



[townhall.virginia.gov](http://townhall.virginia.gov)

## Final Regulation Agency Background Document

<b>Agency name</b>	State Water Control Board
<b>Virginia Administrative Code (VAC) Chapter citation(s)</b>	9 VAC25-260
<b>VAC Chapter title(s)</b>	Water Quality Standards
<b>Action title</b>	Rulemaking to adopt new, update or cancel existing water quality standards as required by § 62.1-44.15 of the Code of Virginia and the federal Clean Water Act, 33 U.S.C. §§ 1251
<b>Date this document prepared</b>	August 18, 2022

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Order 19 (2022) (EO 19), any instructions or procedures issued by the Office of Regulatory Management (ORM) or the Department of Planning and Budget (DPB) pursuant to EO 19, the Regulations for Filing and Publishing Agency Regulations (1 VAC 7-10), and the *Form and Style Requirements for the Virginia Register of Regulations and Virginia Administrative Code*.

### Brief Summary

*Provide a brief summary (preferably no more than 2 or 3 paragraphs) of this regulatory change (i.e., new regulation, amendments to an existing regulation, or repeal of an existing regulation). Alert the reader to all substantive matters. If applicable, generally describe the existing regulation.*

The water quality standards are the cornerstone for water programs at the Virginia Department of Environmental Quality. For example, these standards are used to establish pollutant effluent limits in discharge permits, to evaluate the health of waters statewide and to guide clean-up plans designed to address impaired waters. Amendments are proposed to the state's Water Quality Standards Regulation at 9 VAC 25-260 to revise sections 50, 140, 185, 187, 310, 390, 400, 410, 420, 440, 470, and 500.

The intent of this rulemaking is to protect designated and beneficial uses of state waters by adopting regulations that are technically correct, necessary and reasonable. These standards will be used in setting Virginia Pollutant Discharge Elimination System Permit limits and for evaluating the waters of the Commonwealth for inclusion in the Clean Water Act 305(b) report and on the 303(d) list. Waters not meeting standards may require development of a Total Maximum Daily Load, effluent limitations, or

further analysis of use removal or modification under the Clean Water Act at 303(e) and Code of Virginia § 62.1-44.19:7.

This rulemaking is needed because the last triennial review was completed in July 2017 and new scientific information is available to update the water quality standards. Changes to the regulation are also needed to improve permitting, monitoring and assessment programs. In addition, the State Water Control Board (Board) must fulfill the legal mandates for a three-year review under the Code of Virginia, per §62.1-44.15(3a), and federal regulations at 40 CFR 131.

Amendments that may be considered substantive are: new freshwater aquatic life criteria for aluminum, and an amendment to add Special Standard “ii” to Section 9VAC25-260-310 which is a benthic chlorophyll-a threshold that protects the recreational use from persistent, nuisance filamentous algae in certain main-stem sections of the North Fork Shenandoah River, South Fork Shenandoah River, and Shenandoah River.

### Acronyms and Definitions

*Define all acronyms used in this form, and any technical terms that are not also defined in the “Definitions” section of the regulation.*

---

BLM	Biotic Ligand Model
Board	State Water Control Board
CAS	Chemical Abstracts Service
Department	Virginia Department of Environmental Quality (or DEQ)
DWR	Virginia Department of Wildlife Resources
EPA	U.S. Environmental Protection Agency
PWS	Public Water Supply
RAP	Regulatory Advisory Panel
TMDL	Total Maximum Daily Load
VPDES	Virginia Pollutant Discharge Elimination System

### Statement of Final Agency Action

*Provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.*

The State Water Control Board adopted final amendments to the Water Quality Standards regulation (9 VAC 25-260) at their August 25, 2022 meeting. The adopted amendments become an effective regulation upon EPA review and approval.

### Mandate and Impetus

*List all changes to the information reported on the Agency Background Document submitted for the previous stage regarding the mandate for this regulatory change, and any other impetus that specifically prompted its initiation. If there are no changes to previously reported information, include a specific statement to that effect.*

Federal and state mandates in the Clean Water Act at 303(c), 40 CFR 131 and the Code of Virginia in §62.1-44.15(3a) require that water quality standards be adopted, modified or cancelled every three years. These are the most relevant laws and regulations.

## Legal Basis

*Identify (1) the promulgating agency, and (2) the state and/or federal legal authority for the regulatory change, including the most relevant citations to the Code of Virginia and Acts of Assembly chapter number(s), if applicable. Your citation must include a specific provision, if any, authorizing the promulgating agency to regulate this specific subject or program, as well as a reference to the agency's overall regulatory authority.*

---

The promulgating entity is the State Water Control Board (Board).

The Clean Water Act authorizes restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters. The Clean Water Act at 303(c) (1) requires that the states hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards.

The Federal regulations at 40 CFR 131 authorize requirements and procedures for developing, reviewing, revising and approving water quality standards by the States as authorized by section 303(c) of the Clean Water Act. 40 CFR 131 specifically requires the states to adopt criteria to protect designated uses.

The State Water Control Law authorizes protection and restoration of the quality of state waters, safeguarding the clean waters from pollution, prevention and reduction of pollution and promotion of water conservation. The State Water Control Law (Code of Virginia) at §62.1-44.15(3a) requires the Board to establish standards of quality and to modify, amend or cancel any such standards or policies. It also requires the Board to hold public hearings from time to time for the purpose of reviewing the water quality standards, and, as appropriate, adopting, modifying or canceling such standards.

The correlation between the proposed regulatory action and the legal authority identified above is that the amendments being considered are modifications of criteria that will protect designated uses and criteria and designated uses are requirements of the Water Quality Standards.

The authority to adopt standards as provided by the provisions in the previously referenced citations is mandated, although the specific standards to be adopted or modified are discretionary to the Environmental Protection Agency and the state.

## Purpose

*Explain the need for the regulatory change, including a description of: (1) the rationale or justification, (2) the specific reasons the regulatory change is essential to protect the health, safety, or welfare of citizens, and (3) the goals of the regulatory change and the problems it is intended to solve.*

---

The rulemaking is essential to the protection of the health, safety, or welfare of the citizens of the Commonwealth because proper water quality standards protect water quality and living resources of Virginia's waters for consumption of fish and shellfish, recreational uses and conservation in general. These standards will be used in setting Virginia Pollutant Discharge Elimination System Permits limits and for evaluating the waters of the Commonwealth for inclusion in the Clean Water Act 305(b) report and on

the 303(d) list. Waters not meeting standards will require development of a Total Maximum Daily Load under the Clean Water Act at 303(e).

The justification for the proposed regulatory action is via the Clean Water Act and State Water Control Law requirements that the State conduct a review every three years of the surface water quality standards regulation for the purposes of revising and updating the standards to reflect changes in law, technology and information. This rulemaking is needed because the last triennial review was completed in June 2017 and new scientific information is available to update the water quality standards. The goal is to provide the citizens of the Commonwealth with a technical regulation that is protective of water quality in surface waters, reflects recent scientific information, reflects agency procedures and is reasonable and practical.

## Substance

*Briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both. A more detailed discussion is provided in the "Detail of Changes" section below.*

This rulemaking modifies criteria, use designations, standards, and policies as necessary to conform to EPA guidance. It clarifies state intent and implementation of state programs (e.g., permitting, monitoring and assessments), and improves water quality or protects beneficial uses. The proposed amendments to the Water Quality Standards are summarized below.

### Section 9VAC25-260-50

Add missing "\*\*\*\*" (quadruple asterisk) to pH column to clarify that pH criteria apply only to the epilimnion of a lake/reservoir when thermally stratified.

### Section 9VAC25-260-140 (Table of Parameters):

- a) Add freshwater aluminum criteria for the protection of aquatic life according to the 2018 EPA nationally recommended criteria.
- b) Correction of identified errors:
  - i) Ammonia CAS number is formatted with dashes, all other CAS numbers do not have dashes
  - ii) Ammonia CAS number is incorrect 766414; should be 7664417
  - iii) Correct name for Bis2-Chloroisopropyl Ether (2,2'-Oxybis(1-Chloropropane))
  - iv) Nickel CAS number is incorrect 744002; should be 7440020
  - v) Include CAS number for Uranium (7440611)
  - vi) Tributyltin CAS number is incorrect 60105 (no such CAS number); EPA RSL uses E1790678
- c) Delete Bis (chloromethyl) Ether.
- d) Update 20 human health criteria for the following 10 parameters to reflect updated exposure factors recommended by EPA in 2011: antimony, 2,3,7,8-tetrachlorodibenzo-p-dioxin, nickel, n-nitrosodimethylamine, n-nitrosodiphenylamine, n-nitrosodi-n-propylamine, total PCBs, selenium, thallium, and zinc
- e) Add language to Footnotes 3 and 4 stating that human health criteria are based on the assumption of an average amount of exposure on a long-term basis.

### Section 9VAC25-260-185.B – Chesapeake Bay Criteria

Submerged Aquatic Vegetation (SAV) and Water Clarity acreages for 5 Bay segments are increased to match most recent Chesapeake Bay Program recommendations.

### Section 9VAC25-260-187 (Addition of Lake Mooney):

Lake nutrient criteria has been applied to a relatively recently constructed water supply reservoir in the Rappahannock River basin (Lake Mooney).

Section 9VAC25-260-310 (Special Standards)

Delete special standard “y” (ammonia criteria for freshwater tidal tributaries of the Potomac River) as it is superseded by freshwater ammonia criteria that became effective in 2020.

Addition of special standard “ii” which is a benthic chlorophyll-a threshold that protects the recreational use from persistent, nuisance filamentous algae in certain main-stem sections of the North Fork Shenandoah River, South Fork Shenandoah River, and Shenandoah River.

River Basin Issues (9VAC25-260-360 through 540):

- a) Add, modify or delete trout waters as appropriate.
- b) Add, modify or delete public water supplies designations as appropriate.
- c) Adjust temperature criteria or application of temperature criteria to waters stocked with trout by DWR in the winter with the intent of supplying the public with seasonal trout fishing opportunities only in the winter but not in the summer.
- d) Add or correct Class designations as appropriate.
- e) Corrections to section descriptions in river basin tables for clarity and/or accuracy.

**Issues**

*Identify the issues associated with the regulatory change, including: 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions; 2) the primary advantages and disadvantages to the agency or the Commonwealth; and 3) other pertinent matters of interest to the regulated community, government officials, and the public. If there are no disadvantages to the public or the Commonwealth, include a specific statement to that effect.*

The primary advantage to the public is that the updated numerical toxics criteria are based on updated scientific information to protect aquatic life and human health. The disadvantage is that criteria that become more stringent may result in increased costs to the regulated community. However, the goal is to set realistic, protective goals in water quality management and to maintain the most scientifically defensible criteria in the Water Quality Standards regulation. EPA has also provided guidance that these criteria are "approvable" under the Clean Water Act.

