

SUMMARY
AD HOC ADVISORY COMMITTEE
CHESAPEAKE BAY AND TIDAL TRIBUTARIES WQS
FEBRUARY 24, 2004

Welcome and Introductions

Attendees:

DEQ: Alan Pollock, Elleanore Daub, John Kennedy, Jean Gregory, Arthur Butt, Rick Hoffman, George Walker

CB COMMISSION: Melanie Davenport

CBF: Jeff Corbin

DCR: Charlie Lunsford

EPA/CBPO - Rich Batuik

RICHMOND: Virginia Pennick

USFWS: Cindy Kane, Sumalee Hoskin, Susan Lingenfelter

VACO: Frank Harksen

VAMWA: Will Hunley, Norm LeBlanc, Chris Pomeroy, Clyde Wilber, Clifton Bell

VIMS: Ken Moore

VMA: Bernard Kiernan, Tom Bodkin

VML: Bob Steidel

Update From Last Meeting (DO Issues)

Rich Batuik from the EPA Chesapeake Bay Program Office handed out a briefing paper which summarized EPA's response to the dissolved oxygen related issues discussed at the January meeting.

DEQ/EPA update on Maryland Bay WQS process

Maryland to begin an informal review process of their designated use boundaries and water quality standards regulations text and tables for review and comment by all watershed jurisdictions. This should help VA process as this may be available in April. Their formal public participation will begin in June. Maryland is working with EPA on a waiver or variance type of approach which will allow a higher level of non-attainment for CB4 since this segment cannot attain uses/criteria under expected load reductions.

Comment: How will VA participate in the CB4 decision since attainment heavily impacts VA?

Follow Up: DEQ and EPA staff will continue coordination with MD.

EPA clarification on 30-day open water criteria application for migratory use

The fish migratory spawning and nursery criteria replace the open water criteria during the migratory season. The migratory criteria are more stringent than the open water criteria. There is no 30-day average criteria during the migratory season. A concern was raised that we cannot model the instantaneous criteria and if you do not state how attainment will be measured or applied in the model, then you are allowing the modelers to make those decisions for you. Currently, we compare our monitoring directly to an instantaneous criteria and no model is used in assessments.

Follow Up: EPA is developing guidance on attainment and measuring of instantaneous/7-day mean/30-day means.

EPA to address CBF comments on migratory use boundaries and seasonal application and VAMWA comment on no citations of impacts to ELS of fish to short term exposures less than 4.0. Other D.O. criteria issues (4.0 vs. 3.2 instantaneous in lower Bay)

The boundaries published in the TSD reflect a composite of all targeted anadromous and semi-anadromous fish species spawning and nursery habitats, were published in the Habitat Requirements for Chesapeake Bay Living Resources and are documented in the scientific literature. These geographic coverages are available if needed. The Feb. 1 - May 31 time frame associated with these criteria are also supported in the scientific literature. After this time period, the open water criteria take over to protect the early juvenile fishes and adults.

The 5.0 instantaneous minimum criteria in migratory fish spawning and nursery areas was developed was based on the EPA freshwater D.O. criteria and is designed to protect against growth effects that can occur during very short spawning nursery life stage windows and not necessarily considered an 'acute' event. Concerns were still raised that this averaging period was not reflected in the literature and that DEQ should consider this as a daily average. There are also remaining concerns about attainability of instantaneous criteria. This would still be protective of sturgeon since sturgeon were protected at exposures of 2 - 6 hours at 3.2 mg/L.

DEQ still has concerns that existing quality (as an instantaneous value) in the lower bay may be better than the published criteria of 3.2 mg/L for open water and therefore the criteria should reflect existing criteria/quality. Conversely, the published criteria are protective of open water uses, the State Water Control Law states that regulations should not be more stringent than federal requirements [although any proposal more stringent than federal needs to be submitted to appropriate committees of the General Assembly] and the antidegradation policy in conjunction with the criteria will protect the high quality of these waters.

Follow up: EPA will discuss with Bay scientists whether a daily average of 5.0 in migratory areas would be protective. DEQ will share with EPA the concerns raised by VAMWA on this issue. DEQ will also gather spring data and compare these data to the instantaneous criteria. DEQ will also accept comment on the idea of keeping the existing criteria in areas of the Bay that meet those criteria.

DEQ and VAMWA update on local impacts to permittees on new migratory dissolved oxygen criteria (i.e. BOD limits)

DEQ permit staff is reviewing this issue as well as VAMWA. These more stringent criteria will affect the DO related allocations from the models used in the upper tidal rivers and could affect many discharges. DEQ is trying to identify what it will take to rerun those models. At a minimum, they are trying to find out which permits will be affected. VAMWA will also review the impacts on NBOD or BOD limits in these areas.

