



DEPARTMENT OF
ECOLOGY
State of Washington

**Rule Implementation Plan
Chapter 173-201A WAC, Water Quality Standards for
Surface Waters of the State of Washington**

Aquatic Life Toxics Criteria

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Implementation Plan
Chapter 173-201A WAC
Aquatic Life Toxics Criteria

Water Quality Program
Washington State Department of Ecology
Olympia, Washington

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Table 3. Total maximum daily load implementation for this rulemaking.10

Purpose

The Washington State Department of Ecology (Ecology) provides the information in this implementation plan to meet agency and Administrative Procedure Act (RCW 34.05.328) requirements related to rule adoptions.

The Water Quality Program likes to provide a DRAFT Implementation Plan with the Water Quality Standards rule proposal packet. Although this is not required at the rule proposal phase (CR-102), we provide the draft as a helpful tool for staff and others to understand how we intend to implement the rule.

Introduction

On February 15, 2024, Ecology proposed amendments to WAC 173-201A-240 Toxic Substances (AO # 22-04). The purpose of this rule implementation plan is to inform those who must comply with Chapter 173-201A about how Ecology intends to:

- Implement and enforce the rule.
- Inform and educate persons affected by the rule.
- Promote and assist voluntary compliance for the rule.
- Evaluate the rule.
- Train and inform Ecology staff about the new or amended rule.

Also included in this plan is information about:

- Supporting documents that may need to be written or revised because of the new rule or amended rule.
- Other resources where more information about the rule is available.
- Contact information for Ecology employees who can answer questions about the rule implementation.

Implementation and Enforcement

Ecology will implement and enforce the adopted rule (upon its effective date) in the same way the current rule is implemented and enforced. The rule will not be able to be used for Clean Water Act actions until Ecology receives approval from the Environmental Protection Agency.

Overview of Implementation

Ecology intends to update existing guidance or develop new guidance to assist Ecology staff and others to implement new and revised portions of the rule. This will help ensure the new criteria and implementation tools are consistently applied by Ecology. As we implement the new criteria, we will continue to review the guidance documents and make any necessary updates if changes are needed. See the List of Supporting Documents in this document for a complete list of guidance that will be done to support this rule.

Toxic Specific Considerations

Aluminum and Copper Multiple Linear Regression

The freshwater aluminum and copper criteria are based on the multiple linear regression (MLR) model. The MLR model is dependent upon three water quality parameters: pH, dissolved organic carbon (DOC), and hardness. We have developed a total organic carbon (TOC) to DOC conversion factor of 0.81 (outlined in the [Technical Support Document](#)¹) to enable the use of the MLR model when TOC, pH, and hardness concurrent samples are available. A conductivity to hardness conversion equation is also available when conductivity, pH, and DOC concurrent samples are available (outlined in the [Technical Support Document](#)).

To calculate a freshwater aluminum or copper criterion value, water quality information (pH, hardness, and DOC) is used for a site-specific criterion. If water quality information is not available, default criteria values based on the 5th percentile of criteria outputs applies. Any location where there was concurrent sampling of pH, dissolved organic carbon, and hardness in the Environmental Information Management System (EIM) or Water Quality Portal databases, we calculated criteria for aluminum and copper. We examined all the different possible criteria throughout the state and used a conservative estimate (i.e., 5th percentile) of the different range of criteria values. These default criteria represent the freshwater aluminum and copper criteria in the absence of site-specific water quality information for pH, dissolved organic carbon, and hardness.

These three parameters (pH, dissolved organic carbon, and hardness) must be collected concurrently with the same day to be used in criteria calculations for a given water body. Water quality can vary seasonally and so it is advised to consider seasonal site-specific water quality information for criteria calculations when possible.

¹ <https://apps.ecology.wa.gov/publications/summarypages/2410007.html>

Selenium

The EPA recommendations for selenium now include a tissue and water component. Washington does not currently have any aquatic life toxics criteria based on tissue. EPA no longer has separate recommended values for freshwater acute and chronic criteria for selenium. EPA only recommends chronic criteria for selenium, indicating that the most harmful effects to aquatic organisms are due to selenium's bioaccumulative properties and that exposure to aquatic organisms mostly occurs through diet.

