



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III
Chesapeake Bay Program Office
410 SEVERN AVENUE
ANNAPOLIS, MARYLAND 21403

DEC 21 2011

Dr. Chris Pyke, Chair
Scientific and Technical Advisory Committee
US Green Building Council
2101 L Street, NEW Suite 500
Washington, DC 20037

Dear Dr. Pyke:

I very much appreciate the considerable efforts of the STAC review steering committee and the external reviewers in producing the STAC report *Review of the LimnoTech Report, "Comparison of Load Estimates for Cultivated Cropland in the Chesapeake Bay Watershed"*. The review committee produced a well-reasoned and well-documented report with clear direction to the modeling community on the proper interpretation of modeling results. I agree with the specific findings related to the LimnoTech comparison of models and appreciate the recommendations for integrating models.

I agree with the review committee's finding that "LimnoTech's comparison of the CBP and CB-CEAP models is flawed and does not provide sufficient evidence to suspend implementation of the Chesapeake Bay TMDL". The committee explained very clearly that LimnoTech had set up false criteria for model comparison, performed incorrect analyses, and failed to recognize that fundamental differences in model approaches due to differences in scope, objectives, and resources are unavoidable and ultimately beneficial. I particularly appreciate the thorough treatment of the individual assertions in the LimnoTech report and agree that, in large part, these were unfounded. In those cases where there were differences in input data, it is the stated intention of EPA and USDA to harmonize those data inputs to the extent practicable. The review committee made mention of this intention and included the formal agreement between EPA and USDA as an appendix to the review.

Direct Recommendations

The CBP to CB-CEAP comparison does not support delaying the TMDL implementation

We fully agree with this recommendation and find this conclusion very well-argued by the review committee.

Implement the TMDL in an adaptive management framework

Adaptive management is a theme running through the entire review, several other STAC publications, and the recent review from NRC. The Chesapeake Bay Program Partnership is committed to incorporating adaptive management principles into our day to day operations and has recently begun an initiative to implement adaptive management within the workgroup structure lead by the Decision Framework Work Group. You will see a much more comprehensive

treatment of adaptive management at the CBP in the response to the recent NRC panel recommendations which will be taken up by the partnership's Principal Staff Committee at its meeting next month.

Apply a Multiple Modeling Strategy

As the review committee noted, the current Chesapeake Bay Program Partnership watershed model is an example of one multiple modeling strategy. Several other models feed information, such as relative land use loads and BMP effectiveness, to the overall decision model used for the TMDL. This strategy is an appropriate way to apply multiple models in a decision framework. We look forward to further exploring other opportunities for enhancing this multiple model strategy with STAC and the broader community in the months and years to come.

Integrate knowledge from the CB-CEAP project into the CBP model

The June 28, 2011 *USDA/EPA Chesapeake Bay Data Collaboration Workplan* outlines a set of actions we will take to continue our collaboration in sharing and integrating data. Many of the recommendations from STAC support activities already in the work plan. We agree that it is important to take advantage of the new information that can be provided by the CB-CEAP model. Of particular interest is the estimate of spatial variability of practice implementation and effectiveness.

Enhance comparability and improve all Chesapeake Bay watershed management models.

The review committee makes an important contribution of providing additional rationale, motivation, and detail to the existing USDA/EPA work plan. Two areas recommended by the committee that are outside of the scope of the current work plan are estimation of uncertainty and accounting for lag times. They are difficult technical problems to address but also are clearly issues that would benefit the management of the Chesapeake Bay restoration effort. The proposed STAC workshop on lag times would be a valuable source of information on how to begin to tackle this issue. We are currently working in cooperation with Penn State on some modeling with an initial estimate of spatially distributed lag times. We look forward to addressing both of these issues with the help of STAC and the broader community.

Submit Chesapeake Bay Watershed management models to regular peer review

We agree that the past peer review of the CBP watershed model and associated components have resulted in a significantly improved management tool. The CBP fully intends to continue these reviews.

Compare models to observed data as well as to other models

As noted in the review, the Phase 5.3.2 watershed model is compared to observed data at hundreds of sites. The monitoring strategy for the Chesapeake Bay Program recently went through an enhancement which resulted in additional sites in the watershed where high-quality data are collected. These will create an opportunity for future watershed models to continually improve.

Promote a realistic understanding of the uncertainties associated with watershed models

The review committee has articulated what they mean by a realistic understanding of uncertainty in the body of the report and this will be a resource going forward for communicating these

goals. The CBP is looking forward to further discussions with STAC on the proposed workshops on the use of multiple models and public understanding of model uncertainty.

Please extend my thanks to the review steering committee and external reviewers for the time and effort involved in the thoughtful production of this report. We appreciate the role of STAC in serving as an independent review body in improving our overall management of the Chesapeake Bay restoration effort.

Sincerely,

A handwritten signature in cursive script, reading "Nicholas DiPasquale". The signature is written in black ink and has a long, sweeping horizontal line extending to the right.

Nicholas DiPasquale, Director
EPA Chesapeake Bay Program Office