# Modeling Quarterly Review Meeting

September 30th, 2014

CBPO Conference Room - The Fishshack

410 Severn Avenue Annapolis, MD 21403

**For Remote Access:**

**Adobe Connect:** https://epa.connectsolutions.com/modeling/ (enter as guest)

**Conference Bridge:** (866)-299-3188 code 410-267-5731#

**Event webpage:** http://www.chesapeakebay.net/calendar/event/21917

**10:00 Announcements and Amendments to the Agenda – Dave Montali, WVDEP - Lee Currey, MDE**

**10:05 Review of Modeling Workgroup Priorities – Lee Currey, MDE - Dave Montali, WVDEP**

The quarterly review of the Modeling Workgroup priorities with associated timelines will be discussed.

**10:15 Phase 6 Watershed Model Schedule Update – Gary Shenk, U.S. EPA / CBP**

Gary will present further updates of the development schedule with key links to the 2017 Midpoint Assessment schedule. The web based document has been forwarded to the WQGIT and details what is needed and when for the Phase 6 modeling effort to move forward.

**10:30 Phase 6 Prototype – Gopal Bhatt, Penn State**

A fully operational prototype of the Phase 6 Watershed Model based on the HSPF PQUAL simulation and with an updated precipitation input dataset, hydrology, and sediment simulations will be presented. Processes needed for the PQUAL approach, such as a simulation of *breakthrough dynamics*, will be reviewed, and key CBP scenarios will be demonstrated.

**11:30 PQUAL Sensitivity to Inputs – Guido Yactayo, UMCES**

Guido will present updated recommendations for PQUAL sensitivity to nutrient inputs derived from multiple watershed models.

**11:40 Phase 6 Land Use: Stream Corridors, Tree Canopies, and Open Space – Peter Claggett, USGS**

Peter will describe an approach to develop fluvial geomorphic characteristics of all stream corridors that would assess the probability of stream corridors functioning as sediment sources or sinks and be used to evaluate the effects of upslope impervious surfaces on sediment. The proposed approach has the promise of determining proportions of sediment load originating from stream banks vs. upland sources, assessing the relative role of impervious surfaces on bank erosion, and could also be used to produce an appropriate cap of potential reductions from stream restoration BMPs. Parameterizing the effects of urban tree canopy and open space on loads will also be discussed

**12:30 LUNCH**

**1:30 Conowingo Infill Studies – Jeff Cornwell, UMCES**

A two-year study program is underway investigating Conowingo infill. The studies, conducted by UMCES, USGS, and others directly support the 2017 Midpoint Assessment decisions on the Conowingo and focus on the particulate nutrients mobilized in the Conowingo Reservoir and transported to tidal waters. The Modeling Workgroup will be responsible for follow-up of the research and field work with CBP model assessments to improve estimates of needed Conowingo infill nutrient offsets.

**1:50 P Modeling and Legacies in the CB Watershed – Kleinman, Buda, and Bryant, USDA ARS**

Pete Kleinman will review field results from the Mahantango watershed dealing with the challenges of P saturation in soils and discussing aspects of scale, dynamics, and management.

**2:20 Phase 6 Land Use Target Loads – Olivia Devereux, Devereux Consulting**

Olivia will review how the land use loading rates are used in the Phase 6 Watershed Model calibration, the sources of data used to inform the loading rates, the synthesis process used, and timeline of the development work.

**2:40 Replacing Regional Factors: A Multiple Model Approach Based – Ross Mandel, ICPRB**

The motivations, goals, and process for using SPARROW to replace regional factors will be described.

**3:00 ADJOURN**

# Modeling Quarterly Review Meeting

October 1st, 2014

CBPO Conference Room - The Fishshack

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**10:00 Announcements and Amendments to the Agenda – Montali-Currey**

**10:05 Resurgence of Susquehanna Flats SAV – Cassie Gurbisz and Mike Kemp, UMCES**

An analysis of time series data sets (1958-2010) "suggest that changes in river discharge and long-term water quality trends synergistically facilitated sudden shifts in SAV abundance and that feedback processes likely reinforced the state of the bed before and after the shifts." Several water quality variables, including N concentration and turbidity, were lower inside the SAV bed than outside the SAV bed and are findings that could improve the simulation SAV of feedback processes.

**10:30 WQSTM Simulation from 1991 to 2011 – Carl Cerco, U.S. CoE ERDC**

The complete WQSTM simulation of water quality from 1991 to 2011 using NLDAS driven Watershed Model hydrology, sediment, and nutrient loads will be reviewed.

**10:50 Nutrient Loads from Tidal Shoreline Erosion – Carl Cerco, U.S. CoE ERDC**

**A** sensitivity study using shoreline erosion nutrient load estimates from the 2004 version of the WQSTM and default shoreline erosion nutrient loads in the recent report *Recommendations of the Expert Panel to Define Removal Rates for Shoreline Management Projects* (2014) will be examined.

**11:10 CMAQ Air Scenarios – Robin Dennis and Norm Possiel, EPA - Research Triangle Park**

New CMAQ scenarios that use the bidirectional $NH_4$ simulation will be presented. The new scenarios will be of **2011** (which includes the 2010 CAIR implementation) **2017** (which includes implementation of the Tier 3 Fuel Rule) and **2025** (the year when all CBP implementation for the TMDL is to be completed

**12:00 LUNCH**

**1:00 Sixty Years of Land Use and Climate Change in the Chesapeake Watershed - Ray Najjar, Penn State**

A three-year study has begun that will take an interdisciplinary approach, using both computer models and data from NASA remote sensing satellites to understand the impacts that climate change, land cover modifications, and rising nitrogen levels from fertilizers have had on the Chesapeake. The simulations will extend from the 1950s to the present, allowing the identification of land-use change and climate change impacts on coastal ecological processes over the past 60 years. Opportunities for collaboration and application for the Chesapeake TMDL climate change decisions in 2017 will be discussed**.**

**1:25 Atlantis Model Findings – Tom Ihde, NOAA**

Atlantis is a deterministic biogeochemical ecosystem model application in the Chesapeake Bay and elsewhere. Initial results in the Chesapeake comparing the TMDL and no-TMDL scenarios will be reviewed. Atlantis model estimates show both increases and decreases in key Chesapeake species with most estimated changes within about an overall 20% change range (+13% to -8%).

**1:45 James Chlorophyll – Arthur Butt, VADEQ**

The status of the James River chlorophyll analysis will be reviewed.

**2:00 ADJOURN**