The advantage to the agency or the Commonwealth that will result from the adoption of these amendments will be more accurate and scientifically defensible permit limits, assessments and clean-up plans (TMDLs). These are discussed under the “Purpose” section where the goals of the proposal, the environmental benefits, and the problems the proposal is intended to solve are discussed.

The regulated community may find that the amendments pertinent to their operations may require additional capital or operating costs for control in their discharge, particularly where the numerical criteria are more stringent.

There is no disadvantage to the agency or the Commonwealth that will result from the adoption of these amendments.

**Requirements More Restrictive than Federal**

*List all changes to the information reported on the Agency Background Document submitted for the previous stage regarding any requirement of the regulatory change which is more restrictive than applicable federal requirements. If there are no changes to previously reported information, include a specific statement to that effect.*

---

There are no requirements that exceed applicable federal requirements.

**Agencies, Localities, and Other Entities Particularly Affected**

*List all changes to the information reported on the Agency Background Document submitted for the previous stage regarding any other state agencies, localities, or other entities that are particularly affected by the regulatory change. If there are no changes to previously reported information, include a specific statement to that effect.*

---

**Other State Agencies Particularly Affected**

No other state agencies are anticipated to be particularly affected by these regulations with the exception of those which operate facilities subject to VPDES permitting that may potentially be impacted by the proposed amendments as related to discharge permits. Staff does not anticipate this to impact many facilities.

**Localities Particularly Affected**

Due to the site-specific nature of some amendments, the below localities may bear an identified disproportionate material water quality impact not experienced by other localities due to the location of these localities relative to the proposed amended criteria for either the benthic chlorophyll-a criteria in the North Fork Shenandoah River, South Fork Shenandoah River, or Shenandoah River, modification of some trout waters, or removal special standard “y” which established seasonal chronic ammonia criteria for freshwater tidal tributaries of the Potomac River.

Counties: Arlington, Augusta, Clark, Fairfax, Lee, Page, Prince William, Rockingham, Shenandoah, Stafford, Warren.

Cities: Alexandria

Towns: Luray, Shenandoah.

**Other Entities Particularly Affected**

No other entities are anticipated to be affected.

For purposes of "Locality Particularly Affected" under the Board's statutes

There is no locality identified as bearing a disproportionate material water quality impact under the Board's statutes. Water Quality Standards are developed and implemented for the protection of all designated uses statewide. There are no changes to previously reported information

**Periodic Review and Small Business Impact Review Report of Findings**

*Indicate whether the regulatory change meets the criteria set out in Executive Order 14 (as amended, July 16, 2018), e.g., is necessary for the protection of public health, safety, and welfare; minimizes the economic impact on small businesses consistent with the stated objectives of applicable law; and is clearly written and easily understandable. In addition, as required by § 2.2-4007.1 E and F of the Code of Virginia, include a discussion of the agency's consideration of: (1) the continued need for the regulation; (2) the nature of complaints or comments received concerning the regulation from the public; (3) the complexity of the regulation; (4) the extent to which the regulation overlaps, duplicates, or conflicts with federal or state law or regulation; and (5) the length of time since the regulation has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the regulation.*

---



This regulatory action is necessary for the protection of public health and for the protection of the Commonwealth’s surface waters and aquatic life. The Water Quality Standards regulation forms the basis upon which effluent discharge limits are set and upon which it is determined whether or not waters are attaining applicable designated uses. Comment received during the Notice Of Public Comment on the proposal ranged from agreement that the proposed amendments are necessary to protect designated uses (i.e. aluminum criteria, human health criteria updates, SAV acreage updates, Shenandoah River filamentous algae criteria) to opposition to changes to certain Sections to address freshwater copper criteria, certain elements of proposed filamentous algae criteria implementation, and the need to include certain pollutant parameters in the regulation (i.e. polyfluoroalkyl substances, algal toxins, color, turbidity). Federal and state mandates in the Clean Water Act at 303(c), 40 CFR 131 and the Code of Virginia in §62.1-44.15(3a) require that water quality standards be adopted, modified or cancelled every three years. Potential economic impacts would be the result of possibly more stringent VPDES permit limits. Impacts specific to small businesses are not anticipated.

**Public Comment**

*Summarize all comments received during the public comment period following the publication of the previous stage, and provide the agency’s response. Include all comments submitted: including those received on Town Hall, in a public hearing, or submitted directly to the agency. If no comment was received, enter a specific statement to that effect.*

See Attachment 1.

**Detail of Changes Made Since the Previous Stage**

*List all changes made to the text since the previous stage was published in the Virginia Register of Regulations and the rationale for the changes. For example, describe the intent of the language and the expected impact. Describe the difference between existing requirement(s) and/or agency practice(s) and what is being proposed in this regulatory change. Explain the new requirements and what they mean rather than merely quoting the text of the regulation. \* Put an asterisk next to any substantive changes.*

Current chapter-section number	New chapter-section number, if applicable	New requirement from previous stage	Updated new requirement since previous stage	Change, intent, rationale, and likely impact of updated requirements
9VAC25-260-140.B Criteria for surface water	N/A	Chlordane (µg/l) <u>57749 12789036</u>  Known or suspected carcinogen; human health criteria at risk level 10 <sup>-5</sup> .  <u>Aluminum 7429905</u> <u>Acute and chronic freshwater aluminum criteria values for a site shall be calculated using the 2018 Aluminum Criteria</u>	Chlordane (µg/l) <u>[57749] [12789036]</u>  Known or suspected carcinogen; human health criteria at risk level 10 <sup>-5</sup> .  <u>Aluminum 7429905</u> <u>Acute and chronic freshwater aluminum criteria values for a site shall be calculated using the 2018 Aluminum Criteria</u>	Retain CAS number “57749”. The suggested change to EPA Regional Screening Level (RSL) number is inconsistent with the CAS number EPA assigns to its human health and aquatic life criteria recommendations which could lead to misinterpretations.

	<p><u>Calculator (Aluminum Criteria Calculator V.2.0.xlsx), or a calculator in R or other software package using the same 1985 Guidelines calculation approach and underlying model equations as in the Aluminum Criteria Calculator V.2.0.xlsx, as defined in EPA's Final Aquatic Life Ambient Water Quality Criteria for Aluminum. (EPA-822-R-18-001, 2018)</u></p> <p>Copper (µg/l)<sup>5</sup> 7440508</p> <p><u>Freshwater criteria for copper shall be calculated using the EPA 2007 Biotic Ligand Model (see 9VAC25-260-140 G) where the board has determined that a sufficient dataset of input parameters is available. Where the board has determined that a sufficient dataset is not available, freshwater criteria shall be calculated using the hardness-based equations below. Freshwater values derived using the below equations are a function of total hardness as calcium carbonate CaCO<sub>3</sub> mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400.</u></p> <p>Freshwater acute criterion (µg/l)</p> <p>WER [e<sup>{0.9422[ln(hardness)]-1.700}</sup>] (CF<sub>a</sub>)</p> <p>Freshwater chronic criterion (µg/l) WER [e<sup>{0.8545[ln(hardness)]-1.702}</sup>] (CF<sub>c</sub>)</p> <p>WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F.</p> <p>e = natural antilogarithm ln = natural logarithm</p>	<p><u>Calculator (Aluminum Criteria Calculator V.2.0.xlsx), or a calculator in R or other software package using the same 1985 Guidelines calculation approach and underlying model equations as in the Aluminum Criteria Calculator V.2.0.xlsx, as defined in EPA's Final Aquatic Life Ambient Water Quality Criteria for Aluminum. (EPA-822-R-18-001, 2018)</u> [Values displayed in the table are examples of criteria calculated by the model using the indicated input parameters for pH, hardness, and Dissolved Organic Carbon (DOC). Freshwater criteria expressed as total recoverable.]</p> <p>Copper (µg/l)<sup>5</sup> 7440508</p> <p>[ <u>Freshwater criteria for copper shall be calculated using the EPA 2007 Biotic Ligand Model (see 9VAC25-260-140 G) where the board has determined that a sufficient dataset of input parameters is available. Where the board has determined that a sufficient dataset is not available, freshwater criteria shall be calculated using the hardness-based equations below.</u> ] Freshwater values [ <u>derived using the below equations</u> ] are a function of total hardness as calcium carbonate CaCO<sub>3</sub> mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400.</p> <p>Freshwater acute criterion (µg/l)</p> <p>WER [e<sup>{0.9422[ln(hardness)]-1.700}</sup>] (CF<sub>a</sub>)</p> <p>Freshwater chronic criterion (µg/l) WER [e<sup>{0.8545[ln(hardness)]-1.702}</sup>] (CF<sub>c</sub>)</p> <p>WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F.</p> <p>e = natural antilogarithm ln = natural logarithm</p>	<p>Text added that specifies the criteria are expressed as the total recoverable form of the metal rather than the dissolved form.</p> <p>Due to the complex nature of the issues surrounding the proposal, a future rulemaking will address changes to the biotic ligand model-based copper criteria for freshwater aquatic life.</p>
--	---	--	--