EPA to address VAMWA comments on deep water boundaries in CB6 and Elizabeth River tributary deep water/channel uses

The group was shown density/pycnocline profiles that show strong stratification in CB5. This stratification lessens below the hydrologic control point which is a line inclining northeastward from the mouth of the Rappahannock to a point at the southern tip of the islands in Tangier Sound. This line approximates the location of a broad shoal or sill on the Bay bottom and defines the southern terminus of the mainstem Chesapeake Bay deep trench. A portion of CB6 lies below this point where stratification is weaker due to the oceanic water influence. Can also see that D.O. is met more often under the confirmation model scenarios below the hydrologic control point. The group discussed the small amount of non-attainment in CB6 open water and whether that level of non-attainment (1.07%) was significant and how the 10-year hydrography and 30-day averages produced by the model would relate to observed data and 3-year assessments. DEQ questioned whether this small amount of non-attainment may be due to some of the more northern CB6 stations and whether EPA could look closely at the data to see if the deep water boundary should be moved farther south. Was suggested that EPA show the non-attainment information graphically with the central tendency and the data around the mean.

Portions of the Elizabeth River also show deep water and deep channel characteristics in the western, eastern (from Campostella Bridge down) and southern branches. EPA exhibited D.O. and density plots that showed near the mouth of the Elizabeth exhibiting little stratification but that the branches do depict some deep water and deep channel characteristics. These deep man-made channels can be considered in use subcategorization per federal and state regulation.

Follow up: EPA to compile D.O. stratification data plots in CB6 and Elizabeth River so DEQ can see the 'big picture' of these stratification effects and make a decision about where to place the lower boundary of deep water in CB6 and the deep water/deep channel in the Elizabeth River. Perhaps depict on one plot per station the central tendency and data around the mean. EPA also to look at non-attainment in CB6 station by station.

Findings from EPA/DEQ on naturally low DO in Mattaponi/Pamunkey

This issue was initially deferred but later in the afternoon time permitted the committee to discuss this issue. DEQ prefers to approach this as a criterion change but keep the designated uses in the segment and EPA is working towards a recommendation using this approach. The approach defends the use of a lower criteria based on the large amounts of organic material input from the tidal wetlands, research that shows how much D.O. is actually being pulled out of the system by the surrounding wetlands, the water quality model which now includes a "wetlands function" and looking at 20 year record given temperature saturation and salinity data showing what the dissolved oxygen could be vs. what it actually is. All this information will be used to determine the wetlands contribution to the D.O. signal in these areas. This may result in a different long-term average but keeping the instantaneous value. One idea that raised some concerns was

that the designated uses in these areas are basically the same (there may be behavioral changes that have not been specifically measured) as in other tidal areas with no surrounding wetlands. The specific concern here is that this may detract from the defensibility of the published criteria if we are saying these lower criteria protect the same uses. DEQ may want to reconsider keeping the criteria and uses but establish an alternative attainment procedure since this seems to be more of an attainment problem. DEQ should also not discount the results of these analyses to adjust the Bay criteria, as they are more realistic than laboratory studies.

EPA input on application of uses and criteria in small tidal creeks and embayments

These small tidal creeks and embayments have not received the attention that the Mattaponi and Pamunkey have regarding natural impairments. There are concerns that similar type issues will arise and therefore we should not adopt these uses in small tidal creeks and embayments because we do not know if they are attainable. Need a mechanism to in the water quality standards to deal with unknown problems in these areas that limit attainability. Currently, we our monitoring and modeling efforts in these waters are limited to main stems. This limitation could result in water quality problems in these creeks going unnoticed because of the segment approach to monitoring and modeling.

Concerns remain regarding these unknowns and the difficulty of changing uses if needed in the future. The use attainability analysis (UAA) process is very difficult, as it is perceived as a downgrade rather than a correction. On the other hand, these new uses and criteria are more accurate than the general uses and criteria we have now throughout the Bay and EPA fully expects the states to adopt these new uses into their water quality standards for all tidal creeks and embayments. It was pointed out that the early intent from EPA on these Bay standards was not to apply these uses and criteria to the small creeks and embayments.

Follow up: DEQ will attempt to get an idea of attainment in these areas, particularly the areas with more stringent criteria (migratory) using existing monitoring data.

Findings from DEQ/EPA on attainment and measuring of instantaneous/7-day mean/30-day means

No discussion. EPA is developing guidance on this.

Other input/concerns from group on DO criteria and their related uses (migratory, open, deep water and deep channel)

No discussion.

