

Hydrologic/Critical Period Change

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Background:

Progress towards water quality goals is dependent upon the accurate modeling of nutrient Loads to the Chesapeake Bay.



The selection of a representative hydrologic averaging period ensures the appropriate balance between different geographic areas and their associated point and nonpoint source loads.



The partnership expressed the desire to shift to a recent hydrological period for the purposes of modeling.



We will examine the required efforts to update the 3-year critical period and 10-year average hydrology periods.

Where do we see schedule impacts?

Watershed model calibration (~ 4 months)

- **Reason**: Modeling team must assess changes (~2 month)
 - Identify the inputs for the DWSM, CalCAST, and CAST that are dependent on averages from the hydrologic period's years
 - Recalculate relevant input data (e.g. atmospheric deposition)
 - Determine how valid current calibration still is (examine impact on delivery factors, Land to water, river, etc.)
- **Reason**: Recalibration with new inputs (~ 2 months)

Watershed Model Scenarios – (~ 1 month)

- **Reason**: Any change to the hydrologic base requires scenario reruns

Linkage of Watershed and Estuarine Models – (~2 months)

- **Reason**: Changes to the new hydrologic period can cause the model to crash if input data overwhelms current parameterization.

Criteria Assessment – (~2 months)

- **Reason**: New results for each management scenario needs to be assessed at every concentration observation, every depth, and every monitoring station over all the new three hydrology years.

Comparing outcomes:

Requests for two separate versions:	1991-2000 version
	1998-2007 version
	Separate calibrations
	Different parametrizations

NOTE* Changes are nonlinear (10% change doesn't mean 10% change across the board)

Summary

- Altering the critical/hydrologic periods will change modeled results
- These changes will have impacts on the timelines for model development and release
- Quantifying the significance of changes and timing are difficult.

Questions?