Comparison of Shallow Water Models
for Use in Supporting Chesapeake Bay Management Decision-making

February 27, 2014

Proposed Workshop Steering Committee:
Chair: Marjorie Friedrichs (VIMS)
Raleigh Hood (CCMP, UMD)
Lewis Linker (EPA-CBPO)
Kevin Sellner (CRC)
Gary Shenk (EPA-CBPO)
Natalie Gardner (CRC-STAC)

Description of Workshop:

We request **$1,000-$2000** of STAC workshop funds to bring together the Team PIs funded under the EPA/CBP RFP (EPA-R3-CBP-14-02) to discuss the shallow water model comparison effort. We feel that a face-to-face meeting between these PIs is imperative to insure that the models are run and compared in a consistent manner. Workshop discussions will focus on the initial/boundary conditions and atmospheric forcing to be used, as well as the time and space scales of comparison. Pros and cons of various skill metrics to be used for comparing the outputs of the models will be discussed in detail. The SAV model provided by the CBP for use in the project will be presented, and the nutrient reduction scenarios to be used by each Modeling Team will be decided upon.

Although the majority of the one-day workshop will be devoted to discussion of technical details regarding the comparison effort, each Modeling Team will be asked to make a short presentation on their modeling system, highlighting the differences between their model and others participating in the comparison.

Justification for Proposed Topics and Management Implications:

The Chesapeake Bay Program (CBP), authorized by Section 117 of the Clean Water Act, is responsible for coordinating federal, state, and local efforts to restore and protect living resources and water quality of the Bay. Because of the size and complexity of the Chesapeake Bay, the CBP must rely on computer models to guide their decision-making and understand the impacts of various environmental actions to reduce pollution in the Bay. The shallow waters of the Bay (< 3 m deep) are of great interest to the CBP, as they are some of the most difficult to simulate with the current CBP Model framework, and because this is where some of the most significant initial effects of management efforts may be observed. As a result, the CBP Partnership is currently directing efforts towards the improvement of this component of the CBP Model framework, and specifically is seeking proposals for the quantitative evaluation and comparison of multiple shallow water Bay models.

The overall objectives of the shallow water comparison project are:

(1) to assess the relative skill of multiple linked hydrodynamic+water quality models in terms of their ability to reproduce observations of various hydrodynamic and water quality variables at select shallow water sites in the Bay,
(2) to compare the modeled Submerged Aquatic Vegetation (SAV) computed from an empirical SAV model for each participating hydrodynamic+water quality model, and
(3) to compare results of nutrient reduction strategies applied to these multiple estuarine models at these select sites.

Ultimately this work, to be conducted for multiple specified shallow water sites within the Bay, will enable more effective adaptive management and accountability, and build increased scientific, management and stakeholder community confidence in the tools used to support and inform partnership collaborative decision-making.

Attendance:

We anticipate two attendees from each of the (3 or 4?) funded Modeling Teams, any representatives of unfunded Modeling Teams who would like to participate in the comparison effort, as well as the members of the Steering Committee listed above.

Detailed Description of Workshop Products:

The steering committee will work with the lead Team PIs to complete a workshop summary report. The report will accomplish two things: 1) the report will describe the models participating in the comparison, and 2) outline the technical details of the comparison effort.

Logistics:

Date: The workshop date will depend on the timing of the CBP's funding decisions, but we anticipate that it will occur between June – December 2014. It will not be held until all the funds have been distributed to the respective Modeling Teams.

Location: The workshop will be held at VIMS, to ensure costs are kept at a minimum.

Length: We envision a one-day workshop.

Estimated Budget:

Venue: $0
Food: provided by CRC
Travel for speakers: $1000-$2000, depending on the location of the funded Modeling Teams
Total requested from STAC: $1,000-2000