

Dr. Kirk Havens, Chair
CBP Scientific and Technical Advisory Committee
645 Contees Wharf Road
P.O. Box 28
Edgewater, MD 21037

Dear Dr. Havens:

The Chesapeake Bay Program's (the Partnership) Management Board and the Water Quality Goal Implementation Team express our appreciation and gratitude to the Scientific and Technical Advisory Committee (STAC) for their workshop report entitled, *The Role of Natural Landscape Features in the Fate and Transport of Nutrients and Sediment*. Thank you for the opportunity to respond to the report's recommendations.

Overall, we agree with the key recommendations highlighted in the report, as natural landscape features are important to the delivery of nutrients and sediment in the Chesapeake Bay watershed. It is important to note, however, that because the recommendations may be difficult, time consuming and expensive to implement, there is a need to establish realistic goals. Our response to the report's specific recommendations are as follows:

- STAC's General Recommendation: The Partnership should pursue upgrades to the Chesapeake Bay Program Watershed Model to provide more accurate estimates of nutrient and sediment loading rates based on the considerations discussed in the report.

General Response: The Partnership is currently engaged in several activities leading up to the 2017 midpoint assessment process which will help us determine if our nutrient and sediment pollution reduction goals are being met as defined by the 2010 Chesapeake Bay TMDL and the Bay jurisdictions' Watershed Implementation Plans. One of the priorities as a result of this midpoint assessment process is to improve the spatial, temporal, and categorical representation of urban, agricultural, federal, and natural land uses in the Partnership's suite of modeling tools and to develop loading rates for these land uses.

STAC's specific recommendations:

- Add three new land use classifications including riparian forest, forested floodplains (in general, these are wider and closer to water table than riparian forests), and other wetlands.

Response: We agree with the recommendation to map riparian forest, forested floodplains, and other wetlands. Ideally, these three land uses could be mapped and parameterized appropriately to adequately evaluate their effectiveness in the landscape

based on spatially explicit landscape and forest condition attributes. Along these lines, the USGS is developing a new base map of streams and shorelines from the 1:24,000-scale National Hydrography Dataset and using it with time-series land cover data to develop a stratified sampling framework for assessing and monitoring riparian forest extent and change using high resolution aerial imagery. The USFS and USGS are developing freely available image classification software for use in mapping riparian forests and impervious surfaces from aerial and satellite imagery.

- Adjust loading rates for the new land use classes based on spatially explicit landscape attributes, including directional connectivity, multi-direction flow fields, and flow path analysis.

Response: The Partnership's Land Use Workgroup will be investigating near-term methods for mapping floodplains in the watershed using information from county Soil Surveys and 30m-resolution Digital Elevation Models. These initial floodplain maps can eventually be replaced with those derived from LiDAR imagery where it is available and processed. We look forward to working with STAC over the coming years to encourage this research and develop methods to describe these processes.

- Adjust loading rates for the new land use classes based on landscape feature attributes including type, condition, and possibly forest age.

Response: The Chesapeake Bay Program will continue to move in the direction of gathering fine scale landscape data, incorporating new land uses, and refining the simulation of these features. The Water Quality Goal Implementation Team and the Modeling Workgroup are prioritizing the refinements to the Partnership's Watershed Model and will need to balance the needs of management and recommendations from STAC, identifying areas where these interests overlap.

Please extend my thanks to the workshop steering committee, workshop participants, report authors 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,

Nicholas A. DiPasquale
Director

cc: Management Board
Water Quality Goal Implementation Team
Modeling Workgroup