Recent STAC Activity Summary

Winter 2015-Spring 2016

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- Conowingo Infill Influence on Chesapeake Water Quality

January 13-14, 2016

Objective: To discuss the future status of the processes taking place in the Lower Susquehanna River reservoirs, so that we can predict how any particular future watershed- or reservoir-management approaches will impact the attainment of the Chesapeake Bay water quality criteria.

- Linking the Wetland Workplan Goals to Enhance Capacity, Increase Implementation

January 14, 2016

Objective: (1) Identify ways to enhance capacity of the Wetland Workgroup (WWG) via 2-year Workplan, and (2) Demonstrate a pilot process on how other workgroups might similarly enhance their capacity to meet and implement their overall goals.

- Assessing Uncertainty in the Chesapeake Bay Modeling System

February 1-2, 2016

Objective: To develop approaches to assess uncertainty in the suite of CBP models to support the Mid-Point Assessment of the TMDL.

- Cracking the WIP: Designing an Optimization Engine to Guide Efficient Bay Implementation

February 17-18, 2016

Objective: To develop the requirements of an optimization engine that can simplify and guide Bay jurisdictions' efforts to develop WIPs and Milestones that minimize implementation costs while achieving the required reductions and maximizing co-benefits.

- Development of Climate Projections for Use in the Chesapeake Bay Program Assessments

March 7-8, 2016

Objective: To discuss the selection of various models, scenarios, downscaling techniques, and historical observation data to establish a framework for climate analysis in the CBP; To assist the CBP with the selection process by addressing questions about climate variables of most concern, various approaches, climate characteristics, and climate change scenarios.

Conowingo Infill Influence on Chesapeake Water Quality

Outcome: Recommendations pending:

(1) There is an urgent need to better understand how the Lower Susquehanna Reservoir System influences nutrients and sediment delivered to the Chesapeake Bay and that this will require sustained efforts that are a combination of monitoring, data analysis, process research, and modeling.

(2) Efforts to model the effects of Susquehanna flow and Conowingo bathymetry on net accumulation in or release of nutrients and sediment from the reservoir should be evaluated based on its ability to "hindcast" the documented declines in net trapping by the reservoir over the past two decades, as inferred from water quality observations and statistical evaluations of past data.

(3) High priority science needs include:

A. Continued and enhanced measurements of inflow and outflow of N, P, and sediment (including various sediment size fractions)

B. Regular bathymetry surveys

C. Spatially explicit evaluations of the physical, chemical and biological processes in the sediment deposits in the reservoirs and Upper Bay to better understand the impact of particulate nutrients from behind the Dam on Bay water quality

Next Steps: Draft workshop report to be finalized in the next month

Linking the Wetland Workplan Goals to Enhance Capacity, Increase Implementation

Outcome: A memo describing overall comments and recommendations, as well as specific comments to the Management Approaches was sent to Wetland Workgroup on 3/8/16. Overall recommendations included:

1. Enlist the Management Board to advise on expectations for the Work Group
2. Define Work Group Management Actions vis a vis work being accomplished by others
3. Work to include wetland function when meeting Wetlands outcome, not just acreage

Next Steps:

- Assist the WWG with continued support and guidance to enhance capacity; monitor the incorporation of recommendations
- Follow up with other workgroups on barriers and opportunities to enhance their capacity to meet their goals
- STAC to continue discussion at June Quarterly Meeting

Assessing Uncertainty in the Chesapeake Bay Modeling System

Outcome:

(1) Identify how UQ will be used in decision making

(2) Implement UQ as a route part of the modeling analysis and reporting including feedback for model improvement

(3) Take action now:

a) List uncertainties; b) Identify most sensitive parameters; c) Automatic calibration; d) Make data and skill assessment results available

(4) Over the long term, identify resources to develop a computationally efficient method of formal uncertainty analysis through investigation of:

a) Multiple models; b) Uncertainty-base calibration; c) Bayesnet; d) Robust decision making

Next Steps:

- Draft workshop report to be developed over next couple months; SC plans to summarize previous STAC recommendations regarding model uncertainty in report

Cracking the WIP: Designing an Optimization Engine to Guide Efficient Bay Implementation

Outcome: Develop optimization around CAST (Chesapeake Assessment Scenario Tool)

(1) Develop an operational scope of work and realistic schedule

(2) Convene/retain team of optimization experts

(3) Draft and distribute a 1-2 page summary of primary results to WQGIT/MB in early April

(4) MWG to provide oversight

(5) Approach LGAC re: identifying top co-benefits for planning of recommendations

Next Steps:

- CBP has approved an RFP for the necessary resources to implement optimization – High priority (clear need from stakeholders)

Development of Climate Projections for Use in the Chesapeake Bay Program Assessments

Outcome:

- Using a simpler approach in the short term – By 2017, use historical long-term climate trends projected up to 2025
- Looking forward, focus on 2050 timeframe for the selecting and incorporating a suite of global climate scenarios and simulations to provide the long-term projections for the management community, and a process by which to incorporate climate change into decision-making.
- For 2050 ensemble, use multiple climate models (up to 10 recommended)
- Selecting an existing system from what's available to access GCMs; downscaled scenario data
- Use multiple scenarios covering a wide-range of projected emissions = 4.5 and 8.5
- Consider several downscaling techniques and several PET models, pending further discussion with climate researchers (below). Consider applying LASSO tools in selecting a suite of GCMs

Next Steps:

- Convene a group of climate researchers to reach agreement on: key variables, suite of GCMs, PET models and downscaling techniques to apply, process to evaluate outputs of all of the above, and range of scenarios to run.
- Convene a group of wetlands and SLR researchers to reach agreement on: SLR estimates to apply, how to best go about simulating the effect of SLR on wetlands, and range of SLR scenarios to run.
- CBPO Modeling Team and Climate Change Coordinator to draft proposed climate change assessment framework based on workshop proceedings.

Upcoming Workshops

- Integrating Monitoring Networks to Support the Assessment of Outcomes in the New Bay Agreement

  April 12-13, 2016

- Comparison of Shallow Water Models for Use in Supporting Chesapeake Bay Management Decision-Making

  April 20-21, 2016

Approved FY16 Workshops

An Analytical Framework for Aligning Chesapeake Bay Program (CBP) Monitoring Efforts to Support Climate Change Impact and Trend Analyses and Adaptive Management	March-May 2017
Chesapeake Bay Program Modeling Beyond 2018: A Proactive Visioning Workshop	Fall 2016/Winter 2017
Legacy Sediment, Riparian Corridors, and Total Maximum Daily Loads	October-November 2016
Quantifying Ecosystem Services and Co-Benefits of Nutrient and Sediment Reducing BMPs	Fall 2016
Understanding and Explaining 30+ Years of Water Clarity Trends in the Bay's Tidal Waters	January-February 2017