		<p>CF = conversion factor a (acute) or c (chronic)</p> <p>CF<sub>a</sub> = 0.960</p> <p>CF<sub>c</sub> = 0.960</p> <p><del>Alternate copper criteria in freshwater: the freshwater criteria for copper can also be calculated using the EPA 2007 Biotic Ligand Model (See 9VAC25-260-140 G).</del></p> <p>Acute saltwater criterion is a 24-hour average not to be exceeded more than once every three years on the average.</p>	<p>CF = conversion factor a (acute) or c (chronic)</p> <p>CF<sub>a</sub> = 0.960</p> <p>CF<sub>c</sub> = 0.960</p> <p>[ Alternate copper criteria in freshwater: the freshwater criteria for copper can also be calculated using the EPA 2007 Biotic Ligand Model (See 9VAC25-260-140 G). ]</p> <p>Acute saltwater criterion is a 24-hour average not to be exceeded more than once every three years on the average.</p>	
9VAC25-260-140.G Biotic Ligand Model for copper.	N/A	<p><del>On a case-by-case basis Where the board determines that a sufficient dataset of input parameters is available, EPA's 2007 copper criteria (EPA-822-F-07-001) biotic ligand model (BLM) for copper may shall be used to determine alternate the applicable copper criteria for freshwater sites. The BLM is a bioavailability model that uses receiving water characteristics to develop site-specific criteria. Site-specific data for 10 parameters are needed to use the BLM. These parameters are temperature, pH, dissolved organic carbon, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. If sufficient data for these parameters are available, the BLM can be used to calculate alternate criteria values for the copper criteria. The Where the board determines that a sufficient dataset of input parameters is available, the BLM would shall be used instead of the hardness-based criteria and takes the place of the hardness adjustment and the WER. A WER will not be applicable with the BLM.</del></p>	<p>[ On a case-by-case basis ] [ <del>Where board determines that a sufficient dataset of input parameters is available</del> ], EPA's 2007 copper criteria (EPA-822-F-07-001) biotic ligand model (BLM) for copper [ may ] [ <del>shall</del> ] be used to determine [ alternate ] [ <del>the applicable</del> ] copper criteria for freshwater sites. The BLM is a bioavailability model that uses receiving water characteristics to develop site-specific criteria. Site-specific data for 10 parameters are needed to use the BLM. These parameters are temperature, pH, dissolved organic carbon, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. [ If sufficient data for these parameters are available, the BLM can be used to calculate alternate criteria values for the copper criteria. The ] [ <del>Where the board determines that a sufficient dataset of input parameters is available, the</del> ] BLM [ would <del>shall</del> ] be used instead of the hardness-based criteria and takes the place of the hardness adjustment and the WER. A WER will not be applicable with the BLM.</p>	Due to the complex nature of the issues surrounding the proposal, a future rulemaking will address changes to the biotic ligand model-based copper criteria for freshwater aquatic life.
9VAC25-260-187.C. Criteria for man-made lakes and reservoirs to protect aquatic life and recreational designated uses from the impacts of nutrients.		<p>When the board determines that the applicable criteria in subsection B of this section for a specific man-made lake or reservoir are exceeded, board shall consult with the Department of Game and Inland Fisheries regarding the status of the fishery in determining whether or not the designated use for that waterbody is being attained. If the designated use of the subject waterbody is not being attained,</p>	<p>When the board determines that the applicable criteria in subsection B of this section for a specific man-made lake or reservoir are exceeded, the board shall consult with the Department of [ <del>Game and Inland Fisheries</del> ] [ <u>Wildlife Resources</u> ] regarding the status of the fishery in determining whether or not the designated use for that waterbody is being attained. If</p>	The name "Department of Game and Inland Fisheries" is being changed to reflect the new name "Department of Wildlife Resources".

		the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19:5</a> of the Code of Virginia. If the designated use is being attained, the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19:5</a> of the Code of Virginia until site-specific criteria are adopted and become effective for that waterbody.	the designated use of the subject waterbody is not being attained, the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19:5</a> of the Code of Virginia. If the designated use is being attained, the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19:5</a> of the Code of Virginia until site-specific criteria are adopted and become effective for that waterbody.	
9VAC25-260-310. Special standards and requirements.	N/A	<u>In the wadeable portions of the mainstem sections of the Shenandoah River, North Fork Shenandoah River, and South Fork Shenandoah River listed below, a determination of persistent nuisance filamentous algae impeding the recreation use should be made when exceedances of the specified benthic chlorophyll-a concentration thresholds occur in more than one recreation season (May 1 to October 31) in three years.</u>	<u>In the wadeable portions of the mainstem sections of the Shenandoah River, North Fork Shenandoah River, and South Fork Shenandoah River listed below, a determination of persistent nuisance filamentous algae impeding the recreation use should be made when exceedances of [ either of ] the specified benthic chlorophyll-a concentration thresholds occur in more than one recreation season (May 1 to October 31) in three years.</u>	Proposed language was modified to indicate that the frequency of exceedance is to be determined by examining at each threshold separately.
9VAC25-260-440. 4. Rappahannock River Basin	N/A	4 III ESW 17,18, <u>28</u> Free flowing tributaries of the Rappahannock from Blandfield Point from the Route 1 Alternate Bridge at Fredericksburg to its headwaters, unless otherwise designated in this chapter.	4 III ESW 17,18, <u>28</u> Free flowing tributaries of the Rappahannock from [ Blandfield Point ] [ <del>from the Route 1 Alternate Bridge at Fredericksburg</del> ] to its headwaters, unless otherwise designated in this chapter.	Proposed language created a section gap for free flowing tributaries from Blandfield Point to the Route 1 Alternate Bridge. This change corrects that oversight. Notation for ESW-28 in special standards column is retained.

**Detail of All Changes Proposed in this Regulatory Action**

*List all changes proposed in this action and the rationale for the changes. For example, describe the intent of the language and the expected impact. Describe the difference between existing requirement(s) and/or agency practice(s) and what is being proposed in this regulatory change. Explain the new requirements and what they mean rather than merely quoting the text of the regulation. \* Put an asterisk next to any substantive changes.*

**Changes to Existing VAC Chapter(s)**

Current chapter-section number	New chapter-section number, if applicable	Current requirements in VAC	Change, intent, rationale, and likely impact of new requirements
--------------------------------	---	-----------------------------	--

<p>9VAC25-260-50. Numerical criteria for dissolved oxygen, pH, and maximum temperature.</p>	<p>N/A</p>	<p>pH column lacked the footnote (****).</p>	<p>Specifies lake pH criteria applies only to the epilimnion when lake/reservoir is stratified. Adding missing quadruple asterisk (****) to pH column corrects the absence of the footnote when language for Footnote **** was originally adopted. No impacts expected. Footnote (****) states that dissolved oxygen and pH criteria only apply to the epilimnion when the lake/reservoir is stratified.</p>																																				
<p>9VAC25-260-140. Criteria for surface water</p>	<p>N/A</p>	<p>Currently no freshwater criteria for aluminum.</p> <p>2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin Antimony Nickel N-Nitrosodimethylamine N-Nitrosodiphenylamine N-Nitrosodi-n-propylamine Total PCBs Selenium Thallium Zinc</p> <p>-----</p> <p>Current parameter name: Bis2-Chloroisopropyl Ether</p> <p>Human health criteria for Bis(chloromethyl) Ether.</p> <p>Human Health criteria footnotes 3 and 4. <sup>3</sup>Criteria have been calculated to protect human health from toxic effects through drinking water and fish consumption, unless otherwise noted and apply in segments designated as PWS in <a href="#">9VAC25-260-390</a> through <a href="#">9VAC25-260-540</a>. <sup>4</sup>Criteria have been calculated to protect human health from toxic effects through fish consumption, unless otherwise noted and apply in all other surface waters not designated as PWS in <a href="#">9VAC25-260-390</a> through <a href="#">9VAC25-260-540</a>.</p>	<p>Adds nationally recommended freshwater criteria for total aluminum for the protection of aquatic life. This change could have an economic impact on permittees if aluminum is present in their effluent.</p> <p>Human health criteria for fish tissue and drinking water have been recalculated for these compounds using updated exposure factors based on 2011 EPA recommendations and to be consistent with the way all other human health criteria are calculated in the VA WQS. These changes could have an economic impact on permittees if these particular pollutant parameters are present in their effluent. Substantive impacts are not anticipated.</p> <p>Correction of several Chemical Abstracts Service (CAS) numbers. No impact.</p> <p>Name changed to "2,2'-Oxybis(1-Chloropropane)" for correctness. No impact.</p> <p>Deleted Bis(chloromethyl) Ether. Due to the 38 second half-life of this pollutant and the fact that EPA no longer considers it to be a Priority Pollutant. This change is not expected to have an economic impact on permittees that have this human health pollutant in their effluent.</p> <p>The existing Table of Parameters does not contain language specifying the duration of human health criteria. The following language is proposed to be added to the end of footnotes 3 and 4 of this section: "<u>Human health criteria are based on the assumption of average amount of exposure on a long-term basis.</u>" This change is not expected to have an economic impact on permittees that have human health pollutants in their effluent.</p>																																				
<p>9VAC25-260-185. Criteria to protect designated uses from the impacts of nutrients and suspended sediment in the Chesapeake Bay and its tidal tributaries.</p>	<p>N/A</p>	<p>Current SAV and water clarity acreage criteria for 5 Bay segments.</p> <table border="1" data-bbox="574 1661 959 1829"> <thead> <tr> <th>Bay segment</th> <th>SAV acres</th> <th>Clarity</th> </tr> </thead> <tbody> <tr> <td>RPPMH</td> <td>1700</td> <td>5000</td> </tr> <tr> <td>JMSTF2</td> <td>200</td> <td>500</td> </tr> <tr> <td>JMSTF1</td> <td>1000</td> <td>2500</td> </tr> <tr> <td>JMSMH</td> <td>200</td> <td>500</td> </tr> <tr> <td>JMSPH</td> <td>300</td> <td>750</td> </tr> </tbody> </table>	Bay segment	SAV acres	Clarity	RPPMH	1700	5000	JMSTF2	200	500	JMSTF1	1000	2500	JMSMH	200	500	JMSPH	300	750	<p>Proposed amendment Increases the SAV and water clarity acreage criteria for these segments so they are consistent with the reasoning underlying the SAV criteria for other Bay segments.</p> <table border="1" data-bbox="992 1709 1386 1856"> <thead> <tr> <th>Bay segment</th> <th>SAV acres</th> <th>Clarity acres</th> </tr> </thead> <tbody> <tr> <td>RPPMH</td> <td><u>5,380</u></td> <td><u>13,450</u></td> </tr> <tr> <td>JMSTF2</td> <td><u>266</u></td> <td><u>665</u></td> </tr> <tr> <td>JMSTF1</td> <td><u>1,333</u></td> <td><u>3,332</u></td> </tr> <tr> <td>JMSMH</td> <td><u>531</u></td> <td><u>1,328</u></td> </tr> <tr> <td>JMSPH</td> <td><u>604</u></td> <td><u>1,510</u></td> </tr> </tbody> </table> <p>These changes are not expected to have an economic impact on permittees.</p>	Bay segment	SAV acres	Clarity acres	RPPMH	<u>5,380</u>	<u>13,450</u>	JMSTF2	<u>266</u>	<u>665</u>	JMSTF1	<u>1,333</u>	<u>3,332</u>	JMSMH	<u>531</u>	<u>1,328</u>	JMSPH	<u>604</u>	<u>1,510</u>
Bay segment	SAV acres	Clarity																																					
RPPMH	1700	5000																																					
JMSTF2	200	500																																					
JMSTF1	1000	2500																																					
JMSMH	200	500																																					
JMSPH	300	750																																					
Bay segment	SAV acres	Clarity acres																																					
RPPMH	<u>5,380</u>	<u>13,450</u>																																					
JMSTF2	<u>266</u>	<u>665</u>																																					
JMSTF1	<u>1,333</u>	<u>3,332</u>																																					
JMSMH	<u>531</u>	<u>1,328</u>																																					
JMSPH	<u>604</u>	<u>1,510</u>																																					

