

# **Finalizing and Applying the 2017 Phase 6 Models to the 2017 Midpoint Assessment**

Water Quality Goal Implementation Team  
November 13, 2017

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**Chesapeake Bay Program**  
*Science, Restoration, Partnership* <sub>1</sub>



# SCHEDULE FOR PHASE 6 WATERSHED MODEL COMPLETION

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## P6 Watershed Model October Recalibration Timeline

September 26 – all inputs are final for the October re-calibration. **DONE**

September 26-Oct 12 – four auto-calibrations & analysis <sup>[1]</sup> (4 x 3 days = 12 work days) **DONE**

October 6 - Select auto-calibration runs to go forward with and combine the four auto-calibrations as needed to make the final auto-calibration run. **DONE**

October 12 – WQGIT: report out progress and completed products at WQGIT conference call **DONE**

October 13 – Auto-calibration final (1 work day) **DONE**

October 17 – Mod WG Quarterly – progress on Phase 6 calibration status including nutrient budgets by basin and State incorporating tidal shoreline nutrients. **DONE**

October 16-19 – hand calibration (3-4 work days) **DONE**

October 20-27 – lower Susquehanna reservoirs + DE (5-6 work days) **DONE**

October 23 – WQGIT: report out progress and completed products at WQGIT conference call

October 30-30 – below fall line (1 work day) **DONE**

October 31-31 – calibration final (1 work day) **DONE**



# SCHEDULE FOR PHASE 6 WATERSHED MODEL COMPLETION

## November Post Re-calibration Timeline

November 1-8 – Key scenarios <sup>[2]</sup> completed by the WSM including 2010 No Action, 1985, 1993, 2013, 2010 WIP2 LOE, 2010 E3, All-Forest, and other scenarios (6 work days - See note 2) **DONE**

November 6-10 – CERF **DONE**

November 9-13 – Generate calibration plots. **IN PROCESS**

November 13 – WQGIT: report out progress and completed products at WQGIT conference call **IN PROCESS**

November 9-30 – Generate visualization products with final Phase 6 models (Olivia Devereux and John Wolf leads). Prep for December ~4-6 – Combined Mod WG & WQGIT 2-day meeting. **IN PROCESS**

Figure out drivers of WIP2 changes (WV, DC, VA) **IN PROCESS**

Develop new Relative Effectiveness values and graphics **IN PROCESS**

- Assessment of assimilative capacity with Conowingo infill and no climate change
- Redo Climate Change assessment with 0.17 SLR
- Develop assessments of four Conowingo alternatives for who (Susquehanna only, Sus+MD & VA, All, Sus+effective)
- Need to include 2025 base conditions into Note 2 scenarios (2025 to be delivered from Peter 11/15...could be a timing problem)
- Rework presentation materials with final data for Combined Mod WG & WQGIT meeting

November 27 – WQGIT: report out progress and completed products at WQGIT conference call

December ~4-6 – Combined Mod WG & WQGIT 2-day meeting.

December 19-20 – PSC Meeting



# SCHEDULE FOR PHASE 6 WATER QUALITY AND SEDIMENT TRANSPORT MODEL (WQSTM) COMPLETION

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## October-November Timeline

September 29 – Receive WQSTM Alternate Final Runs 214 and 223. **DONE (Already Had Run 196 (August run) and Run 199 (September run.)**

September 30-Oct 2 – Benchmark Runs 214 and 223. **DONE**

October 3-5 – Run 196 (August WQSTM calibration) Run 199 (September WQSTM calibration), Run 214, and Run 223 on the same Base input from September Phase 6 WSM **DONE**

October 6-10 – Using chlorophyll assessment from CoE ERDC and hypoxia volume day assessment from CBPO <sup>[3]</sup> and weighting toward the hypoxia calibration select the WQSTM version that has the highest fidelity to the observed data. **DONE**

October 12 – WQGIT: report out progress and completed products at WQGIT conference call **DONE**

October 11-16 – Run key scenarios on September P6 WSM calibration. Key scenarios needed in priority order are: WIP2 LOE, WIP2+Cono Infill, WIP2+Cono Infill+CC, E3, 1993, 2013, No Action, 1985, and All-Forest. **IN PROCESS**

October 17 – Mod WG Quarterly - Review selection approach for WQSTM and selected final WQSTM version as well as draft key scenarios. **DONE**



