Modeling Quarterly Review Meeting

July 22nd, 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/S=0/calendar/event/21646/

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 – Gary Shenk, U.S. EPA-CBP
Gary will present an updated development schedule with key links to the 2017 Midpoint Assessment schedule. The document will be forwarded to the Water Quality GIT and will detail what is needed and when for the Phase 6 modeling effort to move forward. The document will also cover the key objectives of 1) establishing Phase 6 targets, 2) developing scenario sensitivities, and 3) Phase 6 calibration procedures. In addition, in preparation for the afternoon's phosphorus presentations, a review of the Phase 6 model structure as it relates to the simulation of phosphorus will be presented.

11:15 PQUAL Sensitivity to Inputs – Guido Yactayo, UMCES
To Guido will present recommendations for PQUAL sensitivity to nutrient inputs derived from multiple watershed models.

11:30 Customer Expectations Survey – Peter Tango, USGS - Lee Currey, MDE
The Chesapeake Bay Program (CBP) is reviewing approaches to ensure the long-term sustainability of its monitoring networks. As part of the process, STAR is researching customer expectations of the monitoring networks. The survey could be useful for the Modeling WG to gain feedback on its products as well. STAR requests input from the Modeling WG on how to include modeling related questions to this survey and a specific intended audience list.

12:00 LUNCH

12:50 Phosphorus Modeling with Variable Source Hydrology – Zachary Easton, VT
Zach will present on variable source hydrology and its implications for phosphorus transport in the Chesapeake region. Zach will outline plans for two

recently-funded National Science Foundation (NSF) grants involving simulation with SWAT-VSA (Soil and Water Assessment Tool – Variable Source Area).

1:20 STAC review of CBP Watershed Model Phosphorus Processes – Ken Staver, UMd College of Agriculture
The findings from an upcoming Scientific and Technical Advisory Committee (STAC) review of phosphorus simulation will be discussed.

1:50 APLE implementation in the CB watershed – Alisha Mulkey, UMd-ENST
A description of the APLE model and it's calculation of loads in the Chesapeake watershed will be provided.

2:20 Spatial Estimates of Phosphorus Transport in the Chesapeake Watershed Using Sparrow – Scott Ator, USGS
The spatial patterns and causes of differences in phosphorus fate and transport in the Chesapeake watershed will be discussed.

2:45 Application of SPARROW for Target Load Specification – Ross Mandel, ICPRB
An application of SPARROW output will be explored to potentially decrease the degree of Watershed Model regional factor application.

3:05 Discussion – All
Discussion of the emerging science of phosphorus dynamics in the Chesapeake watershed and its implications for Phase 6 Model development.

3:45 ADJOURN

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Science. Restoration. Partnership.

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9:00 Announcements and Amendments to the Agenda – Montali-Currey

9:05 Phase 6 Prototype – Gopal Bhatt, Penn State
A 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.

10:05 Calculation of Oyster Benefits with a Bioenergetics Model of the Virginia Oyster – Carl Cerco, U.S. CoE ERDC
Carl will present a bioenergetics model that is formulated and validated for the Virginia oyster (*Crassostrea virginica*). The model considers two basic properties of a bivalve population: number of individuals and individual size. Individuals are represented as three energy stores: soft tissue, shell, and reproductive material. The bioenergetics model is coupled to an oyster benefits module. Calculated benefits include various aspects of carbon removal, nitrogen removal, phosphorus removal, solids removal, and shell production. The bioenergetics model is coupled with a representation of the physical environment based on the tidal prism approach and with eutrophication kinetics from the CE-QUAL-ICM model.

10:35 Extension of the WQSTM WQ Simulation to 2011 – Carl Cerco, U.S. CoE ERDC
To support the shallow water multiple model simulations of the Chester River Carl will present plans to extend the water quality simulation to 2011 by the close of July.

11:05 Multiple Model Assessment of Shallow Water Systems – Richard Tian UMCES
Richard Tian will present an overview of the shallow water analysis using FVCOM (Finite Volume Coastal Ocean Model) and ICM (Integrated Compartment Model) in the shallow waters of the Chester River.

11:30 Multiple Model Assessment of Shallow Water Systems – Jeremy Testa, UMCES

Jeremy will present an overview of the work they're doing in the shallow water model application and analysis of a coupled hydrodynamic- biogeochemical model using ROMS (Regional Ocean Modeling System) and RCA (Row Column AESOP) in the shallow water habitats of the Chester River.

12:00 LUNCH

1:00 A Proposal For Climate Change, Sea Level Rise, and Marsh Loss – Carl Cerco, U.S. CoE ERDC

Marsh erosion can impact water quality in two fashions. The first is the effect on light attenuation and biogeochemistry associated with eroded materials released to the water column. The second, often overlooked, effect is the loss of marsh function. Beneficial functions include retention and burial of suspended solids, nutrient uptake and sequestration, and nitrogen removal through denitrification. Loss of these functions has the potential to affect water quality standards.

1:20 A Proposal for Extending the Wet Deposition of Nitrogen estimates to 2013 – Jeff Grimm, Penn State

The proposed work plan is for the extension and refinement of the ammonium and nitrate atmospheric wet deposition models from the original 1984 to 2005 time-span currently used by the CBP (Grimm and Lynch, 2005; Grimm, 2007) to an extended period of 1983 to 2013. This will update the load source of what is among the highest Chesapeake nitrogen inputs and bring it up to the current period.

1:40 James Chlorophyll – Arthur Butt, VADEQ

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

2:00 ADJOURN