Scientific Technical Assessment and Reporting (STAR) Team Meeting

Modeling Workgroup

Purpose

The Chesapeake Bay Program integrated models include simulations of the airshed, watershed, estuary, living resources, and climate change. These integrated models assess effects of current and proposed watershed management on changes in nutrient and sediment loads delivered to the Bay, and the effect those changing loads have on water quality and living resources. The CBP Models assist CBP decision-makers in estimating the collective actions needed to achieve State and Federal water quality standards necessary to restore the Bay.

Objectives

- Develop cutting-edge and technically defensible modeling tools as directed by CBP decision-makers.
- Develop airshed, watershed, estuary, living resource, and climate change scenarios as directed by CBP decision makers.
- Estimate the aggregate effect of management practices from each source sector due to changes in land use, atmospheric deposition, fertilizer application, animal populations, manures, and management actions.
- Track and quantify nutrient and sediment loads as implementation progresses in the Watershed Implementation Plans (WIPs) towards the 2025 goal to have all management measures in place to achieve the Chesapeake living resource based water quality standards.
- Develop scenarios to assess management actions needed to fully achieve Bay water quality standards that are cost effective, equitable through a dialog with CBP decision-makers.

Work Plan

Schedule - 2017 Midpoint Assessment Priorities

2017 Midpoint Assessment Priorities
(Detailed workplans for each topic are included as hyperlinks)

Airshed Model

- Update Airshed Model to new CMAQ Bidirectional Ammonia Model

Watershed Model

- Revise watershed modeling system structure
- Revisit Watershed Model calibration methods, including regional factors

WQSTM

- Refine and update the Water Quality and Sediment Transport Model (WQSTM)
- Refinement of shallow water simulation for improved assessment of open water DO and SAV/clarity standards

TMDL Charges

- Examine the influence of climate change (CC) on Chesapeake WQ standards and the 2010 Bay TMDL
- Effects of Conowingo infill on Chesapeake Bay WQS
- Influence of oyster filter feeders on water quality, with increased aquaculture and sanctuary development
- Review James River chlorophyll criteria and James River TMDL allocations

STAR Requests

- Assess and Explain Water Quality Trends