The chronic-based selenium criteria are designed to be hierarchical, meaning that some tissue types should be considered first when measuring selenium, and selenium concentrations in the water have the lowest rank or would be considered last. EPA states that egg-ovary tissue supersedes any whole-body, muscle, or water column parts of the criteria and that fish whole-body or muscle tissue supersedes water concentrations.

Another important element for the selenium tissue-based criteria is the assumption of steady-state concentrations. Steady-state concentration assumes that the rate a fish takes in and gets rid of selenium is equal, and that tissue concentrations remain constant over time. EPA recommends that when selenium inputs are increasing, meaning selenium levels are not in a steady-state, water column values are the applicable criterion element.

We are proposing the selenium tissue-based criteria under the assumption that all waters are at steady-state conditions unless a new selenium input (such as a new discharge of selenium) is identified. If there are new releases of selenium, the water-based criteria are the applicable criteria. We do not find it necessary or feasible to conduct waterbody specific evaluations of steady-state conditions for all waters of the state where selenium is present.

PFOA and PFOS

In 2022, EPA released draft perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) freshwater acute and chronic criteria and saltwater acute benchmarks. The PFOA and PFOS freshwater chronic criteria have tissue and water-based components. Unlike selenium, there is no hierarchical order to the tissue and water elements. The tissue elements include fish whole-body and fish muscle-based criteria as well as invertebrate whole-body criteria. The freshwater and saltwater acute criteria are based on water concentrations only. If water and tissue data are available, both data types will need to be compared to their respective criteria. The water and tissue criteria are independently applicable for compliance purposes

Changes to Permits

Addressing Permit Processing

Permitting can be in various stages when water quality standards are approved by EPA and become effective for Clean Water Act purposes. All newly EPA approved criteria will be implemented when permits are renewed or when new permits are issued. Table 1 describes how Ecology will guide permitted dischargers to consider the water quality standards once they become effective, based on permit status at the date of approval.

Table 1. Addressing permit processing when new water quality standards become effective.

Wastewater Discharge Permit Status at the Date of Approval	Transition Solution
1. Public notice completed.	Issue permit but make sure applicant understands that new rules were recently approved and future permits may change.
2. Entity review completed but public notice not started. New water quality standards don't cause a reasonable potential to pollute or cause the effluent limits to change.	Go to public notice with permit.
3. Entity review completed but public notice not started. New water quality standards cause reasonable potential to pollute or cause the effluent limits to change.	Prior to notice, Ecology will first estimate whether the reasonable potential determination would likely using the newly approved criteria and whether it would make a significant difference in Ecology's decision and conditions. The permit would go to public notice once the new standards are incorporated into the permit.
4. Entity review not begun.	Use new criteria to determine reasonable potential and effluent limits.

Impacts to Existing Permits

Ecology reissues individual and general National Pollutant Discharge Elimination System (NPDES) permits every 5 years and uses the EPA-approved water quality standards that are in effect at the time of issuance. A reasonable potential determination to exceed the water quality standards should be assessed for each permit. If the updated Aquatic Life Toxics Criteria affect parameters that have water quality-based effluent limits (WQBELs) or benchmarks in Ecology stormwater permits (such as copper, zinc, or lead), Ecology could propose revised WQBELs or benchmarks in each draft stormwater permit, using a robust stakeholder and public process, before any new limits or benchmarks are included in a final NPDES permit.

Compliance schedules are a permitting tool considered by Ecology if permittees are unable to comply with new limits or benchmarks, based on state and federal NPDES rules. Ecology can also work with affected industries or permittees to provide technical assistance and guidance on best management practices that would help achieve compliance with any limits or benchmarks that are more stringent (protective) as a result of this rulemaking.

Identifying Future Changes to Permits (PARIS Query)

As part of this rulemaking, we conducted a permitting and reporting information system (PARIS) query to evaluate how permits may be impacted as a result of this rulemaking. We used discharge monitoring report (DMR) data and priority pollutant scan information to determine the potential for permitted effluent discharges to cause an exceedance of revised toxics criteria. The

methods and analysis can be found in the [Technical Support Document](#)² and the [Preliminary Regulatory Analyses](#)³.