<p>9VAC25-260-187. Criteria for man-made lakes and reservoirs to protect aquatic life and recreational designated uses from the impacts of nutrients.</p>	<p>N/A</p>	<p>Lake/reservoir criteria to protect against nutrient over-enrichment do not currently apply to Lake Mooney in Stafford County.</p>	<p>DEQ staff recommend that Lake Mooney in Stafford County be added to this section due to its proposed PWS designation. These changes are not expected to have an economic impact on permittees.</p>
<p>9VAC25-260-187.C. Criteria for man-made lakes and reservoirs to protect aquatic life and recreational designated uses from the impacts of nutrients.</p>	<p></p>	<p>When the board determines that the applicable criteria in subsection B of this section for a specific man-made lake or reservoir are exceeded, the board shall consult with the Department of [ <del>Game and Inland Fisheries</del> ] [ <u>Wildlife Resources</u> ] regarding the status of the fishery in determining whether or not the designated use for that waterbody is being attained. If the designated use of the subject waterbody is not being attained, the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19.5</a> of the Code of Virginia. If the designated use is being attained, the board shall assess the waterbody as impaired in accordance with § <a href="#">62.1-44.19.5</a> of the Code of Virginia until site-specific criteria are adopted and become effective for that waterbody..</p>	<p>The name "Department of Game and Inland Fisheries" is being changed to reflect the new name "Department of Wildlife Resources".</p>
<p>9VAC25-260-310. Special standards and requirements.</p>	<p>N/A</p>	<p>Special Standard "y" is a site-specific, seasonal chronic ammonia criterion that applies to the tidal freshwater Potomac River and tidal tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge.</p> <p>Currently no Special Standard "ii".</p>	<p>Special Standard "y" is proposed for deletion. This ammonia criterion does not consider the presence of mussels, which are very sensitive to ammonia. The statewide ammonia criteria adopted by the Board in 2019 which became effective in 2020 stipulates that mussels are present unless the absence of mussels has been adequately demonstrated. This special standard is being proposed for removal. This change could have an economic impact on permittees.</p> <p>Added Special Standard "ii" which addresses nuisance filamentous algae growth on the North Fork Shenandoah River, South Fork Shenandoah River, and mainstem Shenandoah River. This proposed special standard may have an economic impact on permittees.</p>
<p>9VAC25-260-390. 6 Potomac River Basin (Potomac River Subbasin).</p>	<p>N/A</p>	<p></p>	<p>Deletion of Special Standard "y" notation in special standards column.</p>
<p>9VAC25-260-400. 1c Potomac River Basin (Shenandoah River Subbasin).</p>	<p>N/A</p>	<p>Currently no notation for "ii".</p>	<p>Added notation for Special Standard "ii".</p>
<p>9VAC25-260-400. 2 Potomac River Basin (Shenandoah River Subbasin).</p>	<p>N/A</p>	<p>Currently no notation for "ii".</p>	<p>Added notation for Special Standard "ii". Deleted ESW notation "12" as in was in wrong basin section.</p>

9VAC25-260-400. 2b Potomac River Basin (Shenandoah River Subbasin).	N/A	Currently no notation for "ii".	Added notation for Special Standard "ii".
9VAC25-260-400. 3 Potomac River Basin (Shenandoah River Subbasin).	N/A	Currently no notation for "ii".	Added notation for Special Standard "ii". Added notation for ESW-12 to correct basin section.
9VAC25-260-400. 3a Potomac River Basin (Shenandoah River Subbasin).	N/A	South River from the dam above Waynesboro (all waters of the impoundment).	South River from the <u>former location of the dam</u> above Waynesboro ( <del>all waters of the impoundment</del> ). Clarified segment description. No impacts expected.
9VAC25-260-400. 5c Potomac River Basin (Shenandoah River Subbasin).	N/A	Dry River (Rockingham County) from Harrisonburg's raw water intake (approximately 11.7 miles above its confluence with the North River) to a point 5 miles upstream, unless otherwise designated in this chapter.	Dry River (Rockingham County) from Harrisonburg's raw water intake (approximately 11.7 miles above its confluence with the North River) to a point 5 miles upstream <u>including Skidmore Fork upstream to the headwaters of Switzer Lake</u> , unless otherwise designated in this chapter.  Clarified application of PWS designation. No impacts expected
9VAC25-260-400. 5d Potomac River Basin (Shenandoah River Subbasin).	N/A	5d VI Dry River and its tributaries from 5 miles above Harrisonburg's raw water intake to its headwaters.  iv Skidmore Fork from its confluence with Dry River upstream including all named and unnamed tributaries.	5d VI Dry River and its tributaries from 5 miles above Harrisonburg's raw water intake to its headwaters. <u>V Stockable Trout Waters in Section 5d viii Switzer Lake from its dam upstream to the impoundment headwaters.</u>  iv Skidmore Fork from its confluence with Dry River upstream including all named and unnamed tributaries. <u>This does not include Switzer Lake which are Class V Stockable Trout Waters.</u>  Clarified application of Stockable Trout Waters application. No impacts expected
9VAC25-260-400. 5e Potomac River Basin (Shenandoah River Subbasin).	N/A	5e VI PWS North River and its tributaries from Staunton Dam to their headwaters.  VI Natural Trout Waters in Section 5e iv North River from Elkhorn Dam upstream including all named and unnamed tributaries.	5e VI PWS North River and its tributaries from Staunton Dam to their headwaters <u>unless otherwise designated in this chapter.</u> <u>V Stockable Trout Waters in Section 5e lii ee Elkhorn Lake from the dam upstream to the impoundment headwaters.</u>  VI Natural Trout Waters in Section 5e iv North River from <u>the headwaters of Elkhorn Dam Lake</u> upstream including all named and unnamed tributaries.  Clarified application of Stockable and Natural Trout Waters application and added seasonal Stockable Trout waters special standard "ee". No impacts expected
9VAC25-260-400. 6 Potomac River Basin (Shenandoah River Subbasin).	N/A	Currently no notation for "ii".	Added notation for Special Standard "ii".

9VAC25-260-400. 6a Potomac River Basin (Shenandoah River Subbasin).	N/A	IV PWS Little Passage Creek from the Strasburg Reservoir Dam upstream to its headwaters, unless otherwise designated in this chapter.	IV V PWS Little Passage Creek from the Strasburg Reservoir Dam upstream to its headwaters, unless otherwise designated in this chapter.  Corrected Water body classification from Class IV to Class V waters (Stockable Trout). No impacts expected
9VAC25-260-410. 1g James River Basin (Lower).	N/A	1g III Shingle Creek from its confluence with the Nansemond River to its headwaters in the Dismal Swamp.	1g III Shingle Creek from its confluence with the Nansemond River <u>the head of tidal waters</u> to its headwaters in the Dismal Swamp <u>unless otherwise designated in this chapter.</u>  Clarified application of Class III water body classification for Shingle Creek. No impacts expected
9VAC25-260-420. 11e. James River Basin (Middle).	N/A	11e III James River and its tributaries, excluding Blackwater Creek, from Six Mile Bridge to the Business Route 29 bridge in Lynchburg.	11e III James River and its tributaries, excluding Blackwater Creek, from Six Mile Bridge to the Business Route 29 bridge <u>5th Street Bridge</u> in Lynchburg.  Clarification of segment description. No impacts expected.
9VAC25-260-440. 3. Rappahannock River Basin	N/A	The Rappahannock River from the Route 1 Alternate Bridge at Fredericksburg upstream to the low dam water intake at Waterloo (Fauquier County).	The Rappahannock River from the Route 1 Alternate Bridge at Fredericksburg upstream to <u>the low dam water intake at Waterloo (Fauquier County) to its headwaters, unless otherwise designated in this chapter.</u>  Clarification of segment description. No impacts expected.
9VAC25-260-440. 3a. Rappahannock River Basin	N/A	The Rappahannock River and its tributaries from Spotsylvania County's raw water intake near Golin Run to points 5 miles upstream (excluding Motts Run and tributaries, which is in Section 4c).	The Rappahannock River and its tributaries from Spotsylvania County's raw water intake near Golin Run to points 5 miles upstream <u>of the Rocky Pen Run Reservoir (Lake Mooney) pump and store intake</u> (excluding Motts Run and tributaries, which is in Section 4c).  Expansion of PWS designation to include PWS designation for Lake Mooney intake. No impacts expected.
9VAC25-260-440. 4. Rappahannock River Basin.	N/A	4 III ESW 17,18 Free flowing tributaries of the Rappahannock from Blandfield Point to its headwaters, unless otherwise designated in this chapter.	4 III ESW 17,18, <u>28</u> Free flowing tributaries of the Rappahannock from Blandfield Point to its headwaters, unless otherwise designated in this chapter.  Placement of ESW-28 (Hazel River Exceptional State Waters segment) in correct basin segment. No impacts expected.
9VAC25-260-440. 4g. Rappahannock River Basin.	N/A	4g III Deep Run and its tributaries.	4g III Deep Run and its tributaries ( <u>Stafford and Fauquier Counties</u> ).  Clarification of tributary location. No impacts expected.
9VAC25-260-470. 2b. Chowan and Dismal Swamp (Chowan River Subbasin).	N/A	Cabin Point Swamp from its confluence with the Nottoway River to its headwaters.	Cabin Point Swamp <u>and its tributaries</u> from its confluence with the Nottoway River to its headwaters.  Swampwater delineation clarification for Cabin Point Swamp. No impacts expected.
9VAC25-260-500. 1. Tennessee and Big Sandy River	N/A	North Fork Powell River from the confluence of Straight Creek to its headwaters.	North Fork Powell River from the confluence of Straight Creek <u>upstream to its headwaters the Keokee Lake dam.</u>



Basins (Clinch River Subbasin).			Clarification of application of Stockable Trout waters (Class V) classification for North Fork Powell River. No impacts expected.
---------------------------------	--	--	---

**Regulatory Flexibility Analysis**

*Pursuant to § 2.2-4007.1B of the Code of Virginia, please describe the agency’s analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) establishing less stringent compliance or reporting requirements; 2) establishing less stringent schedules or deadlines for compliance or reporting requirements; 3) consolidation or simplification of compliance or reporting requirements; 4) establishing performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the regulatory change.*

Water Quality Standards do not establish compliance or reporting requirements. The proposed changes in the Water Quality Standards Regulation are implemented through established Department programs, including the VPDES permitting program, the water quality monitoring and assessment programs, and the TMDL program. These programs have the flexibility to implement the existing and proposed amendments to the Water Quality Standards to provide for flexibility in regulatory recordkeeping and water quality monitoring efforts.

