

**Minutes - James River Chlorophyll *a* Study  
Regulatory Advisory Panel Meeting #2  
August 10, 2016  
DEQ Piedmont Regional Office, Glen Allen, Virginia**

**Agenda**

10:00 Roll Call, Announcements

10:10 VMA Presentation:

- Purpose of RAP was to transition from scientific study/issues to how the criteria will be applied to dischargers
- Despite continued debate over technical nuances, existing criteria generally appear to be defensible
- Regulated community needs to know how compliance with the criteria will be assessed
- More importantly, there is no direct connection between the criteria and nutrient allocations
- Need clear understanding of impacts on allocations/permits before December Board meeting

10:55 Joint CBF – EPA/CBPO Presentation - important items to reach consensus on:

- Lines of evidence (reference vs. empirical)
- Type of central tendency (arithmetic vs. geometric means)
- Baywide or tidal James-specific arithmetic mean to geo-mean conversion
- Monthly means vs. seasonal means
- Acceptable percent exceedance thresholds for lines-of-evidence
- Relative importance of individual lines-of-evidence
- Addressing 2 segment-seasons with no “protectiveness” lines of evidence
- Comparing existing criteria to protective ranges (“protective”, “over-protective”, “under-protective”) and determining any necessary revisions

11:40 Break for lunch

12:30 City of Richmond Presentation

- Impact of Chl-*a* criteria process, in conjunction with TMDL process, on development and implementation of an Integrated Plan (and other municipal plans)

1:15 VAMWA Presentation:

- POTW dischargers’ perspective on chlorophyll criteria issues

2:00 Wrap-up; next meeting

**Advisory Panel Members and Alternates Present:**

***Chesapeake Bay Foundation: Joe Wood***

***City of Hopewell: Jeanie Grandstaff, Matt Ellinghaus***

***City of Richmond: Robert Steidel, Grace LeRose***

***Dominion Power: John Picklehaupt***

***EPA Chesapeake Bay Program Office: Richard Batiuk***

***Hampton Roads Sanitation District (HRSD): Jim Pletl***

**James River Association:** Jamie Brunkow

**VA Association of Municipal Wastewater Agencies (VAMWA):** Ted Henifin

**VA Manufacturer's Association/** Andrew Parker, Ellen Snyder

**VA Dept. Conservation & Recreation:** Darryl Glover

**VA Dept. Of Health:** Margaret Smigo

**Invited Science Advisory Panel (SAP) Members Present**

Paul Bukaveckas (VA Commonwealth University)

Clifton Bell (Brown & Caldwell)

**Dept. of Environmental Quality Staff Present**

John Kennedy, Alex Barron, David Whitehurst, Tish Robertson, Allan Brockenbrough, Matt Richards, Houbao Li, Brandon Bull

**Observers**

**Greeley & Hanson:** Laurissa Cabbage

**VMA:** Andrea Wortzel

**VAMWA/AquaLaw:** Justin Curtis

The Regulatory Advisory Panel (RAP) for the James River chlorophyll water quality standards rulemaking met for the second time on 8/10/2016. John Kennedy, Office of Ecology Director, greeted the attendees and made introductions. He then informed the RAP of the James River Water Quality model status, particularly regarding investigation of the “scenario runs” and predicted non-attainment of chlorophyll criteria that was higher than originally predicted by the Bay Program’s modelling framework used to set the TMDL nutrient loadings. Due to a computer system failure at the EPA-CBPO since the TMDL was adopted, the watershed model-simulated nutrient inputs and resulting chlorophyll concentration outputs used in setting the 2010 TMDL allocations are unavailable. Attempts will be made to locate any archived computer files outside the EPA-CBPO. Mr. Kennedy also told the RAP that the Bay Program’s Criteria Assessment Protocol workgroup held its first meeting to review the alternate assessment method proposed by DEQ. Rich Batiuk (EPA) informed the RAP that the Chesapeake Bay Program’s Science and Technical Advisory Committee (STAC) peer review of the James River Chlorophyll Study Science Advisory Panel’s “Empirical Relationships Report” is expected by the end of September.

VMA presentation –

[http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/VMA\\_Talking\\_Points\\_pres\\_RAP\\_10AUG2016.pdf?ver=2016-11-02-162749-843](http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/VMA_Talking_Points_pres_RAP_10AUG2016.pdf?ver=2016-11-02-162749-843)

VMA’s main concerns still center on financial impacts to facilities. They generally support the work of the Science Advisory Panel and generally agree with the proposed modification of the chlorophyll ‘a’ assessment methodology. They stated it would be helpful to have an idea what to expect regarding further reductions to waste load allocations in order to project costs for meeting reduced load allocations. Mr. Kennedy briefly reviewed the origin and development of Bay load allocations and stated that setting those allocations is a separate rulemaking involving the Water

Quality Management Regulation and the Chesapeake Bay Watershed Nutrient Discharge General Permit Regulation. He agreed it's preferable to have a working model to help inform facilities of impacts. City of Richmond pointed out that the city is projected to spend approximately \$90 million in construction, operation, and maintenance of treatment facilities to meet current waste load allocations based upon the existing criteria.