Toxic specific considerations for permits

Criteria Not Changed

There are several aquatic life toxics criteria that will not be revised in this rulemaking. The following criteria are not anticipated to have any effects for Ecology programs:

- 4,4'-DDT and metabolites (all)
- Aldrin (freshwater and saltwater chronic)
- Chlordane (all)
- Chloride (all)
- Chlorine (all)
- Chlorpyrifos (all)
- Chromium VI (saltwater acute and chronic)
- Copper (saltwater acute and chronic)
- Cyanide (saltwater acute and chronic)
- Dieldrin (saltwater acute and chronic)
- Endosulfan alpha and beta (all)
- Endrin (saltwater acute and chronic)
- gamma-BHC (freshwater chronic and saltwater acute)
- Heptachlor (all)
- Lead (all)
- Mercury (freshwater chronic, saltwater acute, and saltwater chronic)
- Nickel (saltwater acute and chronic)
- Parathion (freshwater acute and chronic)
- Pentachlorophenol (saltwater acute)
- Polychlorinated biphenyls (all)
- Selenium (saltwater acute and chronic)
- Toxaphene (all)

² <https://apps.ecology.wa.gov/publications/summarypages/2410007.html>

³ <https://apps.ecology.wa.gov/publications/summarypages/2410009.html>

- Zinc (saltwater acute and chronic)

New Criteria

We are proposing several new toxics to Washington's aquatic life criteria. New toxics have potential implications for permitting. New aquatic life toxics criteria will need to be evaluated in any future permits for reasonable potential to pollute (see PARIS query above). If reasonable potential is indicated, then the permittee should receive effluent limits. The following toxics are new to Washington's aquatic life criteria:

- 6PPD-quinone (freshwater acute)
- Aluminum (freshwater acute and chronic)
- Acrolein (freshwater acute and chronic)
- Carbaryl (freshwater acute and chronic and saltwater acute)
- Demeton (freshwater and saltwater chronic)
- Diazinon (all)
- Guthion (freshwater and saltwater chronic)
- Malathion (freshwater and saltwater chronic)
- Methoxychlor (freshwater and saltwater chronic)
- Mirex (freshwater and saltwater chronic)
- Nonylphenol (all)
- PFOS (freshwater acute and chronic and saltwater acute)
- PFOA (freshwater acute and chronic and saltwater acute)
- Silver (freshwater and saltwater chronic)
- Tributyltin (all)

Existing Criteria Revised

We are proposing revisions to many of our existing aquatic life toxics criteria. These criteria will need to be evaluated to determine the extent of the impact on existing permits (see PARIS query above). If a permittee with effluent limits was previously in compliance with current aquatic life toxics criteria but are not in compliance with the revised criteria, then effluent limits may need to be recalculated. We propose revisions to the following criteria:

- Aldrin (freshwater and saltwater acute)
- Arsenic (all)
- Cadmium (all)
- Chromium III (freshwater acute and chronic)
- Chromium VI (freshwater acute and chronic)

- Copper (freshwater acute and chronic)
- Cyanide (freshwater acute and chronic)
- Dieldrin (freshwater acute and chronic)
- Endrin (freshwater acute and chronic)
- gamma-BHC (freshwater acute)
- Mercury (freshwater acute)
- Nickel (freshwater acute and chronic)
- Pentachlorophenol (freshwater acute and chronic and saltwater chronic)
- Selenium (freshwater acute and chronic)
- Silver (freshwater and saltwater acute)
- Zinc (freshwater acute and chronic)

Permit Benchmarks

Benchmarks are provided to permittees in stormwater general permits. Benchmark means a pollutant concentration used as a permit threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may. When pollutant concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not water quality standards and are not numeric effluent limitations; they are indicator values. However, benchmarks are calculated based on the numeric criteria applicable to the permit. Modifications to the aquatic life toxics criteria may require recalculations of stormwater benchmarks for applicable general permits. This work can occur during the permit renewal process that is subject to public review.

Detection Limits and Criteria

When permit limits are developed based on aquatic life numeric criteria, analytical test methods cannot always quantify the chemical at concentration as low as the criteria. In these instances, the quantitation limit represents the effluent limit because it is the lowest level that we can quantitatively measure a chemical using approved analytical test methods.

