CAP WG:
New Tech Addendum update.

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November 14, 2014

4 Action Items for Development and Approval

- Missing bathymetry: can we accept the model based volumes as interim volumes to fill a gap in 303d list reporting in MD?

- **PATUXENT TIDAL FRESH (PAXTF)** model-based value of 11,025,000 cubic meters (m^3)

- **ANACOSTIA TIDAL FRESH in Maryland** (ANATF MD) model-based volume estimate is 172,500 cubic meters (m^3).

- **Requesting approval for publishing the interim volumes for use in 303d listing assessments and filling historical gaps in the 303d assessments.**

4 Action Items for Development and Approval

- Support for science-backed sub-segmenting options for the States/DC.

- This decision does not change water quality criteria.
- This decision establishes additional science-based support for EPA working with the jurisdictions when working together to create sub-segments in assessment units in Chesapeake Bay and its tributaries.

- **Requesting approval for support information provided in the chapter on criteria to help derive sub-segmentation options**

4 Action Items for Development and Approval (continued).

- Decision rule regarding the use of Continuous monitoring dissolved oxygen data

4 Action Items for Development and Approval (continued).

- Decision rule regarding the use of Continuous monitoring dissolved oxygen data

Proposed Methodology:

A determination of DO impairment will be made:

- **If at least one DO exceedence was observed on more than 10% of the days monitored in a single season. (e.g., 120 days X 10% = 12 days can have an exceedence)**

OR

- **If there is more than one day in a single season where the DO concentration exceeded the criterion more than 10% of the time (e.g., 2.5 hours)**

Additional Recommendation

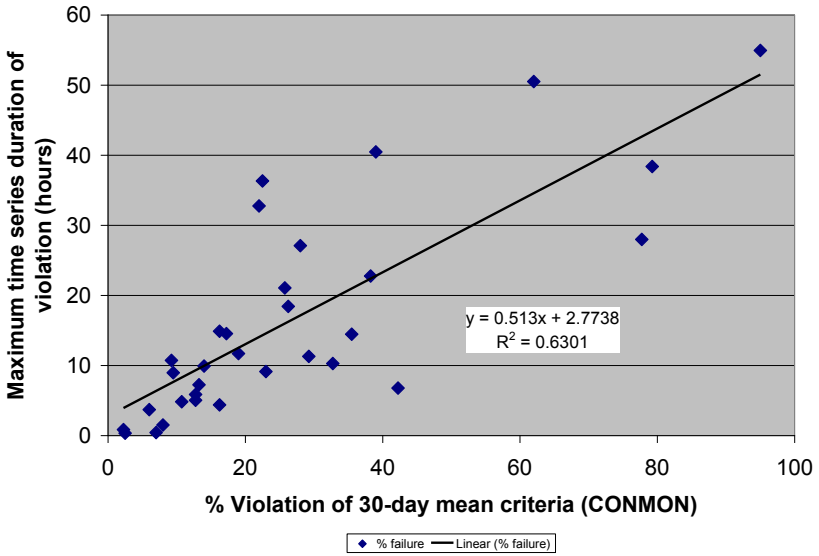
- Rule #2: If there is more than **two consecutive days** in a single season where the DO concentration exceeded the criterion more than 10% if the time (e.g. 2.5 hours)

- This alternative rule would provide a test as to whether the low DO events were consecutive.
- In cases where this rule would result in failure there would be higher certainty that the low DO events were real and adverse biological / ecological effects more certain than with original Rule #2.

- The impact of the proposed rule change was tested on the CMON data for the lower James River (see attached workbook). The findings show that the use of the alternative rule would result in modest and beneficial differences in the outcomes compared to the original rule.

- Boynton et al. (2014) examined high temporal density dissolved oxygen data records for full summer seasons (n=57) showing nearshore locations across Maryland tidal waters can experience a gradient of hypoxia from minutes to weeks.

Maximum violation rates can occur for many hours across many locations



Example applications of rules

Segment	Year	Rule 1	Rule 2	Rule 2 (Alt)*
JMSMH	2006	Pass	Fail	Pass
	2007	Pass	Pass	Pass
	2008	Pass	Fail	Fail
	2006-2008	Pass	Fail	Fail
JMSMH	2012	Pass	Pass	Pass
	2013	Pass	Pass	Pass
	2014	Pass	Pass	Pass
	2012-2014	Pass	Pass	Pass
JMSPH	2006	Pass	Fail	Pass
	2007	Pass	Pass	Pass
	2008	Pass	Pass	Pass
	2006-2008	Pass	Fail	Pass
LAFMH	2012	Fail	Fail	Fail
	2013	Pass	Pass	Pass
	2014	Pass	Pass	Pass
	2012-2014	Fail	Fail	Fail
LAFMH	2012	Fail	Fail	Fail
	2013	Fail	Fail	Fail
	2011-2013	Fail	Fail	Fail

4 Action Items for Development and Approval (continued).

- **Decision rule regarding the use of Continuous monitoring dissolved oxygen data.**

- We have proposals for decision criteria using continuous monitoring data.
- Requesting a decision regarding the options 1, 2, or 2A for EPA consideration.

4 Action Items for Development and Approval (continued).

- Decision rule regarding the use of Continuous monitoring dissolved oxygen data.
- We have proposals for decision criteria using continuous monitoring data.
- We need a discussion and decision on the number of sites per segment or per unit area.

4 Action Items for Development and Approval (continued).

- Umbrella Criterion application approach.
  - The application uses the CFD approach and evaluates 30-day mean data against protective thresholds that account for uncertainty with data density in order to state protection of shorter duration criteria.

Example of the Application of the Umbrella criterion approach

Segments attaining the 30-day mean open water summer criterion of 5.0 mg/L 2011-2013 assessment	Segments that also pass at the threshold level of 6.1 mg/L for mutual protection of the 7-day mean.	Segments that also pass at the level of 6.5 mg/L for mutual protection of the 7-day mean.	Segments that also pass at the level of 7.0 mg/L for mutual protection of the instantaneous minimum.
CB1TF, CB3MH, CB4MH, CB5MH, CB8PH, CHSMH, EASMH, JMSMH, JMSPH, JMSTFU, MPNTF, PIAMH, PMKTF, POCMH, MPCMH, VPCMH, POTMH, POMMH, POVOH, POTTF, DCPTF, MDPTF, TAMMH, APPTF, BIGMH, BOHOH, CNDOH, CHKOH, ELKOH, FSBMH, MANMH, MD5OH, MIDOH, NANMH, NORTF, PISTF, SASOH, SEVMH, SOUMH, VA5MH	POCMH, MPC, VPCMH, POVOH, APPTF, BIGMH, FSBMH, MANMH	No segments meet requirements for protection of the 7-day mean	No segments meet requirements for protection of the instantaneous minimum

40 segments passed 30-day criterion

8 of the 40 segments passed the 7-day mean based on the 30-day mean using an Umbrella threshold 30-day mean $\geq$ 6.1

4 Action Items for Development and Approval (continued).

- Umbrella Criterion application approach.
  - The application uses the CFD approach and evaluates 30-day mean data against protective thresholds that account for uncertainty with data density in order to state protection of shorter duration criteria.

Requesting approval of the Umbrella Criterion assessment method as an option for addressing short duration criteria assessments.

Thank you.