# SCHEDULE FOR PHASE 6 WATER QUALITY AND SEDIMENT TRANSPORT MODEL (WQSTM) COMPLETION

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October 18-25 – Complete new geographic isolation runs on final WQSTM. **DONE**

October 23 – WQGIT: report out progress and completed products at WQGIT conference call **IN PROCESS**

October 26-Dec 3 – Develop presentations and analyses for combined Mod WG & WQGIT meeting, PSC, and other meetings. **IN PROCESS**

November 9-16 – Final key scenarios <sup>[2]</sup> completed by the WSM now run on the final WQSTM including 2010 No Action, 1985, 1993, 2013, 2010 WIP2 LOE, 2010 E3, All-Forest, and other scenarios. **IN PROCESS**

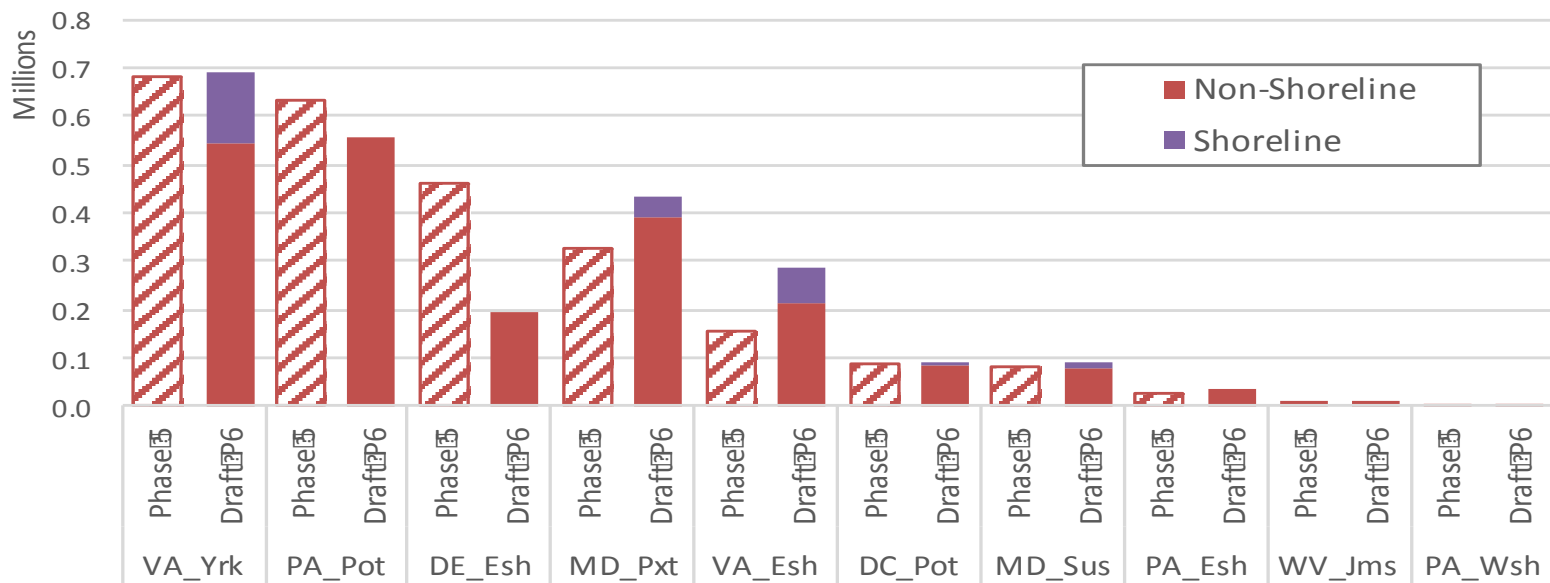
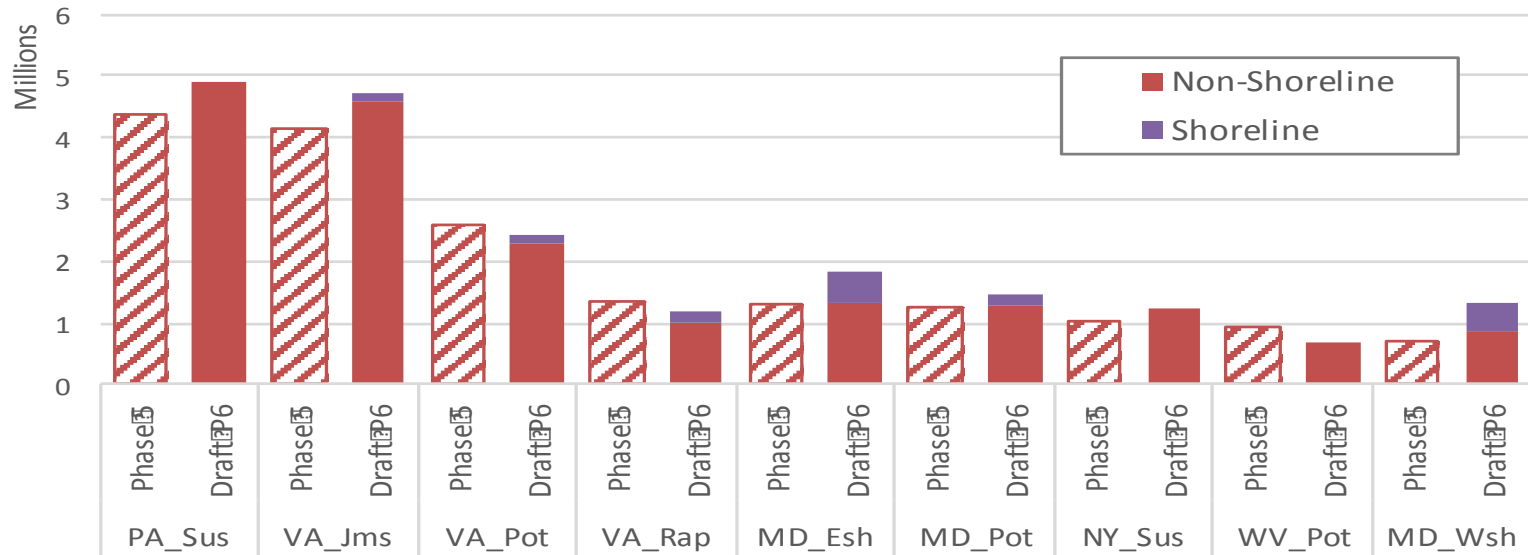
November 13-24 – Estimate Bay assimilation capacity. Estimate change in assimilation capacity due to Conowingo Infill. Estimate change in assimilation capacity under 2025 climate.