Ecology has an internal guidance document in which chemicals that we regulate are listed alongside approved analytical methods, detection limits, and practical quantitation levels. In most instances, we multiply the minimum detection limit (MDL) by five to estimate the practical quantitation level (PQL). We used this method when estimating the PQL for EPA approved methods in this exercise. We compared the estimated PQL with the current and revised criteria to determine if criteria values that were previously able to be quantified will no longer be able to be quantified and if new toxics to water quality standards are anticipated to be quantified using EPA-approved analytical methods (Table 3). Table 3 represents an estimate and are not final determinations. Results were determined by looking at analytical methods limits and limits reported in the PARIS database using EPA methods. Several toxics were detectable at the criteria levels but were below the PQL.

Table 2. The proposed criteria compared with practical quantitation levels (PQLs) of EPA Clean Water Act approved analytical methods to determine if pollutants can be quantified at the concentrations equal to the proposed criteria. Each criterion was designated Yes or No, with Yes meaning that the concentrations at the proposed criterion are quantifiable, while No means that concentrations were not quantifiable. N/A designations indicate that EPA Clean Water Act approved methods are not finalized.

Chemical	FW Acute	FW Chronic	SW Acute	SW Chronic
Aluminum	Yes	Yes	-	-
Arsenic	Yes	Yes	Yes	Yes
Cadmium	Yes	Yes	Yes	Yes
Chromium III	Yes	Yes	Yes	Yes
Chromium VI	Yes	Yes	Yes	Yes
Copper	Yes	Yes	Yes	Yes
Lead	Yes	Yes	Yes	Yes
Mercury	Yes	Yes	Yes	Yes
Nickel	Yes	Yes	Yes	Yes
Selenium	Yes	Yes	Yes	Yes
Silver	Yes	Yes	Yes	Yes
Zinc	Yes	Yes	Yes	Yes
4,4'-DDT	Yes	No	Yes	No
6PPD-quinone	N/A	-	-	-
Acrolein	No	No	-	-
Aldrin	Yes	No	Yes	No
Carbaryl	Yes	Yes	Yes	-
Chlordane	Yes	No	Yes	No
Chloride	Yes	Yes	-	-
Chlorine	No	No	No	No
Chlorpyrifos	Yes	Yes	Yes	No
Cyanide	Yes	No	No	No
Demeton	-	No	-	No
Dieldrin	Yes	Yes	Yes	No
Endosulfan (alpha)	Yes	Yes	No	No
Endosulfan (beta)	Yes	Yes	Yes	No

Chemical	FW Acute	FW Chronic	SW Acute	SW Chronic
Endrin	Yes	No	No	No
gamma-BHC	Yes	Yes	Yes	-
Heptachlor	Yes	No	Yes	No
Malathion	-	Yes	-	Yes
Methoxychlor	-	No	-	No
Mirex	-	No	-	No
Nonylphenol	Yes	Yes	Yes	Yes
Parathion	Yes	No	-	-
Pentachlorophenol	Yes	Yes	Yes	Yes
PCBs	Yes	No	Yes	No
PFOA	N/A	N/A	N/A	N/A
PFOS	N/A	N/A	N/A	N/A
Toxaphene	Yes	No	Yes	No
Tributyltin	Yes	Yes	Yes	Yes

Changes to TMDLs

There is continuous ongoing TMDL work that will be in various stages of development once water quality standards are finalized and become effective for Clean Water Act purposes. This table describes how Ecology plans to manage the various stages of TMDLs when changes become effective.

Table 3. Total maximum daily load implementation for this rulemaking.

TMDL Status	Transition Solution
1. TMDL formally approved.	<ul style="list-style-type: none"> • Keep TMDL in place, even if criteria in the new rule are different • Continue implementation measures • Monitor compliance with TMDL allocations • Compare TMDL targets to new criteria, but not required to change targets • Water body will be placed in category 4a: Has a TMDL – in accordance with the 303(d) listing policy

