progress

2:30 Eliminating Surprises: Climate Change Impacts in the Chesapeakea Region Beyond Mid-Century – Lew Linker, EPA-CBPO; Gopal Bhatt, Penn State-CBPO; Richard Tian, UMCES-CBPO; Ray Najjar, Penn State; and Tom Johnson, EPA-ORD
An initial examination of the impacts of climate change in the Chesapeake region beyond 2055 will be examined with the Phase 6 suite of climate, land use, watershed, and estuary models.

2:45 Discussion of Climate Change Impacts in the Chesapeake Region Beyond Mid-Century

2:55 ADJOURN