Modeling Workgroup Quarterly Review
April 7, 2020

Event webpage:
https://www.chesapeakebay.net/what/event/april_2020_modeling_workgroup_quarterly_review1
For Remote Access:
Zoom Link: https://zoom.us/j/569368345
Phone number: 929-205-6099 **Meeting ID:** 569 368 345
To enter the webinar, please open the webinar link first

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

10:10 Initial Assessment of Allocation Methods to Address Climate Risk in the Chesapeake Watershed and Tidal Waters – Gary Shenk, USGS-CBPO
Gary will present, for Modeling Workgroup technical review, the progress on the Water Quality Goal Implementation Team's (WQGIT) requested modeling analyses on options for allocating climate targets.

11:00 Effects of Sea Level Rise on Chesapeake Tidal Water Temperatures – Pierre St-Laurent, VIMS
A model intercomparison on the effects of SLR in Chesapeake Bay will be presented on the findings of estimated slightly warmer temperatures in winter and slightly cooler temperatures in the summer for Chesapeake bottom waters under climate change conditions. The estimated causes of the phenomenon, based on model outputs from ChesROMS-ECB and UMCES-ROMS, will be discussed.

11:30 Long-term Observations of Temperature, DO, and Salinity in Chesapeake Open Waters – Rebecca Murphy, UMCES; Breck Sullivan, CRC; and Jeni Keisman, USGS
An update on progress with the ongoing instigation of climate risk in attainment of Open-Water DO standards will be presented. The investigation centers on long-term observations of temperature, salinity, and DO in shallow Open-Water (generally less than 2 meters depth) and deeper Open-Water DO in main-Bay segments extending in depth from the surface to the pycnocline). Ultimately the goal is to assess observed Open-Water DO trends by CB-segment in order to understand the risk of increased temperatures on Open-Water DO criteria.

12:10 Break

12:30 Fine-Scale Hydrology Model Development – Gary Shenk, USGS-CBPO and Gopal Bhatt, Penn State

Progress on developing a fine-scale distributed hydrology model of the Chesapeake watershed using a catchment segmentation on the order of about one square mile will be presented. The fine-scale model is designed to support more efficient BMP applications, living resource needs, and water supply decision-making.

1:00 Maintaining Resiliency of Stormwater and Restoration Practices – Tom Schueler and David Wood, Chesapeake Stormwater Network (CSN)

Progress will be presented on the design and encouragement of accelerated adoption of stormwater management practices appropriately designed for rainfall volumes and intensities expected in the future for all counties in the Chesapeake watershed.

1:30 USWG IDF Progress – Normand Goulet (USWG Chair), Northern Virginia Regional Commission

An update on the Urban Stormwater Workgroup's work to deliver updated and future climate hydrology probabilistic Intensity Duration Frequency (IDF) curves for all Chesapeake watershed counties.

2:00 Developing County Level Time Series of Nutrient Inventories and Trend Maps – Robert Sabo and Emily Trentacoste, EPA, Qian Zhang, UMCES with Cuiyin Wu and Breck Sullivan, CRC

A project to develop county level time series of nutrient inventories for all counties of the Chesapeake watershed was presented at the 2019 October Modeling WG Quarterly Meeting. An update on the progress will be presented including (1) an intro chapter covering data sources and underlaying assumption for this work, (2) estimated trends for each individual nutrient source using the Mann-Kendall Test, which were converted into county-level, watershed-wide maps, and (3) an update on feedback received from partners.

2:30 Adjourn

Modeling Workgroup Quarterly Review

April 8, 2020

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

10:10 NSF Aeration Workshop – Lora Harris and Jeremy Testa, UMCES
A recent NSF workshop will be reviewed that considered a long-range strategy of engineered aeration to deep waters of the mainstem Bay as an "on demand/as needed" support and augmentation to the Partnership's watershed based nutrient reduction strategies.

10:30 Accuracy of SLAMM Estimated Increases In 2025 Tidal Wetland Area – Peter Claggett and Sarah McDonald, USGS-CBPO
A comparison of SLAMM and NLCD estimated 2025 tidal wetland area will be presented focusing on specific areas such as the Pocomoke Tidal Fresh (TF), Appomattox TF, Anacostia TF and others. The work is aimed at assessing a known limitation of SLAMM that it "likely overestimates the area of new marsh created by sea level rise as it fails to account for future development of currently undeveloped land that the model assumes will be available to accommodate marsh migration." The 2025 increase in tidal wetland area has implications for the CBP climate change risk analysis.

11:00 SAV Nutrient Dynamics and DO Impacts – Carl Cerco, Attain and Richard Tian, UMCES
An update on the WQSTM estimated nutrient flux by submerged aquatic vegetation will be presented. Examination of net nutrient flux is anticipated to simulate net import to SAV in the growing season augmented by simulated enhanced settling of particles in SAV beds and net nutrient flux out of the SAV beds, mostly as organics, in the winter season.

12:00 Break

12:20 Bay-Wide Nitrogen and Phosphorus Trends – Rebecca Murphy, UMCES
An update will be presented on work linking station-level Bay-wide nitrogen and phosphorus trends to changes in monitored watershed and below-fall line point source inputs.

12:35 Watershed Phenological Response Analysis – Lisa Wainger, UMCES; Ciaran Harman, JHU; Amy Collick, UMES and Jeremy Testa, UMCES
Initial work on a phenology study looking at a broad picture of potential climate change policies needed in the Chesapeake watershed will be presented. The work is based on

SWAT modeling of estimated farmer behavior in a small Chesterville watershed and looks at future climate risk outcomes.

1:00 Refinements to the CBP Summer Hypoxia Forecast Model – Isabella Bertani, UMCES

Improvements to the CBP Summer Hypoxia Forecast Model will be presented. The refined CBP Summer Hypoxia Forecast Model will be applied to this summer's forecast.

1:20 ADJOURN