

I. Short duration Dissolved Oxygen Criteria Attainment Assessments

II. Interim BIBI Rules

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Presentation Outline

- Present an overview of the WQ Criteria Technical Addendum Chapter 1 draft on Short duration DO criteria assessment.
 - Review Recommendations on filling short duration assessment gaps
- Present recommendations for interim BIBI calculation rules.
- Request your comments on Chapter 1/BIBI rules a week before the July meeting.
- Request approval of Chapter 1/BIBI rules
 - Option 1. July 2013 with no additional work.
 - Option 2. Autumn 2013 pending additional work.

I. Chapter 1: Short Duration Dissolved Oxygen Criteria Assessment

- Background: Criteria Assessment History, Gaps, prior recommendations, Umbrella Criteria Assessment.
- Methods: Approaches explored to support short duration assessment gaps
 - See Appendices for details

RESULTS

- Statistically-derived (i.e., Spectral Casting) time series of dissolved oxygen concentrations are not a suitable substitute for high frequency observations in our criteria assessments.

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- An Umbrella Protection Effect exists for protecting multiple criteria using a single scale of measurement.

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- An Umbrella Protection Effect exists for protecting multiple criteria using a single scale of measurement.
 1. The size of the Umbrella Effect varies depend on the density of measurements used to assess the criterion.
 2. Levels of protection are different depending on what criteria you choose to protect.

1. The Umbrella Effect depends on the density of measurements for assessing the criterion.

Monthly Mean DO	Risk of Nonattainment in Protecting the 7-day mean	
	Realtime data 30-day mean	2 samples per month 30-day mean
5.0	16%	27-30%
5.3	10%	21-25%
5.6	6%	16-20%
5.9	3%	12-16%
6.2	1%	9-13%
6.5	<1%	6-10%

2. Levels of protection are different depending on the criteria you choose to protect.

Monthly Mean DO (using realtime data)	Risk of Nonattainment	
	7-day mean DO criterion	Instantaneous minimum >10%
5.0	18%	45%
5.7	6%	34 %
6.3	2%	25 %
7.0	2%	17%

Risk of Nonattainment was rounded to the nearest whole %

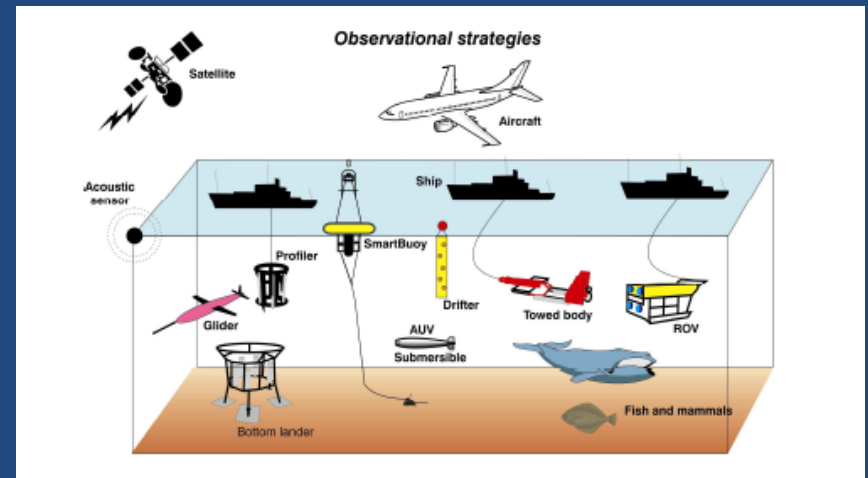
To implement the Umbrella Criteria Approach for assessing short-duration criteria, an acceptable risk of nonattainment for the unmeasured criteria needs to be defined.

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Two Choices for Assessing Short Duration Criteria in Chesapeake Bay

1. Measure water quality at high temporal frequency.



2. Use the Umbrella Criterion Approach defining the acceptable risk of nonattainment for unmeasured criteria*



* Open water designated use

Gaps

- Deep water designated use assessment recommendations
 - Deep water high frequency data sets are extremely rare.
 - Very little effort has been directed at into the work on this designated use.
- Suggestion: Requesting support for a brief exploration of what more could be done in the time remaining towards developing an Umbrella Approach understanding to Deep Water designated use assessment.
 - Report back in Autumn 2013.

II. Chesapeake Bay BIBI Interim Assessment Rules in lieu of a complete BIBI recalibration

- “For segments where ‘Impaired = No’, identify those segments that have a breadth of confidence limits (Upper confidence Limit - Lower confidence Limit ≥ 0.5) of .5 or greater...
- ...of that remaining subset of segments, those that have a Mean BIBI < 2.7 would be classified as Category 3 (insufficient information) until more conclusive information is available.”

Result of adding the rule to the BIBI assessment to account for variability in the data: Support 303d listings.

- This add-on rule causes 4 segments, CRRMHa, SBEMHa, SASOH, and YRKPHa to be listed in Category 3 (Insufficient information).

Future of BIBI Work

- The B-IBI was last validated for tidal freshwater and oligohaline habitats by Alden et al.(2002).
- The paucity of data available at that time made the index less robust in the tidal freshwater and oligohaline regions than in the more saline habitats of the Bay.
- Proposal to recalibrate the BIBI and address other issues through the effort.
 - \$55K of funding is being considered for one time support from within the MD and VA 117e grants at this time.

Thank you.

