Using Multiple Management Models in the Chesapeake Bay:
A Shallow Water Pilot Project

Classroom A/B, Waterman's Hall
Virginia Institute of Marine Science
1375 Greate Rd, Gloucester Point, VA

Workshop goal: The Chesapeake Bay Program (CBP) currently intends to find funds in next year's federal budget to fund multiple modeling teams to develop, run and compare the output of multiple coupled shallow water hydrodynamic+water quality/sediment models within a data-rich, shallow water area of the estuary. STAC has specifically been asked to conduct a workshop to help the CBP:

(1) Define elements that should be included in such a pilot project, and
(2) Begin a discussion of the benefits and challenges of using multiple models in a regulatory environment.

Thursday, 26 April 2012

8:15 am **Continental Breakfast at VIMS**

8:45 am **Introduction –** Marjy Friedrichs, VIMS
How did we get here?
Lessons learned from the IOOS testbed
Steering Committee Charge and Workshop goals

9:30 am **Overview of the Chesapeake Bay Program modeling capacity and future needs** – Lewis Linker, EPA-CBPO
Specific questions for Lewis here
And here

10:00 am **Challenges for CH3D in the shallow waters of the Bay** – Carl Cerco, US ACE
Why/how is the current hydrodynamic model inadequate for the shallow waters of the Bay?
What are the ramifications of these issues on the water quality/sediment model results in these waters?
What are potential solutions?

10:30 am **Morning Break**

10:45 am **Chesapeake Bay data availability** – Mark Trice, MD DNR and Ken Moore, VIMS
What types of data are available in the shallow waters?
What is the temporal frequency/extent of these data?
What is the spatial resolution of these data?

11:15 am **Review of workshop goals and afternoon discussion topics**

12:15 pm **Catered Lunch at VIMS**

1:00 pm **Discussion topics:**

Variables for assessment:
T, S, DO, light attenuation, water column nutrients, sediment Nutrients (i.e. variables required as input to SAV model)
Temporal scales for comparison – Interannual? Hourly?
Spatial scales for comparison – Multiple sites? Semi-enclosed regions vs. ribbon?
Forcing CBP needs to provide to each modeling team:

Watershed model output (rivers, groundwater)
Wind, other atmospheric forcing
Bathymetry
CH3D open boundary conditions
Validation data?
Other?

Site selection criteria:

Temporal scales – interannual, seasonal, monthly, daily? Water depth - < 2m, or < 5m or < 10 m?
Spatial scales - multiple sites or single site?

Model skill metrics and comparisons:

Mean, variability, correlation, RMSD
Should data be withheld for skill assessment?
Should there be two phases to the project to allow for model improvement?

Model team participants:

How many teams?
How selected?
Can one team produce multiple simulations?

Pilot project outcomes:

Demonstration of the feasibility/utility of using multiple models in the CB
New hydrodynamic model for CBP shallow water regions
Suggestions for improvements to existing modeling suite
Cone of uncertainty for existing simulations

Funding issues

How much?
How long?

Other?

3:00 pm **Afternoon Break**

3:15 pm **Discussion (continued)**

5:00 pm **Adjourn, dinner on own**

Friday, 27 April 2012

8:15 am **Continental Breakfast at VIMS**

8:45 am **Overview of Thursday Discussions**

10:00 am **Morning Break**

10:15 am **Thinking ahead to the second larger, more management-oriented STAC workshop on Multiple Management Models** – Don Weller, SERC

Using Multiple Management Models in the Chesapeake Bay: Implications for a Regulatory Environment

12:00 pm **Adjourn/ Boxed Lunches at VIMS**