



Modeling Workgroup Quarterly Review

January 4, 2022

Event webpage: [Link](#)

WebEx Link:

<https://umces.webex.com/umces/j.php?MTID=m3ccf15f22157d22a788a87e1a869dcd0>

Meeting number: 2622 808 2617 **Password:** qiVHrawU928

Phone number: +1-408-418-9388 **Access code:** 262 280 82617

To enter the webinar, please open the webinar link first.

This meeting will be recorded for internal use to assure the accuracy of meeting notes.

9:00 Announcements and Amendments to the Agenda – Mark Bennett, USGS and Dave Montali, Tetra Tech

9:05 Outlining an Initial Watershed Model Phase 7 Work Plan – Gary Shenk, USGS-CBPO

Gary will discuss a draft Phase 7 Workplan outline that's responsive to the discussions and recommendations provided in November and December by the WQGIT and other GIT chairs. Further input from STAC, water quantity partners, and collaborating scientists will be incorporated.

9:45 Discussion of Initial Watershed Model Phase 7 Work Plan

10:00 Progress in Phase 7 WSM Development – Gopal Bhatt (Penn State)

A progress update will be provided on the extension of the watershed model simulation period to year 2020. With this effort the simulation period is being increased from 30 years (1985-2014) to 36 year (1985-2020). It is being done without any recalibration of the model but with an anticipation that the simulation period can be extended periodically for supporting various partnership needs leading up to the development of Phase 7 Model and beyond. The presentation will describe some of the key data processing steps, refinements, along with an analysis of model results.

10:30 Discussion of Phase 7 WSM Development Progress

10:45 Representation of Small Impoundments in the Phase 7 Watershed Model – Labeeb Ahmed, USGS-CBPO

Peter Claggett will describe the work his team is doing to place small ponds and impoundments that are not storm water facilities into the CBP land use and into Phase 7 Watershed Model consideration. Studies by Jud Harvey, Noah Schmadel, and others have shed some light on the influence these landscape features have in reducing nutrient and sediment loads, and their work could assist in filling gaps in our understanding of the watershed dynamics of small impoundments in retention of nutrients and sediment.

11:15 Discussion of Small Impoundments in the Phase 7 Watershed Model

11:30 BREAK

12:00 Optimization Update: Integration with CAST – Gregorio Toscano, Kalyan Deb, Pouyan Nejadhashemi, Sebastian Hernandez-Suarez, and Julian Blank, MSU

Substantial progress on the web interface needed for the CBP user testing by the Optimization Guidance Group will be presented and discussed.

12:30 Optimization Discussion

12:45 CMAQ Tracer Runs – Jesse Bash and Sarah Benish, EPA-ORD

Progress on estimating the transport and fate of atmospheric emissions of oxidized nitrogen (NO_x) and ammonium (NH₄⁺) will be presented. The analysis centers on the question, “For a nitrogen emission sources, such as from power plants, mobile sources, or animal waste, from different regions in the Chesapeake watershed, what is the fraction that is ultimately deposited to a particular region or point?”. In addition, the analysis can be used to estimate reductions in nitrogen deposition to the Chesapeake watershed and tidal Bay under future conditions of greater penetration of electric vehicles into the existing mobile fleet, greater wind and solar electric generation, and other types of future economic conditions.

1:15 Discussion of CMAQ Tracer Runs

1:30 Chesapeake Bay BMP Climate Synthesis Report – Jeremy Hanson, CRC and Zach Easton, Virginia Tech

Jeremy and Zach will provide the final report on the BMP climate resilience assessment of agriculture and nature-based BMPs based on a systematic literature review.

2:00 Discussion of Chesapeake Bay BMP Climate Synthesis Report

2:15 ADJOURN



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9:00 Announcements and Amendments to the Agenda – Mark Bennett, USGS and Dave Montali, Tetra Tech

9:05 Overview of the Phase 7 Main Bay Model (MBM) and Multiple Tributary Models (MTMs) – Lew Linker, EPA-CBPO

An overview of the Main Bay Model's (MBM) final workplan and the associated fine-scale Multiple Tributary Models (MTMs) of the tidal Bay that may be developed beginning in the fourth quarter of 2022 will be provided. The utility of the MBM and the MTMs and how they would work together to provide the most detailed and complete assessment of the tidal waters of the Bay and the 93 separate TMDLs that actually make up the historic 2010 Chesapeake TMDL will be described. An overview of how the MBM and MTM teams will be organized and the preparation for the MBM and MTM work that is now underway will be discussed.

9:35 Discussion of the MBM and MTM Overview

9:50 Phase 7 Watershed and Tidal Water Model Boundaries – Andy Fitch, USGS-CBPO

The high resolution Phase 7 Models require an attention to detail not previously needed in the lower spatial resolution Phase 6 Models. Andy will review the refined boundaries of the Phase 7 Watershed Model and the tidal Bay MBM and MTMs, with the spatially detailed estimates of the tidal wetlands in between. The detailed spatial work and its documentation will be presented.

10:10 Discussion of Phase 7 Watershed and Tidal Water Model Boundaries

10:20 The Main Bay Model (MBM) Workplan and Initial Work Underway – Joseph Zhang, VIMS

The entire scope of the six-year Main Bay Model's (MBM) final workplan will be discussed, the initial work underway will be described, and the MBM collaborating Principal Investigators (PIs) will be introduced.

10:50 Discussion of the Main Bay Model (MBM) Workplan and Initial Work

11:00 Set-up of a MTM in the Tidal Patuxent River - Richard Tian, UMCES-CBPO

Richard will provide insights into an initial setup of a MTM using the Patuxent River as an example

11:20 Discussion of the Patuxent River Initial MTM Setup.

11:30 BREAK

12:15 Initial Set-up of a MTM in the Tidal James River – Nicole Cai, EPA ORISE

Nicole will describe work in an initial trial set up of a MTM in the tidal James River drawing from her experience in simulating the York with an unstructured grid model.

12:25 Discussion of the James River Initial MTM Setup

12:40 Corsica River Shallow Water Simulation – Jeremy Testa, UMCES and Richard Tian, UMCES-CBPO

Findings of a study of shallow water processes in the simulation in the Corsica River with SCHISM will be presented and the advantages of the application of SCHISM in the Corsica River as a test platform for shallow water processes using the very detailed tidal water and watershed loading observations will be discussed.

1:10 Discussion of Corsica River Simulation and Its Use as a Test Bed for the Simulation of Shallow Water Processes

1:30 BREAK

1:40 Tributary Summaries – Vanessa Van Note, EPA-CBPO, Breck Sullivan, USGS-CBPO, and Rebecca Murphy, UMCES-CBPO

The Tributary Summaries now being developed for all the tidal basins of the Chesapeake will be a useful tool for the MTM Teams and will provide loading trends, tidal monitoring site trends and information on trends from major influences on loads like BMP implementation, growth, climate change, and atmospheric deposition. The completed Tributary summaries of the Potomac and Rappahannock will be presented and plans for completion of all Tributary Summaries will be discussed.

2:00 Discussion of Tributary Summaries

2:15 ADJOURN