November 13 – WQGIT: report out progress at WQGIT conference call

November 27 – WQGIT: report out progress at WQGIT conference call

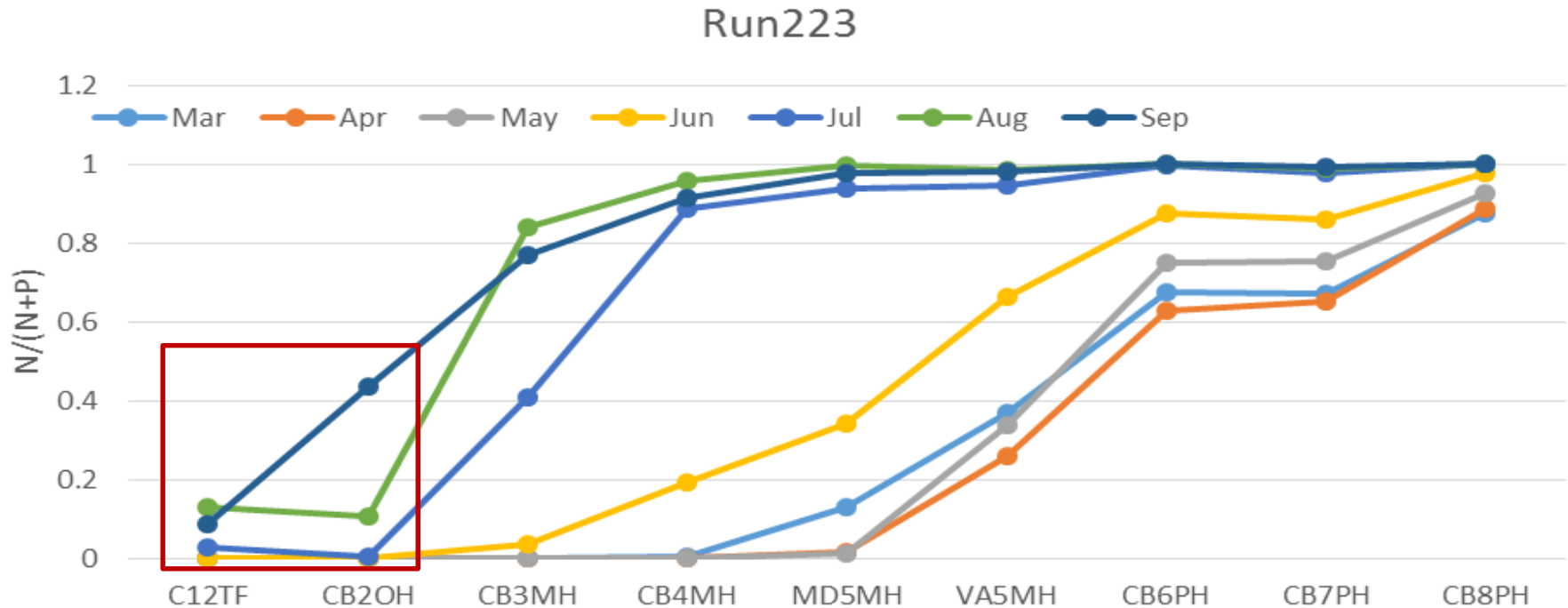
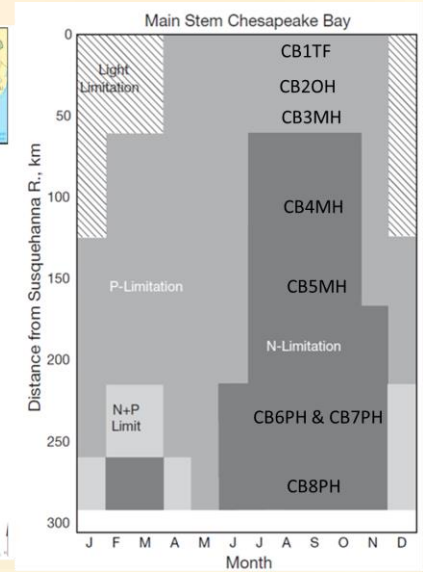
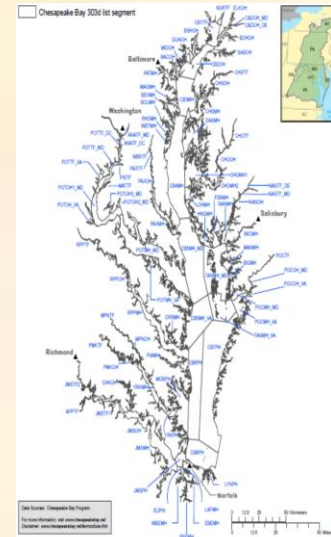
December ~4-6 – Combined Mod WG & WQGIT 2-day meeting at MDE.