LUNCH (provided)

Water Clarity Criteria and Shallow Water (SAV) Uses

Overview Water Clarity Criteria and Shallow Water Uses (DEQ/EPA)

Slides depicting the shallow water uses, water clarity criteria and options for criteria application were reviewed.

Discussion of numerical criteria for shallow water

Is the seasonal application (April 1 - October 31) appropriate?

The temporal application of the use is April 1 - October 31 in tidal-fresh, oligohaline and mesohaline habitats, March 1 - May 31 and September 1 through November 30 in polyhaline habitats. Some polyhaline habitats contain the mesohaline species that need protection March - November. This may require the application of two temporal applications of the criteria in certain polyhaline areas.

Should a numerical water clarity criteria (PLW, secchi depth) or SAV acreage as a biological criterion be considered? If so, should restoration goal acreage be used? Should SAV acreage be proposed by region (VA Bay), CBP segment, watershed, other?

See discussion below.

Should a water clarity criterion in combination with SAV acreage biological criterion be considered? How should this be assessed?

Reliable data from VIMS surveys from the last 15-20 years is available to assess this resource and define existing uses. However, there is not a lot of water quality data from the shallow areas to assess the resource. This may be a good opportunity to use this biological data to directly measure the resource. Since there may be reasons other than clarity that affect SAV, a combination SAV/clarity criterion could be implemented.

DEQ would also like to explore the option of not using the application depths as the outer boundary but rather to measure the clarity criteria in terms of acreage along the shoreline (regardless of depth). This would be also be measured with the SAV acreage in the segment (regardless of depth) to determine use attainment. There were some questions/concerns from the group on how this would be applied without a depth factor. For example, how would you know where to take a secchi depth reading? (Anywhere in the segment shallows deep enough to measure down to the level of the criterion.) Would a segment be considered in attainment if the required number of acreage met the water clarity but there was no SAV? (Yes, if there were no SAV after water clarity met then there must be an issue that is not water quality related.) This is a concern because a segment could have no SAV (but meet the water clarity) and this would mean no TMDL to find out why the SAV aren't growing. Can any species of SAV count as a 'balanced' population? (Yes - but designated use doesn't refer to 'balanced' SAV. We are focused on acreage only.) Over what duration/return frequency will these acreages be measured? (The partners agreed upon a 3-year window to capture the good years and bad years associated with SAV). This was still a concern because the single best year calculated toward the restoration goals is a 1 in 12 year frequency. The duration of the criteria should be tied to the derivation of the criteria or else we may never meet the acreages goals. However, it is difficult to say whether the goal acreages are conservative or liberal because the goal acreages were "clipped" at a specified depth and the historical aerial survey data was not designed to look for SAV which would tend to underestimate the acreages present. DEQ would like to consider something less than the restoration goals as the initial SAV criterion to address concerns of using a biological

criteria and some questionable non-attainment figures published for the Rappahannock and James (non-attainment may not be an issue if water clarity goals can be used as a substitute and in addition to SAV acreage goals). The EPA criteria document acknowledges that existing uses - restoration goals are acceptable acreages to be applied as criteria.

Follow up: Provide examples on application of water clarity / SAV biological criterion and how the two would work together.

Provide a table with specific segments for goals and factors to determine water clarity acreages.

Show DEQ/group how specifically SAV acreages were developed and determine if the existing goals in Table IV - 15 of TSD are based on recent survey data rather than historical data to better assess the comment that the goals should match the criteria derivation. EPA to check why Pamunkey and Mattaponi existing uses are better than restoration goals and why the Rappahannock existing use in TSD (1978-2000) is set at 841 acres yet in attainment table shown to group 1985 - 94 is over 2,000 acres.

Provide Potomac, CB5 and Tangier SAV acreage as VA acres (currently these acres belong to MD and VA and are presented in the TSD as one acreage).

EPA to do more recent model runs to look at SAV attainment to address concern of non-attainment under Tier 3 + 50% model scenarios Rappahannock and James. Also do model runs and attainability tables for water clarity acreage attainment.

Are the use of 'application depths' (including minimum of .5 meter maximum of 2 meters) appropriate for defining shallow water use boundaries?

See criteria / water clarity acreage/ SAV acreage discussed above (application depths may not be needed).

Are the 'no grow zones' appropriate? What about no grow zones in turbidity maximum zones (e.g. York)?

No grow zones determined by Bay scientists to include areas with physical disadvantages that naturally prevent the SAV from establishing itself (wind, surrounding blackwater swamps, no protective bars, high energy). If DEQ adopts a water clarity/SAV criteria combination (water clarity acreage alone or in combination with SAV acreage equals attainment), then this may not be such a concern in turbidity maximum zones. May be a good idea to identify no grow zones in the regulation or guidance as areas where monitoring should not occur.