TMDL Status	Transition Solution
	<ul style="list-style-type: none"> As effectiveness monitoring is done on the TMDL it will include analysis of the new criteria
<p>2. TMDL not yet approved, but field work completed and report may or may not be completed</p>	<ul style="list-style-type: none"> Report will have to be updated to include analysis of the new criteria Proceed with submittal of TMDL if the analysis shows that new criteria will be met If new criteria will not be met, then the TMDL will need to be amended to address new criteria
<p>3. TMDL study in progress and field work begun but not completed</p>	<ul style="list-style-type: none"> Continue study and include new criteria Analysis should be based on new criteria Develop monitoring plan that incorporates new criteria
<p>4. TMDL study planned and no field work yet begun</p>	<ul style="list-style-type: none"> Include new criteria in study design and sampling and drop old criteria
<p>5. 303(d) listed but no priority set for doing study</p>	<ul style="list-style-type: none"> Retain on 303(d) list Continue to scope and schedule projects. When projects are selected for work, the project will be treated the same as in (4) above
<p>6. Effectiveness monitoring for TMDLs</p>	<ul style="list-style-type: none"> Each TMDL will do effectiveness monitoring after implementation of actions Effectiveness monitoring associated with the TMDL will be based on the monitoring strategy in the TMDL. In order to determine the TMDL is meeting water quality standards, monitoring will have to show the waterbody is meeting the most current criteria If new criteria will not be met, then the TMDL will need to be amended to address new criteria

Water Quality Assessment

The addition of new toxics and updated criteria will require Ecology to refine the toxics impairment listing methodology found in [Water Quality Program Policy 1-11, Chapter 1: Washington’s Water Quality Assessment Listing Methodology to Meet Clean Water Act](#)

[Requirements](#)⁴. The aquatic life toxics criteria are currently all listed as water-based criterion values. In this proposal, selenium, PFOS, and PFOA have both a tissue and water component to their aquatic life toxics criteria. The addition of a tissue element to the criteria for these three toxics will require the water quality assessment team to develop new methodologies for listing.

Another unique part of this rulemaking is the proposed MLR model for aluminum and copper freshwater criteria. The MLR model calculates criteria based on three water quality parameters: pH, dissolved organic carbon, and hardness. We provide default criteria for western and eastern Washington that represent a conservative criterion to protect most state waters. However, site-specific water quality information may be available that would override any default criteria. Finally, numeric values and averaging periods will change for many aquatic life toxics criteria and will need to be revised for purposes of determining water body impairment.

An analysis can be found in Appendix E of the [Technical Support document](#)⁵ that compares the current and proposed criteria to statewide water concentrations of each pollutant from Ecology's EIM database. This analysis provides speculation around where the proposed criteria may result in a need to update 303(d) listings but is not definitive and does not consider aspects of Policy 1-11.

401 Certifications

Ecology will issue 401 Certifications based on the water quality standards that are in effect when the certification is issued. When Ecology goes to public notice, it can estimate how the certification might change if the water quality standards are approved by EPA prior to issuance of the certification, and whether it would make a significant difference to Ecology's decision and conditions. All certifications that go to public notice after the water quality standards are adopted should be based on the new water quality standards.

⁴ <https://apps.ecology.wa.gov/publications/SummaryPages/1810035.html>

⁵ <https://apps.ecology.wa.gov/publications/summarypages/2410007.html>

Informing and Educating Persons Affected by the Rule

Ecology will inform and educate affected parties through ongoing outreach through public webinars, holding requested meetings, doing outreach via the Water Quality ListServ, using Ecology's website, and providing new or revised guidance for implementing the aquatic life toxics criteria.

Outreach activities during this rule have included:

- October 27, 2022 Public webinar. This was an introductory webinar to discuss the scope of the rule and any concerns from stakeholders.
- April 4, 2023 Tribal webinar. This webinar discussed the derivation of methods and strategy for the rulemaking.
- April 20, 2023 Public webinar. This webinar discussed the derivation of methods and strategy for the rulemaking.
- October 3, 2023 Tribal webinar. This webinar discussed the preliminary decisions for the proposed rulemaking.
- October 10, 2023 Public webinar. This webinar discussed the preliminary decisions for the proposed rulemaking.
- November 29, 2023 Washington State Water Resources Association. Invitation to the annual conference to discuss the aquatic life toxics rulemaking.
- December 14, 2023. Coalition of Clean Water. Invitation to a quarterly meeting to discuss the aquatic life toxics rulemaking.