December 19-20 – PSC Meeting

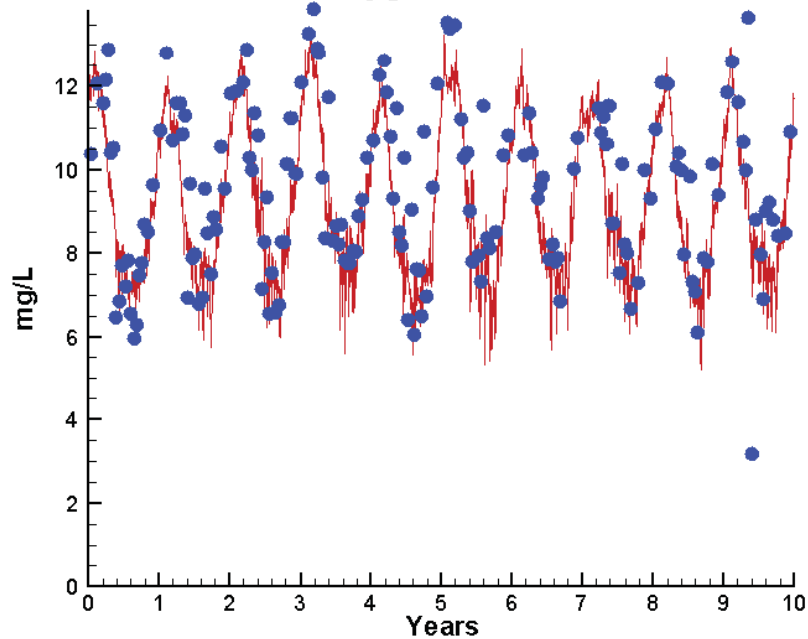


# Run 223

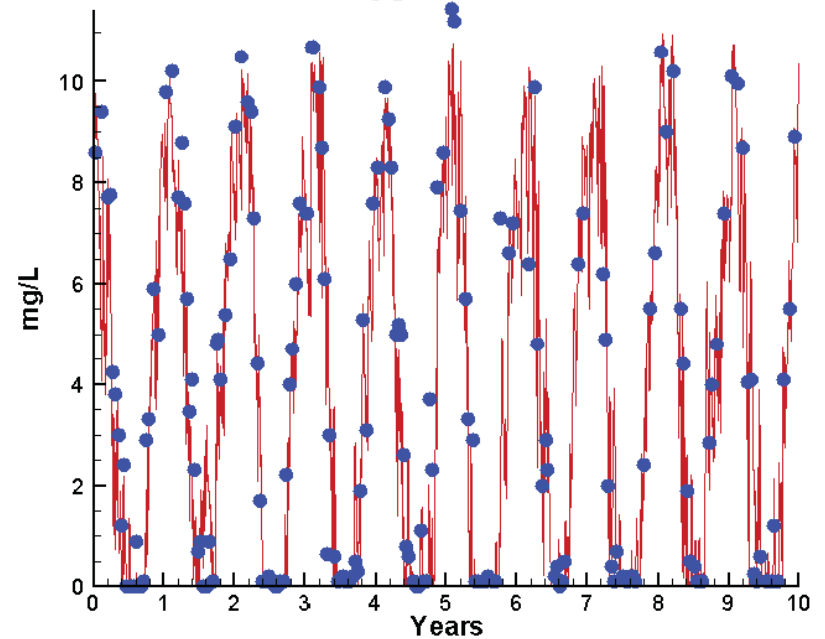
- Improved representation of P limitation in CB1 & CB2 (should be P limited at all times).
- Appropriate N limitation in CB4, CB5, CB6 & CB7 in July (Should be N limited in July).



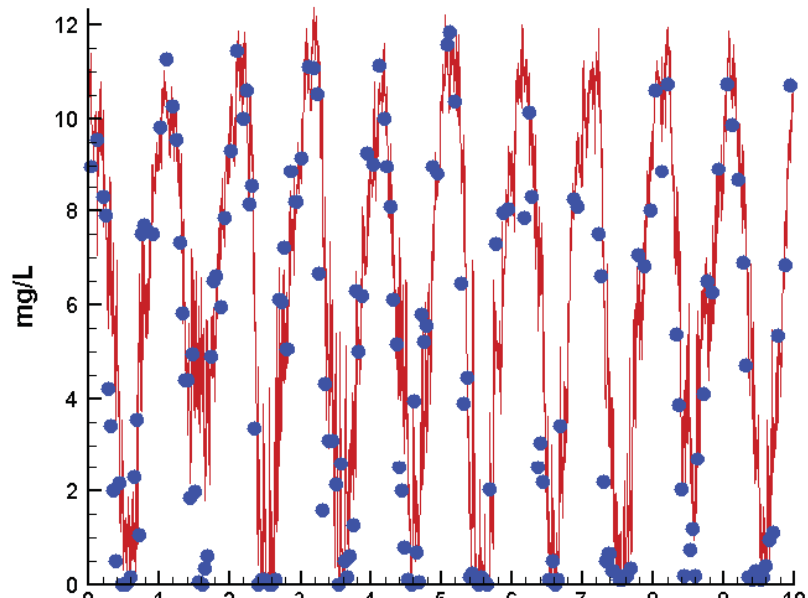
**Run223 1991-2000**  
**Dissolved Oxygen CB4.2C Surface**



**Run223 1991-2000**  
**Dissolved Oxygen CB4.2C Bottom**



**Run223 1991-2000**  
**Dissolved Oxygen CB4.2C Mid-Depth**



**Mean Difference**

**Absolute Mean Difference**

Top DO     -0.5205  
 Mid DO     1.0038  
 Bot DO     -0.4165

0.9002  
 1.4866  
 0.9393





# Conclusions:

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- Both the Watershed Model and WQSTM have been finalized with all CBP partnership review comments incorporated.
- Final assessments are underway for the development of draft WIP3 targets, Conowingo infill, growth, climate change, and other 2017 Midpoint Assessment commitments.
- Levels of water quality standard attainment are anticipated to approximate the degree of attainment reviewed at the WQGIT September 25-26 meeting for the WIP2 Level of Effort, Conowingo infill, and climate change (no surprises).