



Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE
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October 21, 2016

RE: STAC Climate Change Workshop Report

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

Cc: Management Board; Water Quality Goal Implementation Team; Scientific Technical Assessment and Reporting (STAR); Climate Resiliency Workgroup; Modeling Workgroup

Dear Director DiPasquale,

Please see the attached STAC workshop report entitled, "*The Development of Climate Projections for Use in Chesapeake Bay Program Assessments*". This report outlines specific recommendations identified by participants at STAC's March 7-8, 2016 workshop with a summary of workshop proceedings.

The main goals of this workshop were to assess the applicability of available climate data, downscaling techniques, projections, and scenarios to establish an approach for climate analysis in Chesapeake Bay Program (CBP) assessments. Additionally, this workshop attempted to assist the CBP with the selection process of these climate variables, as well as formulate recommendations for the future application of climate in assessments to be undertaken by the Partnership. Most, if not all, of the 29 Management Strategies to be implemented by the Goal Implementation Teams will include a suite of actions necessary to address climate change impacts. Modeling efforts to support the 2017 Midpoint Assessment, as well as other programmatic drivers will require addressing these impacts on Chesapeake Bay water quality and living resources over the short and long term.

Workshop consensus was that all aspects of climate change (e.g., air temperature, precipitation, sea-level rise, atmospheric deposition of nitrogen) should be addressed in the 2017 Midpoint Assessment, as changes in processes will determine the effectiveness of management actions. These changes in the climate system are expected to alter key variables and processes within the Watershed, and should also be examined in concurrence with land use changes that will interact with and potentially exacerbate climate impacts. Importantly, the effect of all of these changes on key living resources such as wetlands, submerged aquatic vegetation (SAV), and oysters should also be assessed.

Workshop participants recognized constraints that require the CBP to focus on the year 2025 for short range climate assessments. Nevertheless, participants also urge the CBP to examine another period of future scenarios centered on 2050, at the far edge of the planning horizon, for scoping scenarios. This is because the results of management actions that are in place by 2025 may not be felt for decades, due in part to the lag times.

Overall, the report notes that sufficient scientific understanding exists to provide insights into the decisions faced by the CBP over the short and long term. Participants identified a set of 7 major recommendations related to the selection, use, and application of climate projections and forecasts, summarized broadly below:

- For the 2017 Midpoint Assessment, use historical (~100 years) trends to project precipitation to 2025.
- The Partnership should carefully consider the representation of evapotranspiration in Watershed Model calibration and scenarios, due to its strong influence on future water balance change.
- A 2050 timeframe is more appropriate for selecting and incorporating a suite of global climate scenarios and simulations to provide long-term projections for the management community, and an ongoing adaptive process to incorporate climate change into decision-making.
- For any 2050 assessment, use an ensemble or multiple global climate model approach, selecting model outputs that bound the range of key climate variables for the Chesapeake Bay region. Additionally, use multiple scenarios covering a range of projected emissions
- Beyond the 2017 Midpoint Assessment, it is recommended that the CBP use 2050 projections for best management practice (BMP) design, implementation and performance, given that many BMPs implemented now could be in use beyond 2050.

We hope the Management Board, Goal Implementation Teams, and various workgroups find these recommendations to be useful, and we look forward to your feedback. STAC respectfully requests a written response to the workshop findings and recommendations from the CBP Management Board Chair by January 21, 2016.

Please direct any questions you may have about this report and its recommendations to Rachel Dixon, Coordinator of the CBP's Scientific and Technical Advisory Committee, and Zoë Johnson (NOAA), Climate Change Coordinator with the Chesapeake Bay Program Office.

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,



Lisa Wainger
Chair, Chesapeake Bay Program's Scientific and Technical Advisory Committee