**Family Impact**

*In accordance with § 2.2-606 of the Code of Virginia, please assess the potential impact of the proposed regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one’s spouse, and one’s children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.*

The direct impact resulting from the development of water quality standards is for the protection of public health and safety and the protection of water quality in surface waters which has an indirect positive impact on families. This regulatory action does not impact the institution of the family or family stability.



**Final Agency Background Document**

**ATTACHMENT 1**

**Summary of Public Comments with Agency Responses**

**Summary of Comment & Agency Response**  
**Triennial Review**  
**Notice of Public Comment**  
Comment period January 17 – March 18 2022

Commenter:

U.S Environmental Protection Agency (EPA Region 3)

EPA Comment 1:

In 9VAC25-260-50, triple asterisk (\*\*\*) indicates that “The water quality criteria in this section do not apply below 7Q10. Commenter is concerned that there are no water quality criteria for DO, pH and temperature that apply below certain flows and recommends adding language indicating that narrative criteria as specified in 9VAC25-260-20 continue to apply and eliminating the footnote. They recommend adding same language to quadruple footnote (\*\*\*\*).

**DEQ Response:** The existing footnote associated with the triple asterisk (\*\*\*) specifies when the numeric criteria for the parameters identified in this section of the regulation are, or are not, applicable. 9VAC25-260-10.A, which precedes Section 50, describes the aquatic life use as “the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them”—and stipulates that all state waters are designated for this use. The general criteria which follow this section of the regulation (9VAC25-260-20.A) are applicable to all state waters and are narrative (e.g. do not contain specific values or numeric criteria). Staff does not agree with the recommendation to expand the footnote in Section 50 of the regulation where specific numeric criteria for specific parameters are provided. The general criteria are narrative, non-numeric and not specific. It is staff’s position that including a reference to a non-specific, general criterion is not necessary and would potentially be confusing to the reader/user of the document.

EPA Comment 2.a.:

EPA recommends including a footnote for aluminum criteria similar to footnote 5 of 9 VAC 25-260-140.B. criteria table, indicating that the aluminum criteria apply to the total recoverable form of the metal. The footnote should also indicate that the values displayed in the table are examples corresponding to the inputs indicated. DEQ should consider developing implementation guidance to accompany the aluminum criteria to clarify expectations for development and implementation.

**DEQ Response:** The suggested additions will be incorporated in the final proposal. Implementation guidance will be developed for the aluminum criteria by permitting and assessment programs.

EPA Comment 2.b.:

DEQ needs to provide a more complete rationale for deletion of bis (chloromethyl) ether deletion criteria, especially as the background document seems to indicate that this parameter may still be present in the effluent of permittees.

**DEQ Response:** EPA removed BCME from its list of priority toxic pollutants (40 CFR 423, Appendix A) on February 4, 1981, citing the fact that its “chemical properties did not justify its inclusion” since the substance's half-life in water of 38 seconds at 20°C. It is DEQ's position that this fact and the lack of an EPA-approved analytical method for this constituent in water make it untenable for the Department to require permittees to monitor for BCME or conduct analyses and make permitting decisions to meet the human health criterion.

EPA Comment 2.c.:

Revising chlordane CAS # to the EPA Regional Screening Level (RSL) number may be inconsistent with the CAS number EPA assigns to its human health and aquatic life criteria recommendations, which could lead to misinterpretations. EPA recommends DEQ reconsider this revision.

**DEQ Response:** DEQ will retract this proposed amendment. The absence of nonstereospecific chlordane (CAS 57-74-9) in EPA's RSL spreadsheet should be addressed so that the aims of risk assessment and remediation are in line with WQS objectives.

EPA Comment 2.d.:

With regard to the freshwater copper BLM, EPA recommends that guidance be provided on what will be considered a “sufficient dataset”. They also recommend DEQ revise this provision as well as 9VAC25-260-140. F to indicate that the aquatic life hardness-based copper criteria equation must be applied with a water effects ratio (WER) of 1, and any site-specific copper criteria must be developed using the copper biotic ligand model (BLM).

**DEQ Response:** DEQ has determined that it is premature to move forward with the language as contained in the initially proposed WQS amendments to further transition to implementing the freshwater copper BLM criteria. While DEQ is supportive of the science behind the BLM as a versatile tool for predicting the toxicity of copper in freshwater systems, there remain a number of uncertainties associated with implementation of the BLM approach at this time.

EPA has produced very limited guidance for implementing the copper BLM, specifically in the context of permitting decisions. Additionally, DEQ has found that it is difficult to communicate with stakeholders and DEQ staff about the copper BLM predictions because of the lack of transparency in the computational mechanics of the model and its sole existence in proprietary software. For these reasons, DEQ has elected not to add any additional language to the freshwater copper criteria at this time. The existing language of

the water quality standards already provides for a BLM approach for site specific determinations of copper water quality end-points.

EPA Comment 2.e.:

In updating the human health criteria, DEQ should consider including Relative Source Contributions (RSC= 20%) in its calculation for Ni, Se, and Zn in addition to updating the exposure factors.

**DEQ Response:** In 2015, EPA recommended 94 updated or new human health (HH) criteria, which Virginia adopted in 2017. These criteria reflected recent toxicity information as well as updated exposure factors--average adult body weight, fish consumption rate, and drinking water intake rate. EPA did not update the remaining 20 HH criteria because the toxicity factors for the relevant pollutants had not changed. DEQ has elected to recalculate these criteria with the most recently recommended exposure factors. DEQ did not incorporate the relative source contribution (RSC) factor into this calculation unless EPA recommended one for a specific pollutant, as is the case for antimony and thallium. Because the proposed HH criteria for Ni, Se, and Zn are more stringent than the current nationally recommended criteria, DEQ has chosen not to recalculate the proposed criteria with the default RSC. DEQ recommends EPA recalculate the 20 HH criteria that were not revised in 2015 to ensure that all HH criteria are developed from a uniform set of assumptions. DEQ would consider updating the criteria to reflect revised EPA recommendations at that time.

EPA Comment 2.f.:

The proposed footnotes 3 and 4 of the criteria table indicate that human health criteria are based on the assumption of average amount of exposure on a long-term basis. DEQ may want to consider adding an expression of how that long-term exposure will be measured. Example: an annual arithmetic mean concentration not to be exceeded.

**DEQ Response:** In the absence of EPA guidance on the appropriate duration and magnitude expression of human health criteria, DEQ has decided that it is appropriate for implementation programs to define these parameters.

EPA Comment 3:

Commenter commends VADEQ in its efforts to revise the Commonwealth's proposed Chesapeake Bay submerged aquatic vegetation amendments, but requests the technical addendum documents or other sources that support VADEQ's criteria revision.

**DEQ Response:** Chapter V of the 2017 EPA technical addendum (EPA 903-R 17-00) presents the basis for VADEQ's proposed amendments to the SAV acreage goals. The July 2007 EPA technical addendum (EPA 903-R 07-003) provides the basis for the 2.5 multiplier used to translate SAV acreage to water clarity acreage.

EPA Comment 4:

Commenter asks for clarification on why VADEQ believes the Lake Mooney chlorophyll and total phosphorus criteria proposed for adoption would be protective of the reservoir's Public Water Supply use.

**DEQ Response:** It is DEQ's policy to adopt nutrient criteria for lakes/reservoirs that are deemed significant. A significant lake/reservoir is defined as a publicly accessible lake/reservoir that is a public water supply and/or 100 acres or more in size. Lake Mooney was first opened to the public in 2017 and is currently being proposed for the public water supply designation. Thus, VADEQ has determined it meets the requirements for lakes/reservoir nutrient criteria. Please also refer to EPA Comment 9.

EPA Comment 5:

EPA commends efforts to add special standard "ii" to address nuisance algae growth on the North Fork Shenandoah River, South Fork Shenandoah River and the mainstem Shenandoah River. The documentation provided to EPA, however, does not include a scientific rationale per EPA regulations at 40 CFR 131.11(a)(1) to demonstrate the criteria contain sufficient parameters or constituents to protect the designated use. Please provide sufficient rationale.

**DEQ Response:** Staff has prepared a technical rationale document in support of the proposed criteria provided. It can be found at the following web link:  
<https://www.deq.virginia.gov/water/water-quality/water-quality-standards/rulemaking>

EPA Comment 6:

DEQ is proposing a number of revisions to its River Basin Section Tables. DEQ must be cautious that in the process of these revisions it does not inadvertently change the designated use of any streams, especially if the change of the designated use is to a use that is less protective. Commenter provides specific examples of proposed revisions to waterbody segments that require more detailed clarification/rationale.

**DEQ Response:** The proposed updates and revisions are based on the input and expertise of DEQ regional office staff as well as Department of Wildlife Resources (DWR) staff. The basis for the updates are provided below in responding to the comments from EPA.

- Comment 6.a: 9VAC25-260-400. 3a. Potomac River Basin (Shenandoah River Subbasin). Please confirm if this revision is due to a dam removal.
  - DEQ Response: Yes. The revision is due to a low-water dam that was removed.
- Comment 6.b: 9VAC25-260-400. 5c. Potomac River Basin (Shenandoah River Subbasin). Please confirm if the addition of Skidmore Fork upstream to the headwaters of Switzer Lake adds Public Water Supply protections to Skidmore Fork and Switzer Lake.
  - DEQ Response: Yes. Public Water Supply protections are extended to Skidmore Fork and the Switzer Lake reservoir.

- Comment 6.c: 9VAC25-260-400. 5d. Potomac River Basin (Shenandoah River Subbasin). Please confirm if this WQS revision revises the designated use of Switzer Lake from Mountainous Zones Waters to Stockable Trout Waters.
  - DEQ Response: Yes. Switzer Lake is being changed from Class IV (Mountainous Zone waters) to Class V (Stockable Trout waters).
  
