Agenda for Stakeholders Meeting

- Welcome & Introductions - Alan Pollock
- Overview of the VA Nutrient Criteria Development Plan - Jean Gregory
- Discussion about the AAC Report - Dr. Carl Zipper
- Stream Periphyton/Nutrient Studies - Jean Gregory
Presentation to the Stakeholder Workgroup

Development of Regulatory Freshwater Nutrient Criteria for Virginia Lakes/Reservoirs and Streams/Rivers

August 18, 2004
EPA's Approach to Nutrient Criteria

- Identified a geographic region approach (James Omernik’s ecoregions)
  - 14 nutrient ecoregions (aggregations of 84 level III ecoregions)

- Developed technical guidance documents based on waterbody types (lakes/reservoirs; rivers/streams; estuarine/coastal; wetlands)

- Scientific peer review conducted on both methods and results
EPA's Approach to Nutrient Criteria (cont.)

- Derived nutrient criteria based on water body type in a particular ecoregion to be used as a starting point (estuary criteria not expected to follow ecoregional approach)

- Utilize reference condition approach to represent minimally impacted conditions
  - Tailor reference condition and criteria by nutrient ecoregion and waterbody type
  - Address causal (N & P) and response (chlorophyll a, turbidity) variables
Nutrient Ecoregions
EPA Action: Analysis of Ecoregion/Waterbody Dataset

- The “best” 25% in each ecoregion were assumed to represent waters least impacted, assumed reference condition

- The parameter values of the 25th percentile are drafted as proposed W/Q criteria recommendations

- The numerical recommendations are published in Federal Register
## EPA Nutrient Criteria Recommendations
### Applicable to Virginia Lakes & Reservoirs

<table>
<thead>
<tr>
<th>Lakes and Reservoirs</th>
<th>Aggregate Nutrient Ecoregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameters</td>
<td>IX</td>
</tr>
<tr>
<td>TP (ug/L)</td>
<td>20.00</td>
</tr>
<tr>
<td>TN (mg/L)</td>
<td>0.36</td>
</tr>
<tr>
<td>Chl a (ug/L)</td>
<td>4.93</td>
</tr>
<tr>
<td>Secchi (m)</td>
<td>1.53</td>
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</table>
### EPA Nutrient Criteria Recommendations
Applicable to Virginia Rivers & Streams

<table>
<thead>
<tr>
<th>Parameters</th>
<th>IX</th>
<th>XI</th>
<th>XIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP (ug/L)</td>
<td>36.56</td>
<td>10.00</td>
<td>31.25</td>
</tr>
<tr>
<td>TN (mg/L)</td>
<td>0.69</td>
<td>0.31</td>
<td>0.71</td>
</tr>
<tr>
<td>Chl a (ug/L)</td>
<td>0.93</td>
<td>1.61</td>
<td>3.75</td>
</tr>
<tr>
<td>Turb (FTU/NTU)</td>
<td>5.70</td>
<td>2.30</td>
<td>3.04</td>
</tr>
</tbody>
</table>
Criteria Derivation Approaches

Reference Condition Approach

- Nutrient data from reference waters or all waters with similar physical characteristics

Effects Based Approach

- Paired nutrient and effects data from waters with similar physical characteristics

**75th percentile of the reference distribution is a starting point criterion**

**Effects threshold can help refine criterion value**

nutrient data from reference waters or all waters with similar physical characteristics
EPA Will Promulgate Nutrient Criteria for a State Unless:

- State Adopts Nutrient Criteria for Surface Waters by December, 2004, or
- State Submitted Nutrient Criteria Development Plan & Timeline to EPA for Approval by October 31, 2002 (Option Selected by VA)
Nutrient Criteria Plans

EPA Guidance

Section 304(a)

EPA reviews and approves State/Tribal standards

Section 303(c)

Adopt standards w/ criteria to protect designated uses

Section 303(c)

Nutrient Criteria Plans

Nutrient Criteria Plans bridge the gap between EPA's defined statutory roles of producing criteria guidance and reviewing and approving standards
The Status of VA Plan

- VA DEQ submitted a draft plan to Region III on October 31, 2002
- DEQ made minor revisions and resubmittals at request of EPA
- In a June 15, 2004 letter EPA provided written concurrence of the version of the VA Plan resubmitted on March 30, 2004
VA Nutrient Criteria Development Plan

- VA DEQ multi-year action plan for the phased development of regulatory nutrient criteria

- Plan and associated timelines for regulatory development can be found at: http://www.deq.virginia.gov/wqs/rule.html#NUT2.
Options for States in setting nutrient criteria for W/Q Standards

- Adopt EPA criteria recommendations, in absence of better data, into State WQS
- Refine EPA criteria values, to reflect more locally representative conditions
- Develop criteria using other scientifically defensible means
- Conduct use attainability studies and refine use designations
VA Plan Approach: Prioritization & Coverage

