CAP 2013 END OF YEAR SUMMARY

Short duration Dissolved oxygen Criteria Assessment.

The WQGIT supported Short duration criteria may be assessed in two ways:

- First, using the umbrella criteria approach and acknowledging the risks of nonattainment:
    - 7-day mean: 30-day umbrella approach looks acceptable for addressing the 7-day mean assessment
    - *1-day mean: Note - The application of the 30 day mean to address coverage of the 1-day mean needs a final discussion and recommendation in 2014.*
    - Instantaneous minimum:
        1. The science foundation for IM criteria remains supported.
        2. The threshold values in the standards remain unchanged.
        3. We are evaluating 3 possible methods of making the assessment
            1. CFD
            2. Hybrid habitat separation nearshore and offshore waters using ConMon in the nearshore and fixed site assessment offshore
            3. Bayesian approach to strengthening estimates of 30-day means to reduce uncertainties and risk of nonattainment of short duration criteria
        4. Workshop discussions indicated the literature meant 'instantaneous minimum' to reference 2-6 hour time frames. USEPA considers a 1-hour mean as a translation of the 'instantaneous minimum'. This addresses the issue of duration.
            1. *This information will be finalized in the assessment protocol.*
        5. It was suggested at the Workshop that we consider ways to separate physics based signals from anthropogenic based local signals.
            1. *We will include the topic in the Technical Report with the best available information we have at the time.*
- Second, States have the option to measure and assess with higher frequency data if they have the resources and want to target areas for delisting.

Shallow water habitat as a Dissolved Oxygen Criteria assessment unit?

- The UCAT conducted considerable work on this issue. We have shown that there can be some similarities in behavior from mid-channel to nearshore at longer term time intervals (30-day mean, 7-day mean conditions) but instantaneous values show different distributions.
- At the conclusion of a subsequent UCAT meeting where we reviewed final analyses of our work, we recommend no changes to the Open Water DO assessment at this time, which includes the shallow water zone in the open water assessment.
- Accepting that we show differences in DO behavior of the nearshore and offshore habitats, States/DC retain the option to create subsegments upon request, justification and concurrence with USEPA.
- The WQGIT supported the combined recommendation.
    - That said, we did not conduct work that established a dissolved oxygen based bathymetric definition of 'shallow water'. Do we include 2.5m? 3m? 4m? etc. Many other questions beyond the scope of the assessment seemed to need to be answered before we solidify a separation of the shallow water as a use. It is an issue worthy of further investigation. I believe it is a tractable issue in the research realm. It is not going

to happen within the context of the present work and does not have full priority in the community to dedicate time for over other issues in the upcoming year.

Benthic IBI updates on analysis

- We reviewed and discussed segment classification issues for special cases of BIBI results that were problematic in a few areas of the Bay.
- We recommended classifications for those problem segments impacted by data sufficiency.
- The WQGIT supported these minor updates to the BIBI assessment that affect some segments but not the overall foundation of the IBI information.
- There is no funding available at this time for more significant updates of the BIBI that have been proposed using additional recent monitoring data.

Water Quality Standards Indicator

- Liza Hernandez developed a composite water quality standards indicator for assessing progress in the health of the Bay.
- The WQGIT supported the new indicator.
- The new indicator appeared in the 2013 Bay Barometer
- Work continues on developing the use of the components of the indicator to illustrate incremental progress towards delisting the Bay segments.

SAV/Water Clarity

- At the start of 2013, the CAP WG had a potential list of issues regarding SAV/Water clarity assessments.
    - Barriers or no barriers (GIS analyses)
    - Movement of a state boundary
    - 1-year (best year in three – method in place now) vs. 3-year average attainment assessment
    - Basis for the goal (2.5 multiplier)

    1. Early 2013 discussions with SAV WG members indicated these issues were brought up to highlight the potential for ecologically irrelevant attainment throughout the bay. At this point, however, they were not considered to warrant full, in depth CAP WG discussion. In a few years (5-6) the bay-wide segment assessments will be complete. That is considered a likely time to implement a more targeted approach to monitoring SAV water clarity conditions.