- Comment 6.d: 9VAC25-260-400. 5e. Potomac River Basin (Shenandoah River Subbasin). EPA has several comments on the revisions to this section (1) Please provide a rationale for adding “unless otherwise designated in this chapter.” It appears that the Public Water Supply (PWS) continues to apply throughout the North River and its tributaries from Staunton Dam to their headwaters, so the intent of this revision is unclear. (2) It appears that Elkhorn Lake is being redesignated to Stockable Trout designated use and assigned special temperature criteria. VADEQ has provided no rationale as to why the special temperature criteria is appropriate and protective of the Stockable Trout designated use in Elkhorn Lake. (3) The Elkhorn Lake is being classified as iii., which appears to be a Department of Game and Inland Fisheries (DGIF, now DWR) classification for a wild natural trout stream classification as opposed to a stockable trout stream. Please confirm if this DGIF classification is correct.
  - DEQ Response: (1) The phrase “unless otherwise designated in the chapter” is frequently utilized to alert the reader that there may be a subset of waters within the main section description that have a classification, special standard, or use that is different from the one indicated in the main section heading. North River and its tributaries are Class IV waters with the exception of those segments that are specified as Stockable and Natural trout waters (Class V and VI). The PWS designation applies to all the river segments in section 5e. (2) Elkhorn Lake is being reclassified as Stockable Trout waters (Class V) on recommendation of DWR. The reservoir is stocked with trout only during cooler months for sport fishing opportunities with no expectation of trout survival over the late spring and summer. The maximum temperature criterion for Stockable Trout waters (21°C) will apply during cooler months (November – April). A maximum temperature criterion of 26° C applies during late spring through early fall (May – October). (3) The trout water classification schema utilized by DWR is included in the VA Water Quality Standards for informational purposes only. They serve no regulatory function. DWR was consulted regarding the correct DWR classification for Elkhorn Lake before this amendment was proposed based on their recommendation.
  
- Comment 6.e: 9VAC25-260-400. 6a. Potomac River Basin (Shenandoah River Subbasin). Please clarify if this revision to Little Passage Creek classification is a correction or a redesignation from Mountainous Zones Waters to Stockable Trout Waters.

- DEQ Response: The revision is a correction. The main header for section 6a incorrectly has the notation of Class IV (Mountainous zone waters – maximum temperature 31° C). It is being changed to match the Stockable Trout waters (Class V – max. temp. 21° C) section description in 6a which has the same narrative language. This change has been confirmed with the VA Department of Wildlife Resources as correct.
- Comment 6.f: 9VAC25-260-410. 1g. James River Basin (Lower). The rationale provided for this revision is that it is to clarify the application of the Nontidal Waters for Shingle Creek because almost the entirety of Shingle Creek was designated as Swamp waters during the last triennial review. Please provide copies of the referenced designation from the previous triennial review, including any use attainability analysis from that redesignation so that EPA can confirm the application of the Swamp waters designated use to this waterbody.
  - DEQ Response: The natural conditions assessment report to support reclassification of Shingle Creek was provided to EPA as supporting documentation in DEQ’s amendment approval package dated November 21, 2016. The narrative description for Shingle Creek (section 1g, James River Basin- Lower) is proposed for modification to accommodate any portion of the creek that may not be tidal or contained within the Class VII portion.
- Comment 6.g: 9VAC25-260-420. 11e. James River Basin (Middle). Please confirm if the Business Rt 29 bridge and the 5th street bridge is the same structure or if this results in a redesignation of a portion of Blackwater Creek.
  - DEQ Response: It is the same structure.
- Comment 6.h: 9VAC25-260-440. 3. Rappahannock River Basin. Please confirm that by moving the terminus of this segment from the low dam water intake at Waterloo to the headwaters of the Rappahannock River VADEQ did not redesignate any portion of this waterbody.
  - DEQ Response: It is not a redesignation but a clarification of the terminus for Class III waters.
- Comment 6.i: 9VAC25-260-440. 4. Rappahannock River Basin. Please confirm if Blandfield Point and the Route 1 Alternate Bridge at Fredericksburg is the same structure or if this results in a redesignation of any of the free-flowing tributaries of the Rappahannock.
  - DEQ Response: It is not a redesignation but a clarification of the section description. All of the free flowing tributaries to the Rappahannock River that are Class III waters shall remain Class III waters.
- Comment 6.j: 9VAC25-260-440. 4g. Rappahannock River Basin. Please confirm if there is any part of Deep Run and its tributaries not in Stafford and Fauquier



Counties, and if there is, please provide the designated uses of those portions of Deep Run.

- DEQ Response: Deep Run and its tributaries are entirely within Stafford and Fauquier Counties
- Comment 6.k: 9VAC25-260-470. 2b. Chowan and Dismal Swamp (Chowan River Subbasin). The background document indicates the purpose of this revision is to clarify the swampwater designation for Cabin Point Swamp to include the Cabin Point Swamp tributaries. It is unclear what the Cabin Point Swamp tributaries are currently designated, but it appears they are being redesignated from nontidal Waters (Coastal and Piedmont Zones) to Swamp Waters. As the Swamp Water designation requires less stringent criteria, this redesignation should have been accompanied by a UAA (Use Attainability Analysis).
  - DEQ Response: The reclassification of Cabin Point Swamp from Class III (Nontidal Waters) to Swamp Waters (Class VII) was approved by EPA in 2009. A UAA in the form of the report titled “*Natural Conditions Assessment for Low pH and Low Dissolved Oxygen, Nottoway River Tributaries in Dinwiddie, Prince George, and Sussex Counties, Virginia*” and dated April 2007 was submitted and accepted as supporting rationale. The report recommends that the waterbody Class for Cabin Point Swamp and its tributaries be changed from Class III to Class VII. When first adopted, that recommendation was not reflected in the adopted amendment language that did not include the tributaries to Cabin Point Swamp. The proposed language during this Triennial Review corrects that omission.
- Comment 6.l: 9VAC25-260-500. 1. Tennessee and Big Sandy River Basins (Clinch River Subbasin). Please confirm if removing “its headwaters” and adding “upstream to the Keokee Lake dam” resulted in the redesignation of any portion of that waterbody.
  - DEQ Response: It results in the reclassification of Keokee Lake and its headwaters from Class V (Stockable Trout waters) to Class IV (Mountainous Zone waters). This was done by advisement of DWR. DWR manages Keokee and its headwaters for warmwater fish populations. DWR has never stocked there nor do they plan to do so in the future. Their data suggests that trout could not survive through the summer months.

EPA Comment 7:

EPA had previously encouraged DEQ to adopt the nationally recommended freshwater selenium criteria for the protection of aquatic life.

**DEQ Response:** DEQ is awaiting finalized EPA implementation guidance for freshwater aquatic life selenium criteria before proceeding with rulemaking. The implementation of these criteria will be more challenging than the implementation of other nationally

recommended toxics criteria due to the greater importance placed on fish tissue criteria elements than the water column elements and the absence of an acute water column criterion recommendation.

EPA Comment 8:

EPA released national recommendations in 2019 for the Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories (AWQC/SA) for Microcystins and Cylindrospermopsin (EPA 822-R-19-001). These recommendations are intended as guidance to states to consider when developing WQS. Alternatively, these recommendations can be used as the basis of swimming advisories for notification purposes in recreational waters to protect public health. EPA strongly recommends the adoption of these values for the protection of human health.

**DEQ Response:** States are given the discretion to adopt EPA's nationally recommended recreational microcystin and cylindrospermopsin thresholds as water quality criteria and/or swimming advisory levels. Virginia has elected to use these thresholds as the basis for swimming advisory levels, in addition to thresholds for other cyanotoxins and cyanobacterial cell counts. DEQ considers Virginia Department of Health swimming advisories when assessing the recreation use.

EPA Comment 9:

In 2021, EPA published revised lakes and reservoirs nutrient criteria recommendations. DEQ should consider adoption in this triennial review of nutrient criteria for the protection of lakes and reservoirs derived using the models found in this guidance document. At a minimum, DEQ can use EPA's 2021 document to derive criteria for the protection of public water supply for Lake Mooney.

**DEQ Response:** DEQ supports EPA's efforts to revise its previously recommended criteria using best available science by utilizing the stressor-response approach. The revised numeric chlorophyll criteria that Virginia recently adopted for the James River estuary were developed using a similar approach. DEQ also appreciates EPA's efforts to provide transparency by publishing the technical support document describing the methodology used to develop these criteria. However, DEQ is satisfied by the approach used by its Academic Advisory Committee (AAC) to develop the existing ecoregional nutrient criteria for lakes/reservoirs and does not intend to replace this approach with the nationally recommended criteria at this time for the following reasons:

- The Department is not convinced that the dataset used to develop the nationally recommended criteria is representative of Virginia's lakes/reservoirs. While the dataset used to develop the assessment endpoint and criteria models represents approximately 1,800 lakes and reservoirs across the conterminous United States, it only represents two years (2007 and 2012). The southeastern region, including Virginia, experienced moderate-severe drought conditions during the summer 2007 and dry conditions in the summer 2012. For this reason, VADEQ is

concerned the criteria derived from the EPA models may not be representative of ambient conditions.

- Given the high variability of depth at a particular reservoir station, it is unclear what summary statistic (e.g., maximum, minimum, average, 90th percentile, etc.) would best represent lake depth. The stringency of candidate chlorophyll criteria increases with lake depth, while the stringency of TP and TN criteria decreases with increasing depth.

In the future, DEQ may work with the AAC to review the existing Section 187 nutrient criteria. It is DEQ's position that this work would benefit from the flexibility to adopt nationally recommended chlorophyll criteria while declining to adopt nationally recommended TP and TN criteria (or vice versa). DEQ would also prefer to continue its policy of giving the assessment of chlorophyll criteria primacy over the assessment of TP criteria, since chlorophyll has a more direct connection to harmful effects than nutrients. Lastly, stakeholder support for nutrient criteria is very important to DEQ. It is the position of the Department that states should be able to adopt/revise nutrient criteria using assessment endpoints with the most stakeholder support. The value of developing chlorophyll criteria with respect to microcystin concentration is readily apparent to stakeholders, especially given the existence of EPA-recommended recreational microcystin thresholds and the importance of this endpoint to public health. But the relationship of zooplankton biomass to phytoplankton biomass ratio does not carry with it the same urgency. The challenge of building stakeholder consensus around a particular zooplankton biomass slope would likely be considerable and should be given a more concentrated focus than can be considered at this stage of the Triennial Review.

**EPA Comment 10:**

Should DEQ choose not to revise selenium criteria, nutrient criteria for the protection of lakes and reservoirs, or adopt recreational water quality criteria for cyanotoxins, such an explanation must be submitted. Commenters are providing a copy of these comments to USFWS who may identify any other recommendations for DEQ to consider.

**DEQ Response:** In this response to comments document, DEQ has provided responses to the comments and suggestions regarding revision of the selenium criteria (see response to comment 7), nutrient criteria for the protection of lake and reservoirs (see response to comment 9) and has provided an overview of Virginia's approach to application of the recommended cyanotoxin thresholds in considering recreational swimming advisories (see response to comment 8). DEQ did not receive any additional comments or recommendations from USFWS. Accordingly, DEQ considers these responses as explanation for the proposed regulatory amendments with this triennial review rulemaking. DEQ appreciates EPA's comments and offer of assistance to work together to complete this triennial review process.

