



Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE

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Mr. Nick DiPasquale
Director
EPA Chesapeake Bay Program
410 Severn Avenue, Suite 109
Annapolis, MD 21403

Dear Mr. DiPasquale,

We appreciate your visit with us at STAC's recent quarterly meeting and look forward to productive future interactions with you, your staff, and the partners of the CBP. Your experience suggests that the partnership's efforts to restore the Bay will be successful through your strong leadership and communication.

As you may know, STAC is strongly committed to providing EPA and CBP partners expert opinion on all issues relating to the watershed-wide effort to restore the Bay. Central to this effort is the use of the CBP Modeling System that includes both a water-quality/hydrodynamic model for the Bay and a highly refined model for the watershed. STAC has provided multiple recent reviews of the land-use and watershed models; however, the hydrodynamic model (CH3D) has not been reviewed since 1999.

Last year the modeling community heard the announcement that CH3D might be replaced. Lewis Linker, modeling coordinator, presented a schedule for the introduction of a new hydrodynamic model, and communicated CBP's interest in modeling shallow water areas that had been difficult to resolve using CH3D. That schedule identified several dates for introduction of the new modeling capacities, ranging from 2012-2015, with the earliest dates for model exploration and testing to an eventual functional capacity for routine use within the CBP. In light of this, STAC has had multiple conversations regarding future CBP modeling activities, and here provides you and your staff the following recommendations regarding future model development within the CBP.

First, STAC strongly recommends that any future hydrodynamic/water quality model shall be selected through quantitative skill assessment and an independent peer review process. In short, no model should replace or supplement CH3D unless the skill of the new model or model combination is able to reproduce CBP observations at least as well as the current model implementation.

Secondly, STAC strongly encourages the EPA to direct a portion of its modeling funds each year to the modeling community to develop and run multiple hydrodynamic/water quality

models. The output from these multiple models shall then be routinely compared to the EPA regulatory model output to build scientist, management, and other stakeholder confidence in the model, which is critical for generating support for the appropriate use of public funds in meeting TMDLs across the region. This will provide uncertainty estimates on the model output, as well as help insure that the output is within the spectrum of results that might be expected for models run for similar purposes/scenarios. The use of multiple models is standard practice in many international and national programs, including the predictions of climate change impacts, weather, and hurricane tracks. Implementing and supporting a similar multi-model program within the CBP should be a high priority to insure basin-wide user confidence in the loads you are expecting each watershed to meet in the assigned TMDL for each jurisdiction.

The CBP Modeling System is highly recognized and needs to be used with confidence in the 2017 and 2025 goals set 18 months ago. Skill assessment and multi-model comparisons are essential for insuring strong community-wide support for their use in this critically important next decade focused on restoring the Bay and its tributaries. The scientific community can assist the CBP by (i) suggesting skill assessment metrics for future CBP models, (ii) providing non-conflicted peer review to help identify the models and parameterizations likely to generate the most reliable output, and (iii) developing and running other models for comparison with this model output. This approach conveniently addresses the NAS recommendation of a “Modeling Laboratory” by fulfilling the report’s encouragement for community participation in future CBP model development and application to restoring the Bay.

We look forward to your response and hopefully working with you and your team in exploring the means to insure the most responsive and applicable modeling capacity for the Bay’s restoration.

Respectfully,



Chris Pyke
Chair, Chesapeake Bay Program’s Scientific and Technical Advisory Committee