Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE
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September 11, 2013

RE: STAC Lag-Times Workshop Report

Nicholas DiPasquale, Director, Chesapeake Bay Program
U.S. Environmental Protection Agency
410 Severn Avenue, Suite 109
Annapolis, MD 21403

Cc: Management Board; STAR, Tidal Monitoring and Analysis Workgroup, Modeling Workgroup; Water Quality GIT, Best Management Practices Verification Committee, Watershed Technical Workgroup, Sediment Workgroup

Dear Mr. DiPasquale,

Please see the attached STAC workshop report entitled, "Incorporating Lag-Times Into the Chesapeake Bay Program." This report provides a summary of STAC's October 2012 workshop. The report also includes specific recommendations identified by workshop attendees. Attendees recommended the following:

Recommendations for the Partnership include:

- Increasing the priority given to identifying Best Management Practice (BMP) maturation and effective operational periods in the CBP models.
- Revising water quality models to include BMP efficiencies as a function of precipitation amount and age of BMP, while also expanding consideration for different landscape types and geographic locations.
- Prioritizing the development of a comprehensive local inventory of all agricultural and urban BMPs, including performance characteristics and previously unaccounted measures, such as. farm and recreational ponds and stream bank restoration.
- Developing and applying supplemental models to inform the Chesapeake Bay Watershed Model (CMWM) on processes not currently simulated, to facilitate insights into lag-time, and to provide site-specific targeting of BMP placement for more effective load reduction. Specific priorities should include models to improve the representation of lags in 1) sediment storage during transit in the basin and 2) nitrogen loading from groundwater in all physiographic provinces of the watershed should be modeled in these complementary efforts, following collection of need data of transport times and flow paths.

- Developing and applying a conceptual framework needs to be developed that encompasses the interactions between floodplains, stream channels, and sediment storages.
- Developing guidance for new monitoring efforts to explicitly evaluate hypotheses needed to guide restoration, BMP implementation, and land planning in a holistic manner. An expanded dialogue is needed between the scientists who assess water quality and modelers, both to improve calibration of the models and to improve the understanding of the changes taking place in the watershed.
- Developing and applying educational materials to explain the presence of lag-times in all natural systems and that they vary widely for different practices. Improved communication with the public is needed to distinguish between BMPs that may be expected to show relatively immediate water quality benefits and those whose impact may not be seen for some time. Additional ecosystem system benefits, beyond those anticipated in the Bay itself, need to be highlighted as well.
- Including the consideration for information about lag-times in all adaptive management process, to educate the public about setting realistic restoration expectations, to evaluate the effectiveness of point/nonpoint water quality trading, and to assist local managers in more appropriate selection of control measures that will produce the desired short-term and long-term effects necessary for Bay restoration.
- Recognize that the failure to account for lag times in point/nonpoint trading programs, either through forward markets or trading eligibility rules, could lead to a degradation of water quality.

We hope these recommendations are useful, and STAC looks forward to your feedback. Inclusion of such considerations is likely to increase attention to and facilitate incorporation of lag-times into BMPs and Chesapeake Bay Program policy throughout the Chesapeake Bay watershed.

STAC respectfully requests a written response to the above specific recommendations from the CBP Management Board Chair by Monday, November 11, 2013.

Please direct any questions you may have about this report and its recommendations to Matt Ellis, the Chesapeake Bay Program's Scientific and Technical Advisory Committee Staff, and lead workshop steering committee member Dr. Robert Hirsch of USGS.

On behalf of the entire STAC, thank you again for considering these recommended next steps, and we look forward to working with you closely on this in the future.

Sincerely,

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