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National Recommended Water Quality Criteria - Aquatic Life Criteria Table

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This table contains the most up to date criteria for aquatic life ambient water quality criteria. Aquatic life criteria for toxic chemicals are the highest concentration of specific pollutants or parameters in water that are not expected to pose a significant risk to the majority of species in a given environment or a narrative description of the desired conditions of a water body being "free from" certain negative conditions. The table lists EPA's recommended aquatic life criteria. State and tribal governments may use these criteria or use them as guidance in developing their own.

Select pollutant name for current criteria document.

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National Recommended Aquatic Life Criteria table

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| Pollutant (P = Priority Pollutant) | CAS (Chemical Abstracts Service) Number | Freshwater CMC (Criteria Maximum Concentration) ¹ (acute) (µg/L) | Freshwater CCC (Criterion Continuous Concentration) ² (chronic) (µg/L) | Saltwater CMC (Criteria Maximum Concentration) ¹ (acute) (µg/L) |
|--|---|---|---|--|
| 4,4'-DDT < https://epa.gov/sites/default/files/2019-03/documents/ambient-wqc-ddt-1980.pdf > (P) | 50293 | 1.1 | 0.001 | 0.13 |
| Acrolein < https://epa.gov/sites/default/files/2018-12/documents/ambient-wqc-acrolein.pdf > (P) | 107028 | 3ug/L | 3ug/L | — |
| Aesthetic Qualities < https://epa.gov/sites/default/files/2018-10/documents/quality-criteria-water-1986.pdf > | — | — | — | — |
| Aldrin < https://epa.gov/sites/default/files/2019-03/documents/ambient-wqc-aldrin-1980.pdf > (P) | 309002 | 3.0 | — | 1.3 |
| Alkalinity | — | — | 20000 | — |

| Pollutant (P = Priority Pollutant) | CAS (Chemical Abstracts Service) Number | Freshwater CMC (Criteria Maximum Concentration) ¹ (acute) (µg/L) | Freshwater CCC (Criterion Continuous Concentration) ² (chronic) (µg/L) | Saltwater CMC (Criteria Maximum Concentration) ¹ (acute) (µg/L) |
|--|---|---|---|--|
| alpha-Endosulfan (P) | 959988 | 0.22 | 0.056 | 0.034 |
| Aluminum < https://epa.gov/node/177579 > pH 5.0 - 10.5 | 7429905 | -- | -- | — |
| Ammonia < https://epa.gov/wqc/aquatic-life-criteria-ammonia > | 7664417 | — | — | — |

| Pollutant (P = Priority Pollutant) | CAS (Chemical Abstracts Service) Number | Freshwater CMC (Criteria Maximum Concentration) ¹ | Freshwater CCC (Criterion Continuous Concentration) ² | Saltwater CMC (Criteria Maximum Concentration) ¹ |
|--|---|--|--|---|
| | | (acute) (µg/L) | (chronic) (µg/L) | (acute) (µg/L) |
| Arsenic < https://epa.gov/sites/default/files/2019-03/documents/1995-updates-wqc-protection-al.pdf > | 7440382 | 340 | 150 | 69 |
| Atrazine | 1912249 | | | |

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* It is important to note that the mercury aquatic life criterion includes a caution that it might not be adequately protective of such important fishes as the rainbow trout, coho salmon and bluegill. The criterion was derived from data for inorganic mercury (II), but is applied to total mercury and may be under-protective if a substantial portion of the mercury in the water column is methylmercury. Also, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived. In light of these issues, EPA is working on an update to the mercury criterion.

Appendix A

Conversion Factors for Dissolved Metals

| Metal | Freshwater CMC | Freshwater CCC | Saltwater CMC | Saltwater CCC |
|--------------|--|--|---------------|---------------|
| Arsenic | 1.000 | 1.000 | 1.000 | 1.000 |
| Cadmium | 1.136672-[(ln hardness) (0.041838)] | 1.101672-[(ln hardness) (0.041838)] | 0.994 | 0.994 |
| Chromium III | 0.316 | 0.860 | — | — |

| Metal | Freshwater CMC | Freshwater CCC | Saltwater CMC | Saltwater CCC |
|-------------|---|---|---------------|---------------|
| Chromium VI | 0.982 | 0.962 | 0.993 | 0.993 |
| Copper | 0.960 | 0.960 | 0.83 | 0.83 |
| Lead | $1.46203 - \{(\ln \text{hardness})(0.145712)\}$ | $1.46203 - \{(\ln \text{hardness})(0.145712)\}$ | 0.951 | 0.951 |
| Mercury | 0.85 | 0.85 | 0.85 | 0.85 |
| Nickel | 0.998 | 0.997 | 0.990 | 0.990 |
| Selenium | — | — | 0.998 | 0.998 |
| Silver | 0.85 | — | 0.85 | — |
| Zinc | 0.978 | 0.986 | 0.946 | 0.946 |

Appendix B

Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent

| Chemical | mA | bA | mC | bC | Freshwater Conversion Factors (CF) | |
|--------------|--------|--------|--------|--------|--|--|
| | | | | | CMC | CCC |
| Cadmium | 0.9789 | -3.866 | 0.7977 | -3.909 | $1.136672 - \{(\ln \text{hardness})(0.041838)\}$ | $1.101672 - \{(\ln \text{hardness})(0.041838)\}$ |
| Chromium III | 0.8190 | 3.7256 | 0.8190 | 0.6848 | 0.316 | 0.860 |
| Lead | 1.273 | -1.460 | 1.273 | -4.705 | $1.46203 - \{(\ln \text{hardness})(0.145712)\}$ | $1.46203 - \{(\ln \text{hardness})(0.145712)\}$ |
| Nickel | 0.8460 | 2.255 | 0.8460 | 0.0584 | 0.998 | 0.997 |
| Silver | 1.72 | -6.59 | — | — | 0.85 | — |
| Zinc | 0.8473 | 0.884 | 0.8473 | 0.884 | 0.978 | 0.986 |

Hardness-dependant metals' criteria may be calculated from the following:

$$\text{CMC (dissolved)} = \exp\{mA [\ln(\text{hardness})] + bA\} \text{ (CF)}$$

$$\text{CCC (dissolved)} = \exp\{mC [\ln(\text{hardness})] + bC\} \text{ (CF)}$$

1/ CMC: Criterion Maximum Concentration

2/ CCC: Criterion Continuous Concentration

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