CBF/EPA-CBPO presentation -

[http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking\\_materials/CHL-a-criteria\\_options\\_CBF-CBP\\_10AUG2016.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking_materials/CHL-a-criteria_options_CBF-CBP_10AUG2016.pdf)

The joint CBF/EPA-CBPO presentation outlined 8 proposed decisions upon which they believe the RAP needs to reach consensus. They are:

1. What line of evidence should be used—reference condition vs. empirical relationships?
2. What central tendency should be used—arithmetic vs. geometric?
3. Use of baywide or tidal James River specific arithmetic mean to geometric mean relationships to convert defensible ranges?
4. Use of monthly means in addition to seasonal means?
5. Utilize 10% threshold for the HAB, pH, DO and clarity and a 50% threshold for the PIBI as a frame of reference for decision making?
6. Rank the relative importance of the individual lines of evidence?
7. How to address the two segment seasons with no empirical evidence of adverse impairments?
8. How to evaluate the existing tidal James River chlorophyll a criterion values for protectiveness & how to revise if necessary?

Their recommendations:

1. Select the effects-based approach using multiple lines of evidence because the strongest, quantitative connections are between ambient chlorophyll a concentrations and well recognized and documented adverse impacts.
2. Use geometric means because geometric means are fully consistent with DEQ's assessment approach and EPA guidance and geometric means do exhibit significant relationships associated with threshold exceedances.
3. Use the tidal James River arithmetic means converted to geometric means for specific relationships because it more accurately reflects the physical, chemical, and geomorphic characteristics unique to the tidal James River as well as the various season segment combinations.
4. Use monthly rather than seasonal means rationale because it allows for consideration of geometric mean-specific threshold exceedance and provides for significantly improved resolution of the relationships between chlorophyll a concentration means and the threshold exceedances.
5. Continue to use the SAP's "least risk", "defensible", and "not protective" concentration ranges along with the 10% and 50% thresholds. These values are consistent with SAP's published methodology and provide a consistent frame of reference for considering aquatic life impacts.
6. Rank the relative importance of the lines of evidence as follows:

HAB > PIBI > pH > DO > clarity.

7. Keep existing chlorophyll a criteria for the upper tidal fresh spring segment and oligohaline summer segment because no observations of non-attainment were observed which likely prevented documentation of harmful effects. Algal bloom impacts occur in both segments in different seasons suggesting potential for impacts. These criteria are unlikely to influence management decisions given current criteria.
8. Some current criteria are in a defensible range and data suggests current criteria are sufficiently protective. Data suggests other current criteria are over or under protective. Still other current criteria are outside of defensible range and data suggests a change is clearly needed.

Recommended next steps are to:

Share with all RAP members a revised version of the proposed decisions briefing paper and supporting presentation, factoring in feedback received from members and at the next RAP meeting, work through revised set of proposed decisions and see where we have consensus and where we need to do some more work together to reach consensus.

VAMWA presentation –

[http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20a%20Study/Rulemaking\\_materials/CHL-a-RAP-VAMWA-pres\\_10AUG2016.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20a%20Study/Rulemaking_materials/CHL-a-RAP-VAMWA-pres_10AUG2016.pdf)

The presentation covered VAMWA's perspectives of the following topics:

- Background perspectives
- Criteria magnitude and expression
- Criteria assessment
- Modeling

The presentation referenced language from the James River NOIRA notice that the intent of the rulemaking is to protect beneficial uses by adopting regulations that are “technically correct, reasonable, and necessary”. VAMWA made the point that the James fishery is considered to be more robust than other Bay watershed rivers and improving. It was stated that the linkages between chlorophyll ‘a’ and designated uses are complex and it was important to “get it right” (meaning CHLa criteria) for rate payers as well as the environment.

VAMWA's preferred criteria characteristics are:

- Effects-based
- Linked to actual designated use attainment, rather than statistical differences in metrics
- Not redundant with other water quality criteria
- Realistic and practical

With regard to assessment methodology, they state that use of the current cumulative frequency distribution (CFD) is not reliable for assessing seasonal mean data and they concur with DEQ's proposed alternative assessment approach.

It was mentioned that the CHLa blooms in lower Tidal Fresh are partly driven by natural factors unique in Chesapeake Bay system. The hydrology of that part of the James (transition from narrow and deep to broad and shallow) has not been given due consideration in criteria development. Additional nutrient reductions may not prevent blooms which has important management implications.

It is VAMWA's opinion that three elements are needed for standards proposal: criteria revision, replacement of the current assessment method, and a water quality model that provides confidence in load-response.

Mr. Kennedy stated that there wasn't a need for another RAP meeting until after the CBP's Criteria Assessment Protocol workgroup completes its review of DEQ's proposed alternate assessment method, the STAC review of the SAP's "Empirical Relationships Report" was received, and work to further explain scenario results from the modeling contractors has been received.

The meeting was then adjourned.