Promoting and Assisting Voluntary Compliance

Ecology will provide direct technical assistance to any entity that requests it. Ecology will continue to work with entities that are regulated by the state water quality standards. Ecology continues to encourage voluntary compliance with the water quality standards and supports numerous water quality programs that, at least in part, promote voluntary compliance:

- Total maximum daily loads (TMDLs)
- Nonpoint pollution programs
- Federal and state grants and loans
- Ongoing technical assistance from permit writers and compliance staff

These programs provide financial and technical support to entities complying with the water quality standards.

Evaluating the Rule

The purpose of the surface water quality standards is to restore and maintain the chemical, physical, and biological integrity of Washington's waters. More specifically, the water quality standards are designed to protect public health, public recreation in the water, and the propagation of fish, shellfish, and wildlife. The numeric and narrative criteria in the water quality standards are intended to protect those beneficial uses. Ecology will consider if the adopted changes have achieved their purpose to protect the beneficial uses.

Objectively Measurable Outcomes

Outcomes of the rule can be measured if water quality standards are attained. Ecology monitors surface waters across the state to determine whether water quality conditions support the designated uses set in the standards. Monitoring data (meeting requirements of the Data Quality Act; RCW 90.48.570 to 90.48.590) will be used to determine whether designated uses are met.

Training and Informing Ecology Staff

A rulemaking of this magnitude requires broad outreach to permit writers and other staff and management involved with water quality regulation. This will be done through meetings, email communication, written guidance, and one-on-one communication. Ecology will notify all Water Quality Program staff, as well as staff from other programs, that will use the new criteria or tools after EPA takes an approval action on its federal Clean Water Act review of the newly adopted water quality standards. The intake credit provision will be available for use immediately after adoption of the rule because this provision does not require EPA Clean Water Act review. However, other new provisions in the state-adopted rule will need federal Clean Water Act review and approval before use for Clean Water Act purposes. The following are examples of staff resources to address training and information sharing related to the revised rule.

NPDES permits and 401 certifications

The Water Quality Program will provide training for the Ecology permit writers on changes to the rule and to permit writer's guidance. In addition, permit writers are given the opportunity to review and comment on changes to Ecology's Water Quality Program Permit Writer's Manual, which will contain the new guidance on how to implement the final rule changes in permits. Permit writing tools, templates, and forms will be updated to account for provisions in the adopted rule, and permit writers will be notified of changes.

Ongoing support is provided by Ecology's Permit Writer's Workgroup, made up of permit writers who meet quarterly to discuss emerging issues and facilitate communication throughout the regions and across other programs with staff who issue permits.

Water Quality Assessment

Ecology Water Quality Assessment staff will be involved in determining any new approaches that are needed in order to assess Washington waters for compliance with the new aquatic life toxics criteria. These staff are already involved with this rulemaking via the development of information to support the Cost Benefit Analysis required by the Administrative Procedures Act. Water Quality Assessment staff will be aware of all changes to criteria that will affect how surface waters are assessed.

Total Maximum Daily Loads (TMDL)

The TMDL staff at Ecology's regional offices will be informed of changes to the water quality standards through TMDL implementation workshops and Water Quality Program Permit Writer's Manual notifications. Additional training on implementation of the revised water quality standards will be made available to staff upon request.

List of Supporting Documents that May Need to be Written or Revised

Guidance and other documents that will need to be developed or revised:

- Ecology's Water Quality Program Permit Writer's Manual will need to be modified to include new guidance on applying tissue-based criteria and the multiple linear regression model.
- Permit templates, Fact Sheet templates, and permit application forms will need to be updated to reflect the new criteria and tools.
- PermitCalc (Ecology's permit spreadsheet tool) will need to be updated.
- Materials available to the public (e.g., web sites, Focus Sheets) will need to be updated to reflect the adopted rule.
- The Water Quality Program's Assessment of Water Quality for the Clean Water Act Section 303(d) and 305(b) Integrated Report (Ecology Water Quality Program Policy 1-11) will need to be revised to reflect the new rule.

More Information

For additional information go to Ecology websites noted below:

- Rulemaking website:

[WAC 173-201A-Aquatic Life Toxics Criteria - Washington State Department of Ecology](https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-201A-Aquatic-Life-Toxics-Criteria)⁶

- [Water Quality Standards webpage](https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards)⁷

⁶ <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-201A-Aquatic-Life-Toxics-Criteria>

⁷ <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards>

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