



# DRAFT Fact Sheet

## Water Quality Standards Program: Aquatic Life Toxics Criteria 2024 Rulemaking

DEQ is conducting a rulemaking to adopt EPA's latest recommendations for aquatic life toxics criteria into Oregon rule. Oregon's current water quality standards for aquatic life toxics criteria can be found in Oregon Administrative Rule (OAR) OAR 340-041-0033 and 340-041-8033 (Table 30 Aquatic Life Water Quality Criteria for Toxic Pollutants).

### Background

EPA periodically releases national aquatic life criteria recommendations to provide guidance to States and Tribes in developing water quality standards. Once EPA has released criteria recommendations for a given chemical, states must either adopt criteria for that chemical into their standards or provide a reason for not doing so during their triennial review process. DEQ's last comprehensive review and update of aquatic life criteria occurred in 2004. EPA has issued new or revised criteria recommendations for several chemicals since that time. During the last Water Quality Standards program 2021 Triennial Review, DEQ committed to review several aquatic life criteria recommendations for toxics and consider adopting those criteria into Oregon standards.

### Draft proposed aquatic life toxics criteria updates

DEQ is proposing to adopt new aquatic life criteria for four chemicals (acrolein, aluminum, carbaryl, and diazinon) into Oregon rule, and to update criteria for two additional chemicals (cadmium and tributyltin). All of the draft proposed criteria (Table 1) are based on the most recent EPA recommendations. It is important to note that for freshwater acute and chronic aluminum and acute cadmium, EPA has federally promulgated aquatic life criteria that are effective in Oregon for Clean Water Act purposes but are not in Oregon rule.

### Rulemaking timeline

A Rulemaking Advisory Committee (RAC) will meet twice, in September and November 2023, to provide input on the proposed criteria and the fiscal, social, and economic impact of adopting the proposed criteria. Once the RAC has been convened and provides feedback, then the proposed criteria will move forward for public comment in early 2024 and will go before the Environmental Quality Commission in mid-2024. Any criteria adopted by Oregon are not applicable for Clean Water Act purposes until they have been approved by EPA.

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**Table 1. Proposed changes to aquatic life criteria in Oregon water quality standards compared to current criteria.**

Chemical (CAS Number)	Aquatic Life Criteria							
	Freshwater (µg/L)				Saltwater (µg/L)			
	Current Acute Criterion (CMC)	Proposed Acute Criterion (CMC)	Current Chronic Criterion (CCC)	Proposed Chronic Criterion (CCC)	Current Acute Criterion (CMC)	Proposed Acute Criterion (CMC)	Current Chronic Criterion (CCC)	Proposed Chronic Criterion (CCC)
Acrolein (CAS 107028)	-	3.0 <sup>a, b</sup>	-	3.0 <sup>b, c</sup>	-	-	-	-
Aluminum (CAS 7429905)	- <sup>d</sup>	See Table A <sup>e</sup>	- <sup>d</sup>	See Table A <sup>e</sup>	-	-	-	-
Cadmium (CAS 7440439)	See Table B <sup>d</sup>	See Table B	See Table B	See Table B	40 <sup>a, f</sup>	33 <sup>a, f, g</sup>	8.8 <sup>c, f</sup>	7.9 <sup>c, f, g</sup>
Carbaryl (CAS 63252)	-	2.1 <sup>a, b</sup>	-	2.1 <sup>b, c</sup>	-	1.6 <sup>a, b</sup>	-	-
Diazinon (CAS 333415)	-	0.17 <sup>a, b</sup>	-	0.17 <sup>b, c</sup>	-	0.82 <sup>a, b</sup>	-	0.82 <sup>b, c</sup>
Tributyltin	0.46 <sup>a, b</sup>	0.46 <sup>a, b</sup>	0.063 <sup>b, c</sup>	0.072 <sup>b, c</sup>	0.37 <sup>a, b</sup>	0.42 <sup>a, b</sup>	0.01 <sup>b, c</sup>	0.0074 <sup>b, c</sup>

"-" indicates no criterion.

<sup>a</sup> The one-hour average concentration is not to exceed the CMC more than once every three years on average.

<sup>b</sup> Criterion expressed in terms of "total" concentrations in the water column.

<sup>c</sup> The four-day average concentration is not to exceed the CCC more than once every three years on average.

<sup>d</sup> Note that there is a federally promulgated criterion that is effective for Clean Water Act purposes but not reflected in OR standards. See Table A for aluminum and Table B for cadmium.

<sup>e</sup> **DEQ is proposing to adopt the aluminum criteria as in Table A. However, DEQ intends to modify the federally promulgated footnotes in Table A.**

<sup>f</sup> Criterion expressed in terms of "dissolved" concentrations in the water column.