-----  
Commenters:

Appomattox Water Authority, Arlington Co. Dept. Environmental Services, Augusta Co. Service Authority, Bath Co. Service Authority, Campbell Co. Service Authority, Culpeper Dept. of Environmental Services, Fork Union Military Academy, Frederick Co. Sanitation Authority, Halifax Co. Service Authority, Hampton Roads Regional Sanitation District, Hanover Co. Dept. of Public Utilities, Harrisonburg/Rockingham Regional Service Authority, Henrico Co. Dept. of Public Utilities, Leesburg Dept. of Utilities, Louisa Co. Water Authority, Nelson Co. Service Authority, New Kent Co. Dept. Public Utilities, Pepper's Ferry Regional Wastewater Treatment Authority, Purcellville Dept. Public Works, Rapidan Service Authority, Rivanna Water and Sewer Authority, Shenandoah Co. Dept. of Public Services, Stafford Co. Dept. of Utilities, Strasburg Wastewater Treatment Facility, Sussex Service Authority, Upper Occoquan Service Authority, VA Association of Municipal Wastewater Agencies (VAMWA), VA Manufacturers Association (VMA), Waynesboro Dept. of Public Works, Winchester Public Services, Western VA Water Authority

Appomattox Water Authority *et al.* Comment 1:

Commenters express the opinion that current copper standards are fully protective and are unaware of any situations in VA that the current standards are not protective. No data have been presented that suggest BLM has additional benefit to aquatic life, and DEQ has not expressed a viable reason for the proposed change. EPA and its Science Advisory Board have not suggested BLM is a better (more accurate) representation of copper toxicity. The BLM is not a superior approach for copper criteria. A Water Effects Ratio (WER) procedure directly measures and evaluates protective levels on a permittee specific, site-specific basis. Hardness-based copper criteria are a more accurate measure of protective levels. BLM approach would prevent permittees from using the site-specific WER procedure for water quality protection and make obsolete past investments based in sound science. Switching to copper BLM may result in additional though unnecessary treatment improvements. Additionally, EPA is developing a new Multiple Linear Regression (MLR) modeling approach for metals that may replace the BLM, making it inefficient to incorporate the BLM at this time when a future recommendation from EPA may change from the BLM to the MLR. BLM would likely result in substantial wasteful spending. Adoption of BLM would make permitting more difficult and compliance more expensive. Neighboring states have not mandated use of BLM and would place VA at an economically competitive disadvantage. A change to use of the BLM would affect small rural systems across VA. VA should exclude BLM proposal and exercise its CWA discretion and continue using existing Cu standards and WER option.

**DEQ Response:** DEQ is supportive of the science behind the BLM as a versatile tool for predicting the toxicity of copper in freshwater systems. The BLM approach reflects the latest scientific knowledge on metals speciation and bioavailability—both which can be influenced by other site-specific variables besides hardness.

The EPA's Science Advisory Board's 1999 assessment of the BLM as a tool for developing permit limits was measured but generally positive. The SAB's consensus at that time was that the scientific underpinnings of the BLM appear to be sound. The SAB did note the BLM does not necessarily reduce the uncertainty associated with metal toxicity and bioavailability compared to the WER but also stated that "its predictiveness over a wide range of environmental conditions makes the BLM a more versatile and effective tool for deriving site-specific water quality criteria (WQC) compared to the WER.

BLM-based predictions of copper toxicity have shown good agreement with observed toxicity (Welsh et al. 1993, Erickson et al. 1996, Van Genderen et al. 2005, Villavicencio et al. 2005, Dal Pont et al. 2017). In 2006, Parametrix and HydroQual conducted a study that compared—against the backdrop of toxicity data—acute copper criteria derived using the hardness equation, WER adjustment to the hardness equation, and the BLM for seven western, arid effluent-dependent stream sites. The BLM approach was found to produce criteria that are protective of sensitive biota while the other two were found to produce under protective criteria. As far as DEQ is aware, a similar study has not been done for eastern and/or non-arid streams. However, DEQ is unaware of peer-reviewed research that indicates the adjustment of hardness-based freshwater copper criteria using the WER is a more scientifically defensible way to derive site-specific criteria compared to the BLM.

While DEQ is supportive of the science behind the BLM as a versatile tool for predicting the toxicity of copper in freshwater systems, there remain a number of uncertainties associated with transitioning to implementation of the BLM approach at this time. Accordingly, DEQ staff is recommending that it is premature to move forward with the language as contained in the initially proposed WQS amendments.

EPA has produced very limited guidance for implementing the copper BLM, specifically in the context of permitting decisions. Additionally, DEQ has found that it is difficult to communicate with stakeholders and DEQ staff about the copper BLM predictions because of the lack of transparency in the computational mechanics of the model and its sole existence in proprietary software. For these reasons, DEQ has elected not to add any additional language to the freshwater copper criteria at this time.

DEQ finds no reason to remove the copper BLM from the water quality standards regulation as currently written, and staff is supportive of the use of the BLM for derivation of site-specific water quality end-points. However, due the absence of comprehensive implementation guidance from EPA, particularly in the context of developing permit limits, DEQ has decided to not add the proposed language.

*Appomattox Water Authority et al. Comment 2:*

Commenters assert that endpoints should demonstrate persistent and unambiguous undesirable conditions that are not indicative of natural variability. The commenters assert the proposed seasonal median 100 mg/m<sup>2</sup> threshold value lacks sufficient scientific support. Studies reviewed

by DEQ did not involve user perception studies that demonstrated a linkage between 100 mg/m<sup>2</sup> and recreational uses. Evaluations by other states demonstrated majority of users found higher chlorophyll-a to be desirable for recreation.

The concept of a two-month mean is a more scientifically defensible approach than the seasonal median; however, a proposed mean of 150 mg/m<sup>2</sup> is an overly conservative value.

The proposed seasonal mean fails to reasonably balance costs and benefits and achieve the purpose of the regulation as cost-effectively as possible. "One-in-Three" year assessment should be revised to "Two-in-Six." One-in-Three year period conflicts with and the Two-in-Six period is consistent with, the methodology DEQ generally uses in its Water Quality Assessment Guidance. Two-in-Six approach would be consistent with the recently adopted chlorophyll-a criteria for the tidal James River.

**DEQ Response:** Benthic chlorophyll-a concentrations greater than 100 mg/m<sup>2</sup> have been linked to degraded stream aesthetics, while concentrations greater than 150 mg/m<sup>2</sup> have been linked to impeded recreational uses (see sources in Table 1 in the attached technical rationale memorandum included as Attachment 2). It is DEQ’s position that the aesthetics of a stream site are best characterized by evaluating long-term conditions (e.g., most of the recreation season), whereas the loss of recreational use should be viewed as a more acute effect. The use of paired thresholds is consistent with EPA’s recommendation that decisions regarding recreational use attainment address the different exposure patterns of recurring algal blooms (e.g., short-term blooms occurring frequently and blooms that are sustained over an extended period of time).

The proposed criteria allow no more than one recreation season in three years to exceed the thresholds for benthic chlorophyll-a. It is VADEQ’s position that one recreation season is insufficient for determining that a waterbody has experienced *persistent* nuisance filamentous algal growth. Consistent with USEPA’s rationale for nationally recommended recreational cyanotoxin criteria, VADEQ asserts that a *recurring* pattern of recreational impairment must be documented before the determination of use nonattainment is made. A three-year interval prevents a waterbody from having recreational losses due to nuisance filamentous algae in consecutive years. While Virginia allows consecutive exceedances for James River aquatic life chlorophyll-a criteria—which allow two seasonal mean exceedances in six years—VADEQ believes that human recreators are more sensitive to the spacing of seasonal filamentous algal blooms than aquatic life are to seasonal phytoplankton blooms.

-----

Commenter:  
 Environmental Integrity Project (EIP)  
 Comments:

The numeric criteria for filamentous algae should include a maximum. DEQ should change the two-month median of 150 mg/m<sup>2</sup> to a maximum. Criteria for filamentous algae should apply to all of the Commonwealth’s fresh waters. Existing research quantifying how much algae is too

much appears to coalesce around the conclusion that benthic chlorophyll-a concentrations over 100-150 mg/m<sup>2</sup> are considered too high for recreational enjoyment. These thresholds seem to apply across wide geographies. Strongly encourage DEQ to proactively monitor for algae rather than rely on complaints, and to also improve and expand upon the systems for complaints to be reported and tracked and for using the observational and complaint information in DEQs water quality programs.

**DEQ Response:** Averaging periods have been chosen (as opposed to instantaneous thresholds) because it is DEQ's position that filamentous algal growth impacts the recreation use and should be addressed when it causes a pattern of persistent aesthetic and/or recreational losses. This reasoning is not at odds with existing recreational criteria. EPA's nationally recommended recreational bacteria criteria (USEPA, 2012; USEPA, 2015) allow an averaging period up to 90 days in length. EPA's nationally recommended recreational cyanotoxin criteria (USEPA, 2019) allow a waterbody's recreation use to be made unusable by elevated cyanotoxins for as long as 30 days.

It is DEQ's position that enough monitoring data have been collected in the portions of the North Fork Shenandoah, South Fork Shenandoah, and Shenandoah Rivers targeted by the proposed amendments to verify that the proposed thresholds are appropriate indicators of nuisance filamentous algae in the wadeable portions of those systems. Other segments may be added as more monitoring data are collected. Different thresholds may possibly be recommended for these additional waters.

Regarding enhancing the reporting and tracking system of algal complaints, the process entails a coordinated effort among DEQ and the Virginia Department of Health. The system which allows residents to report possible harmful algal blooms (HABs) is maintained by VDH, and is accessible at: <https://www.vdh.virginia.gov/waterborne-hazards-control/harmful-algal-bloom-online-report-form/#:~:text=Please%20contact%20the%20HAB%20Hotline,in%20or%20near%20the%20water>. DEQ works with VDH to consider reported algal blooms and determine if investigations are warranted. This system is response-based for freshwater algal blooms in Virginia. Advisories and monitoring data collected in support of HAB investigations through this system are considered by DEQ in its' water quality programs, including the water quality assessment.

-----  
Commenter:  
Chesapeake Bay Foundation

Comments 1 and 2:

Commenter expresses support for the revised submerged aquatic vegetation (SAV) criteria and DEQ's decision to no longer use attainability as a basis for these criteria.



