

**Minutes - James River Chlorophyll *a* Study  
Regulatory Advisory Panel Meeting #1  
June 21, 2016  
Patrick Henry Building, Richmond, Virginia**

**Agenda**

- Introductions
- RAP Process and Schedule
- Background and Summary of JR Study:
  - SAP's "*Empirical Relationships Report*"
  - ICPRB's White Paper "*From Programmatic Goals to Criteria*"
  - Add'l SAP supporting documents/comments
- CBF Presentation
- Discussion/SAP response to CBF presentation
- Current Assessment Method and Potential Alternate
- Wrap-Up, Plan for Next Meeting
- Welcome and Introductions

**Advisory Panel Members and Alternates Present:**

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

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

***City of Richmond: Robert Steidel. Pat Bradley***

***Dominion Power: Oula Shehab-Dandan***

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

***Hampton Roads Sanitation District (HRSD): Jamie Heisig Mitchell***

***James River Association: Jamie Brunkow***

***VA Association of Municipal Wastewater Agencies (VAMWA): Ted Henefin, Chris Pomeroy***

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

***VA Dept. Conservation & Recreation: Darryl Glover, David Dowling***

***VA Dept. Of Health: Laurie Forlano***

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

***Paul Bukaveckas (VA Commonwealth University)***

***Claire Buchanan (Interstate Commission on the Potomac River Basin – by phone)***

***Will Hunley (Hampton Roads Sanitation District)***

***Clifton Bell (Brown & Caldwell)***

**Dept. of Environmental Quality Staff Present**

***John Kennedy, Alex Barron, David Whitehurst, Tish Robertson, Allan Brockenbrough, Matt Richards, Hoabao Li***

**Observers**

***Chesapeake Bay Commission: Ann Jennings***

***VA Dept of Cons. and Recreation: Rene Hypes***

***VA Dept. of Health: Margaret Smigo, Caroline Holsinger, Dwight Flammia***

*VMA: Brooks Smith, Andrea Wortzel, Sharon Sykes, A. Puglisi*  
*VAMWA/AquaLaw: Justin Curtis*

The Regulatory Advisory Panel (RAP) for the James River chlorophyll water quality standards rulemaking met for the first time on 6/21/2016. John Kennedy, Office of Ecology Director, greeted the attendees and made introductions. He then provided a brief background and summary of the study and provided a current proposed timeline for the regulatory process. His presentation slides are available at the below web link:

[http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking\\_materials/JR\\_Ch1\\_RAP\\_pres\\_21JUN2016.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking_materials/JR_Ch1_RAP_pres_21JUN2016.pdf)

Mr. Kennedy informed the Panel that the 2015 Science Advisory Panel (SAP) report entitled “Empirical Relationships Linking Algal Blooms with Threats to Aquatic Life Designated Uses in the James River Estuary”, delivered to DEQ in March 2016, consolidates work of the SAP members. The report brings together several lines of evidence, including bioassay results, phytoplankton community structure, literature review of similar studies, and other water quality indicators associated with elevated chlorophyll levels (e.g., pH, diurnal DO swings). The SAP report focuses on effects-based relationships and impacts but some SAP members advocate a reference-based approach. Arithmetic means were used to analyze data for “lines of evidence”; however, geometric means are currently used to assess criteria attainment. Mr. Kennedy told the Panel that the SAP report yields protective ranges and use of geo-means in the data analysis would result in lower ranges of chlorophyll ‘a’ concentrations and that consensus among all SAP members has not been reached regarding recommended chlorophyll criteria that are protective of the aquatic life use.

Dr. Joe Wood, staff scientist for the Chesapeake Bay Foundation (CBF), gave a presentation detailing some concerns CBF has with the study findings and what they view as potential solutions to those concerns.

Concern #1: The method to assess and the method to establish criteria needs to be consistent.

Solution: A) Use the same approach with plots from geometric monthly means rather than seasonal means to identify threshold chlorophyll ‘a’ concentrations; or B) utilize Peter Tango’s geometric/arithmetic relationships in order to translate arithmetic means identified in the study to geometric means.

Concern #2: The report takes the approach of referencing “elevated” and “lower” rates of threshold exceedance to define these ranges but these descriptors are not defined, which does not allow the reader to reproduce this result.

Concern #3: There is currently no identified mechanism identified by the report to select threshold values within the ranges which are outlined.

Solution (to #2 & #3): Establish specific absolute risk goals based upon specific threshold exceedances such as a combined probability regression approach.

There was general agreement there should be resolution between the statistics used in the study to identify chlorophyll ‘a’ thresholds and assessment of monitoring data (geometric vs arithmetic

means). Mr. Kennedy mentioned that there are difficult decisions to be made due to the large amount of information generated by the study and that the agency is committed to continued use of geometric means for assessment purposes. He also said DEQ staff are encouraged that some of the existing criteria fall within protective ranges generated by the study. It was acknowledged that increased monitoring in the tidal James River would likely increase the accuracy of assessments but that is unlikely to happen given agency budget constraints. Mr. Kennedy said that DEQ staff feel improvement could be made in the assessment methodology.

Dr. Tish Robertson then presented a summary of the existing assessment methodology for chlorophyll criteria attainment in the tidal James River. The pros and cons of the current assessment method were presented. The known methodological weaknesses of the assessment framework were shared with the group, as well as an alternative assessment framework for addressing these weaknesses. Details of current assessment methodology and the alternative are presented here:

[http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking\\_materials/JR\\_Ch1\\_RAP\\_pres\\_assess\\_JUN2016.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityStandards/James%20River%20Chl%20A%20Study/Rulemaking_materials/JR_Ch1_RAP_pres_assess_JUN2016.pdf)

As an alternate to revising the existing assessment method within the Regulation, Mr. Kennedy mentioned the possibility of removing that section from the water quality standards, considering the identified shortcomings of the cumulative frequency distribution (CFD). Having the chlorophyll assessment method outside the Water Quality Standards Regulation (similar to the VA Stream Condition Index scoring used to assess benthic conditions in free-flowing waters) would increase the agency's flexibility for revising the assessment method in the future based on new information and better science, without having to go through the full regulatory rulemaking process. DEQ staff is also of the opinion that assessments based on the proposed alternative method could be simpler and increase their accuracy.

Rich Batiuk expressed concern that "simple doesn't necessarily mean protective". Clifton Bell said he found the suggested assessment alternative acceptable and preferable to the CFD method. It appears that the alternative would reduce false findings of impairment. He also noted the alternative is similar to what some other states have implemented.

Mr. Kennedy drew the meeting to a close and solicited the RAP for the number of meetings they thought would be appropriate to address the issues. A total of four meetings were decided upon. He also mentioned that there will be a lot of information and feedback coming from the Chesapeake Bay Program Science and Technical Advisory Committee (STAC). The STAC is currently reviewing the SAP's Empirical Relationships Report and the Bay Program's Criteria Assessment Protocol Workgroup will review the alternative assessment methodology once it is finalized. Mr. Batiuk emphasized that EPA will be involved in the process of chlorophyll criteria development for the tidal James as much as the state wants and will provide open feedback.

The meeting was then adjourned.