<sup>g</sup> **DEQ is still evaluating the best course forward for cadmium criteria given a recent court case ruling. These proposed values are subject to change.**

**Table A. Federally promulgated aluminum criteria language effective for Clean Water Act purposes in Oregon**

Metal	CAS No.	Criterion maximum concentration (CMC) <sup>3</sup> (µg/L)	Criterion continuous concentration (CMC) <sup>4</sup> (µg/L)
Aluminum <sup>1 2</sup> .....	7429905	Acute (CMC) and chronic (CCC) freshwater aluminum criteria values for a site shall be calculated using the 2018 Aluminum Criteria 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. <sup>5</sup>	

<sup>1</sup> To apply the aluminum criteria for Clean Water Act purposes, criteria values based on ambient water chemistry conditions must protect the water body over the full range of water chemistry conditions, including during conditions when aluminum is most toxic.

<sup>2</sup> These criteria are based on aluminum toxicity studies where aluminum was analyzed using total recoverable analytical methods. Oregon may utilize total recoverable analytical methods to implement the criteria. For characterizing ambient waters, Oregon may also utilize, as scientifically appropriate and as allowable by State and Federal regulations, analytical methods that measure the bioavailable fraction of aluminum (e.g., utilizing a less aggressive initial acid digestion, such as to a pH of approximately 4 or lower, that includes the measurement of amorphous aluminum hydroxide yet minimizes the measurement of mineralized forms of aluminum such as aluminum silicates associated with suspended sediment particles or clays). Oregon shall use measurements of total recoverable aluminum where required by Federal regulations.

<sup>3</sup> The CMC is the highest allowable one-hour average ambient concentration of aluminum. The CMC is not to be exceeded more than once every three years. The CMC is rounded to two significant figures.

<sup>4</sup> The CCC is the highest allowable four-day average ambient concentration of aluminum. The CCC is not to be exceeded more than once every three years. The CCC is rounded to two significant figures.

<sup>5</sup> EPA-822-R-18-001, Final Aquatic Life Ambient Water Quality Criteria for Aluminum—2018, December 2018, is incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved material is available from U.S. Environmental Protection Agency, Office of Water, Health and Ecological Criteria Division (4304T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460; telephone number: (202) 566-1143, [www.epa.gov/wqc/aquatic-life-criteria-aluminum](http://www.epa.gov/wqc/aquatic-life-criteria-aluminum). It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov) or go to [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html).

**Table B. Cadmium aquatic life criteria, current and proposed, which are hardness-based equations.**

Cadmium Criteria	Freshwater Aquatic Life Criteria (µg/L)	
	Acute Criterion Magnitudes (CMC)	Chronic Criterion Magnitudes (CCC)
Oregon Rule	$e^{(1.128[\ln(\text{hardness})]-3.828)}$ <sup>a</sup>	$e^{(0.7409[\ln(\text{hardness})]-4.719)}$ x CF <sup>b, c</sup>
Proposed	$e^{(0.9789 \times \ln(\text{hardness}) - 3.866)}$ x CF <sup>b, d, e, f</sup>	$e^{(0.7977 \times \ln(\text{hardness}) - 3.909)}$ x CF <sup>b, c, f</sup>

<sup>e</sup> "e" is the exponential constant is a mathematical constant and is approximately equal to 2.718.  
<sup>a</sup> Criterion expressed in terms of "total" concentrations in the water column.  
<sup>b</sup> Criterion expressed in terms of "dissolved" concentrations in the water column.  
<sup>c</sup> CCC CF (conversion factor from total to dissolved) = 1.101672 - [(ln hardness) x (0.041838)].  
<sup>d</sup> CMC CF (conversion factor from total to dissolved) = 1.136672 - [(ln hardness) x (0.041838)].  
<sup>e</sup> The proposed freshwater acute criterion is already the applicable criterion in OR because EPA promulgated that criterion. However, this criterion is not currently in Oregon's standards rule (OAR 340-041-0033, Table 30).  
<sup>f</sup> **DEQ is still evaluating the best course forward for cadmium criteria given a recent court case ruling. These proposed values are subject to change.**

## Water Quality Standards Program Contacts

Primary Contact and Project Manager:

Kaley Major

Water Quality Standards Specialist

503-229-6121

[kaley.major@deq.oregon.gov](mailto:kaley.major@deq.oregon.gov)

Alternate Contact:

Debra Sturdevant

Water Quality Standards Program Lead

503-229-6691

[debra.sturdevant@deq.oregon.gov](mailto:debra.sturdevant@deq.oregon.gov)

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