Recommend DEQ adopt EPA recommended criteria for microcystin and cylindrospermopsin in addition to utilizing VDH advisories for several reasons related to assessment, impairment identification and the TMDL process to address impaired waters.

**DEQ Response:** Consistent with EPA's guidance, states are given the discretion to adopt EPA's nationally recommended recreational microcystin and cylindrospermopsin thresholds as water quality criteria and/or swimming advisory levels. Virginia has elected to use these thresholds as the basis for swimming advisory levels, in addition to thresholds for other cyanotoxins and cyanobacterial cell counts. DEQ considers Virginia Department of Health swimming advisories when assessing the recreation use.

Comment 3:

The commenter supports the adoption of standards to protect against impairment by filamentous algae and recommends that DEQ adopt criteria to protect all VA non-tidal waters from filamentous algal blooms and their impacts upon designated uses.

**DEQ Response:** It is VADEQ's position that enough monitoring data have been collected in the portions of the North Fork Shenandoah, South Fork Shenandoah, and Shenandoah Rivers targeted by the proposed amendments to verify that the proposed thresholds are appropriate indicators of nuisance filamentous algae in the wadeable portions of those systems. Other segments may be added as more monitoring data are collected. Different thresholds than the ones proposed may possibly be recommended for these additional waters should criteria be developed in the future.

Comment 4:

Commenter recommends that protocols be established for incorporating climate change into TMDLs and across all programs and permitting processes consistent with 2020 legislation.

**DEQ Response:** It is staff's position that the policies and framework called for in the referenced legislation are best suited to be developed and applied by the DEQ programs which implement measures which may promote climate resilience mitigation practices.

Comments 5&6:

DEQ should adopt numeric chlorophyll criteria for all tidal waters of the Chesapeake Bay, particularly the York River, and finalize establishment of numeric turbidity criteria.

**DEQ Response:** VADEQ continues to work with the Chesapeake Bay Program Partnership on the development of chlorophyll-a thresholds that would allow for the implementation for the narrative chlorophyll-a criterion provided in 9VAC25-260-185 (Criteria to Protect Designated Uses from the Impacts of Nutrients and Suspended Sediment in the Chesapeake Bay and Its Tidal Tributaries).

VADEQ appreciates the comment regarding turbidity. The rulemaking for turbidity was initiated with the NOIRA in April 21, 2021 with a first RAP meeting held in August 2021. Staff has not yet had the capacity to return to this rulemaking.

-----  
Commenter:

Potomac Riverkeeper Network/Shenandoah Riverkeeper

Comment:

Commenters fully support the adoption of Special Standard ii in 9VAC25-260-310 given the chronic problem of widespread algal blooms and, recently, detection of cyanotoxins in the Shenandoah River. Commenters state that a benthic chlorophyll-a standard may ultimately be insufficient as the sole tool to determine whether the recreational uses of the Shenandoah are being impaired. The commenter notes that in addition to implementing threshold criteria that protects the recreational use, DEQ should assess to what extent algal blooms affect achievement of the aquatic life criteria in the Shenandoah River. Commenters recommend revising the Water Quality Assessment guidance or develop stand-alone guidance applicable to monitoring for chlorophyll-a in the Shenandoah and other Virginia Rivers. They also recommend adoption of EPA's recommendation for microcystin and cylindrospermopsin criteria as VDH's use of the criteria to inform public HAB advisories is insufficient, because it does not provide DEQ with a regulatory mechanism to assess the impact of cyanotoxins, and the related algal blooms, on designated uses of the Shenandoah and other rivers across the Commonwealth.

**DEQ Response:** The development of the benthic chlorophyll a criteria has entailed a multi-year effort to establish appropriate, reproducible, defensible field methods to provide representative results as well as analysis of the thresholds established by other states and evaluation of the DEQ-generated data.

DEQ is proposing to implement the recommended criteria to ensure the protection of the recreation use and will continue to implement the complementary water programs in place to consider other possible impacts to other beneficial uses. These include responding to reported algal blooms, working cooperatively with the Department of Health to determine if harmful algae are present, as well as routine water monitoring efforts considering stream health through biological and physicochemical monitoring.

All water quality criteria are subject to periodic review and revision, if deemed unnecessary, so that advances in scientific understanding can be incorporated. If adopted, the proposed benthic chlorophyll-a thresholds would be treated no differently and thus could be revised if they are deemed to be insufficiently protective.

The Water Quality Assessment guidance manual will be updated with implementation guidance for the proposed filamentous algae thresholds at such time that the proposed criteria are finalized and become effective.

States are given the discretion to adopt EPA's nationally recommended recreational microcystin and cylindrospermopsin thresholds as water quality criteria and/or swimming advisory levels. Virginia has elected to use these thresholds as the basis for swimming advisory levels, in addition to thresholds for other cyanotoxins and

cyanobacterial cell counts. VADEQ considers VDH swimming advisories when assessing the recreation use, and has regulatory mechanisms available to address water quality impairments if and as they are identified, including those which may arise from issuance of VDH issued swimming advisories.

-----  
Commenter:

Wild Virginia on behalf of Preserve Giles, Waterkeepers Chesapeake, Green New Deal Virginia, Alleghany-Blue Ridge Alliance, Loudoun Climate Project, Protect Our Water, Heritage, Rights and RVA Interfaith Climate Justice League

Comment 1:

Commenter asks the Board to amend the WQS to ensure that all parts of the narrative criteria are fully implemented and enforced, and provides suggested language to amend 9VAC25-260-20. They cite concerns that application and enforcement of the narrative criteria have been insufficient and/or inconsistent in DEQ as currently implemented through guidance and policy, and the WQS should be updated to provide more specific implementation direction in the regulation. The commenter states that the State Water Control Board has an important opportunity through this triennial review process to change practices that have left the promises of the Clean Water Act, the State Water Control Law, and the water quality standards regulation itself unfulfilled in numerous instances.

**DEQ Response:** As noted by the commenter, DEQ water quality programs implement the general criteria as contained in 9VAC25-260.A, often referred to as the narrative criteria, through program policy and guidance. The narrative criteria are descriptive and goal oriented, but do not establish specific, numeric criteria or endpoints. DEQ water quality programs implement these criteria through various policies and practices. The water quality programs maintain these guidelines in program-specific implementation guidance manuals, which are revised periodically through the public participation procedures stipulated by §2.2-4002.1 of the Administrative Process Act. The narrative criteria are applied in many ways, including the biological monitoring of upland and coastal streams, fish consumption advisories, shellfish harvesting, beach closures, and Whole Effluent Toxicity (WET) testing. The measures to support WQS narrative criteria include: biennial Water Quality Assessments, response to pollution events, establishment of VPDES permit conditions and limitations, and possible support for enforcement actions against permitted and unpermitted dischargers. Additionally, it is common practice that policies and procedures established to implement regulation be developed and implemented outside of the regulatory framework. This allows programmatic flexibility to implement regulation while providing for public input in the process of establishing implementation guidance.

Comment 2:

The commenter requests the State Water Control Board to direct DEQ to initiate and/or expedite regulatory processes, apart from the current triennial review rulemaking, to develop appropriate numeric criteria for turbidity and/or solids, nutrients and per- and polyfluoroalkyl substances (PFAS).

**DEQ Response:**

The science of PFAS/PFOA is still emerging. The process for incorporating numeric criteria is generally derived from the research and recommendations from EPA. EPA is currently developing water quality criteria for these substances but has not yet issued finalized nationally recommended regulatory thresholds. At the third RAP meeting for the 2021 Triennial Review development process, Mr. Jeffrey Steers (Director of Central Operations) delivered a presentation describing Virginia's efforts to address PFAS/PFOA. The Virginia PFAS Workgroup, for which Mr. Steers is a member, is conducting research that may lead to recommended maximum contaminant levels for inclusion in the regulations of the Board of Health.

To control nutrient over-enrichment, Virginia relies heavily on the implementation measures and nutrient control strategies from existing programs, to include: the Chesapeake Bay Watershed Implementation Plan implementing the Chesapeake Bay TMDL, local nutrient, sediment and bacteria TMDLs as well as monitoring implementing and evaluating nutrient criteria for lakes/reservoirs. Virginia is making good progress on meeting its 2025 nitrogen reduction goal under the Chesapeake Bay TMDL. Over the past decade, the Commonwealth has reduced nitrogen discharges from wastewater treatment plants by 45%. These achievements are a testament to the robust nutrient reduction program that exists in Virginia.

Lastly, DEQ did initiate rule-making to develop numeric turbidity criteria. This rulemaking was initiated with the NOIRA in April 21, 2021; a first RAP meeting was held in August 2021. Staff has not had the capacity to return to this rulemaking.

**Comment 3:**

The commenter notes that Virginia lacks specific data quality guidance for evaluating qualitative citizen data, and requests the Board to instruct DEQ to develop guidance for the agency's use of qualitative water quality data and information, to empower members of the public to contribute necessary water quality information that the agency will use in regulatory actions and in other appropriate ways.

**DEQ Response:** DEQ has developed three levels of data quality for citizen and other non-DEQ water quality monitoring data based upon both the level of data quality and the authorized uses of the data provided to the agency. Citizen data that are potentially useful but lack a DEQ-approved quality assurance plan (QAPP)/standard operating procedure(SOP) or do not pertain to a water quality standard are categorized as "Level I", which permits the data to be used for education and public notification of pollution events. Data are categorized as Level II when they are submitted with a DEQ-approved QAPP and SOP but were collected using methods that deviate significantly from ones

used by DEQ. These data are typically used by DEQ to identify sites needing follow-up monitoring. Data categorized as Level III meet the same integrity requirements that DEQ's data are held to and are thus used the same way that DEQ's data are used for water quality assessments. Citizen scientists that have been audited by DEQ and who have submitted calibration records and other quality control information generate Level III data. Through its Citizen Water Quality Monitoring Programs Guidance manual, DEQ provides individuals interested in collecting monitoring data with protocols for commonly sampled parameters and guidance on how to develop quality assurance plans and monitoring programs. While the protocols outlined in the manual are focused mainly on quantitative measures of water quality (e.g., dissolved oxygen, pH, and bacteria), the manual also points to methods for conducting visual habitat quality evaluations. These datasets would not be used by DEQ for regulatory actions due to the absence of a water quality standard for physical habitat quality, but they could be used by the agency to prioritize monitoring resources, track TMDL implementation progress, or establish baseline conditions. The Virginia Citizen Water Quality Monitoring Program Methods Manual can be accessed here:

<https://www.deq.virginia.gov/home/showpublisheddocument/12448/637704018822470000>.