- Summer 2013, the SAV WG further proposed and received financial support for a broader update of SAV science with the production of ***SAV Tech Synthesis III***.
    - The WQGIT and Management Board know there is support for the synthesis. The Synthesis draft work plan is as follows:
        - OVERVIEW: Gather regional SAV experts to assemble the latest scientific findings in SAV research and management. These experts will distill these findings into revised habitat requirements that can then be used for improving the linked watershed and hydrographic models ability to predict SAV growth in the estuary in response to TMDL and WIP implementation, improved scientific support for water clarity criteria, and enhanced success in direct SAV restoration. In addition, this work will provide great explanatory power in public informational products regarding SAV population dynamics. The new document will address the following management needs:

1. Review current habitat requirements and water clarity standards and determine if they are stringent enough to allow for the resurgence of SAV.
    - Are 13% and 22% of incident light at the plant sufficient?
    - Revisit ambient nitrogen, phosphorous and chlorophyll habitat requirements in relation to anticipated reductions in loadings via TMDL/WIP process, provide guidance to Water Quality Standard development
    - Improve modeling results for SAV growth in linked Watershed/Hydrodynamic Model (the Chesapeake Bay Model)
    - Will global change require different habitat requirements in the future?
    - Revised/re-considered habitat requirements will improve direct SAV restoration (i.e. planting/seeding) as recommend by STAC review of 2011
    - Revised habitat requirements will provide greater explanatory power when preparing SAV information for managers and the public (i.e. Bay Barometer, report cards etc.)
    - Use ecosystem services evaluation
    - Evaluate effectiveness of TMDL/WIP process relative to SAV
    - Quantifying water quality feedbacks due to SAV to allow Chesapeake Bay Model to account for water quality improvement as SAV is restored (currently not a component of the Model)
    - Determine economic value of SAV for management and public informational products

- TASKS:
    1. Synthesize the state of SAV Restoration science addressing the following topics
        - SAV habitat requirements (light, sediments, waves)
        - Habitat criteria for established versus restored SAV beds
        - Impact of pioneer species on SAV resurgence/restoration
        - Feedbacks and resilience of SAV populations (genetics) and communities
        - Large versus small scale restoration
        - Shoreline hardening effects on SAV
    2. Synthesize the state of SAV Global change science addressing the following topics
        - Temperature
        - Sea level rise, coastal erosion and sustainable shorelines
        - CO2 levels
        - Precipitation (variable river flow) and global dimming (incident light)
    3. Evaluate Ecosystem services provided by SAV in Chesapeake Bay
        - Ecological functions of SAV (interactions with fisheries, nutrient uptake, carbon sequestration, wave/resuspension reduction, habitat value, improving habitats for other species, water quality challenges (i.e. DO improvements)

        - Economic impact of SAV serving the above functions
    4. Identification of knowledge gaps in SAV research, restoration and management
- As of December 2013, the CAP WG Chair and coordinator are meeting with Rich Batiuk and the SAV WG Chair to understand the roll out schedule of topic products in Tech Synthesis III.
- *The products schedule will affect which topics can be captured in analyses supporting the 2017 mid-point assessment and, therefore, need to be addressed in early 2014 for timely inclusion in the next criteria Technical Addendum.*

Corrected Missing Segment Bathymetry

- We were able to track down bathymetry data for the Western Branch of the Patuxent River, which from here on out, will allow us to assess the segment – something we weren't able to do before.

Nontraditional Partnering Update

- We successfully coordinated with the State of Maryland through MD Department of Natural Resources, Maryland Department of the Environment, and a nontraditional partner (South River Federation in Maryland) to include elements of the SRF Bay water quality data into MD State 303d water quality assessments.
- The new Technical Addendum will highlight the "gold standard" requirements of data collection, QA, data management and submittal.