- Sequential waterbody approach with estuaries followed by lakes/reservoirs & then rivers/streams (Includes coastal streams not in Bay rulemaking, ocean side of Eastern Shore of VA & downstream effects from VA on NC Chowan estuary)

- Two Step Process:
  - Technical Development Criteria
  - Administrative Adoption Criteria
VA Plan: Form

- Develop region/state/local conditions criteria instead of default 304(a) criteria
- Water body type specific
- Consistency in parameter choice with neighboring state where share waterbody
Form: Lakes and Reservoirs

- Demonstrate where not need TN
- Add dissolved oxygen?
- UAAs in deep lakes where TP consistent with game fish use
- Consider seasonality and uses, especially for chlorophyll
- Carlson trophic state indices/eliminate redundant measures
Form: Rivers and Streams

- 4 variables, or
- combined index 4 variables, or
- threshold level of TP related to IBI from algal data, or
- % wetted stream perimeter coverage of macrophytes
Process: Involvement of Critical Decision-Makers

- Recommendations to SWCB based on input from:
  - academic advisory committee (AAC)
  - in-house DEQ technical staff and management
  - stakeholder workgroup
  - public comment and staff response to that comment
## Activities & Milestones for Development of Nutrient Criteria for Lakes & Reservoirs:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-4</td>
<td>Form <strong>technical</strong> (initially WQMRIRA required Academic Advisory Committee (AAC) &amp; stakeholder workgroups for technical development of the criteria, including design &amp; implementation of a user perception study to relate user perception to criteria concentrations.</td>
</tr>
<tr>
<td>2004</td>
<td>Compare values based on reference lake data, user perception studies &amp; literature values. Use expert opinion from AAC/technical workgroup for assistance with development of appropriate classifications, use designations &amp; criteria for VA lakes &amp; reservoirs.</td>
</tr>
</tbody>
</table>
### Activities & Milestones for Development of Nutrient Criteria for Lakes & Reservoirs (Cont.):

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<tr>
<th>Year</th>
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<tr>
<td>2004</td>
<td>Issue NOIRA to initiate rulemaking to adopt nutrient criteria for lakes &amp; reservoirs.</td>
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<tr>
<td>2005</td>
<td>Public hearings.</td>
</tr>
<tr>
<td>2006</td>
<td>Complete state rulemaking within 24 months after NOIRA published in Virginia Register &amp; submit to EPA.</td>
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Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams:

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<th>Year</th>
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</tr>
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<tr>
<td>2004</td>
<td>Form technical (initially WQMIJA required Academic Advisory Committee) &amp; stakeholder workgroups and as part of this effort re-evaluate 1987 TAC nutrient enriched waters recommendations for rivers &amp; streams. Use expert opinion from AAC/technical workgroup for assistance with periphyton vs. plankton dominated streams. Plan &amp; initiate necessary data collection (monitoring and/or literature searches) and/or use of data from neighboring states in same sub-ecoregion. Demonstrate where P limited &amp; where N criterion is not needed.</td>
</tr>
</tbody>
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Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams (cont):

<table>
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<th>Year</th>
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<tr>
<td>2004</td>
<td>Address criteria development for all estuarine waters not included in the Chesapeake Bay nutrient criteria rulemaking including the coastal streams not named in the Chesapeake Bay criteria rulemaking, the ocean side of the Eastern Shore of Virginia &amp; eastern shore ocean side &amp; downstream effects on the North Carolina estuary from waters in the portion of the Chowan basin.</td>
</tr>
</tbody>
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Evaluate feasibility of refining EPA’s reference condition by creating a reference river & streams data set of least impacted Virginia freshwater rivers & streams & deriving values based on the nutrient levels found in these waters.
## Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams (Cont.):

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<th>Year</th>
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<tr>
<td>2005</td>
<td>Compare values based on reference rivers &amp; streams data, periphyton dominated stream data, ambient levels, &amp; literature values. Use expert opinion from AAC/technical workgroup for assistance with development of appropriate classifications, use designations &amp; criteria for Virginia rivers &amp; streams. Issue NOIRA to initiate rulemaking to adopt nutrient criteria for rivers &amp; streams.</td>
</tr>
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<td>2006</td>
<td>Public hearings.</td>
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<tr>
<td>2007</td>
<td>Complete state rulemaking within 24 months after NOIRA published in <a href="https://www.virginiaregister.org">Virginia Register</a> &amp; submit to EPA.</td>
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</table>
Wetlands

- On Hold Until EPA Technical Guidance Document Available
Questions for AAC/Stakeholder/Public Discussion

Mail or E-mail Comments by 5:00 PM on August 31, 2004

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