**EPA 820-D-16-003 EPA Office of Science and Technology December 2016**

*EPA is committed to helping tribes develop their own water quality standards (WQS) for adoption and approval under the Clean Water Act. The information in this document is intended to assist tribes in developing those water quality standards. As EPA and tribes implement the Revised Interpretation of Clean Water Act Tribal Provision (81 FR 30183, May 16, 2016), EPA expects the number and interest in WQS development to increase and is providing this template to assist in those efforts.*

***Model Water Quality Standards Template for Waters on Indian Reservations***

EPA expects that tribes will be able to insert the template language and tables directly into their draft water quality standards after they have made changes to the text and/or tables in coordination with the appropriate EPA Regional Office as suggested in **[EPA’s bolded blue instructions in square brackets** like this]. Because each tribe’s situation and local conditions are unique, following this template alone does not guarantee that a tribe’s submitted WQS will be approved. Coordination with the EPA Regional Office is therefore important to help ensure successful use of the template.

In order for the WQS to become applicable under the Clean Water Act, (a) EPA must have found the tribe eligible to be treated in a manner similar to a state under section 518 of the Act for the purposes of administering a section 303(c) WQS program, (b) the tribe must adopt the WQS pursuant to tribal law and submit them to EPA in accordance with 40 CFR part 131, and (c) EPA must approve the submitted WQS in accordance with part 131 and Clean Water Act section 303(c). [[1]](#footnote-2)

This template does not include specific text or table contents to develop WQS for waters in the Great Lakes system, as defined in 40 CFR part 132 (the Great Lakes Water Quality Guidance). Tribes with such waters should coordinate with the appropriate EPA Regional Office when using this template in order to ensure that the tribe’s WQS will comply with part 132 requirements, in addition to the requirements of part 131.

**Disclaimer**

This document is designed to assist eligible tribes developing WQS for submission to EPA under the Clean Water Act in complying with EPA’s regulation at 40 CFR part 131. The tribes may choose to use the template (in whole, in part, or with appropriate amendments) or the tribe may choose to develop WQS without using the template. This document does not impose legally binding requirements on EPA, tribes, or other entities, nor does it confer legal rights or impose legal obligations or responsibilities upon any entity or member of the public. The Clean Water Act provisions and EPA’s regulation, which may be referenced in this document, contain legally binding requirements. This document is not itself a regulation, however, nor does it change or substitute for any Clean Water Act provision or EPA regulation.

EPA and tribes may adopt approaches that differ in whole or in part from those in the template on a case-by-case basis as appropriate. EPA may revise this template in the future to keep it up to date and to reflect feedback on its usefulness.

**EPA recommends that the Tribe coordinate with the appropriate EPA Regional Office in using this template**.

*The text in the template below that appears*

in regular font and black ink like this

*may be inserted, after any appropriate edits, into the Tribe’s WQS. Specific instructions on what to insert appear within the template as* **[bolded blue text in square brackets** like this]. *Once you insert the appropriate text, please remove the bolded blue brackets and instructions.*

Water Quality Standards for the **[Enter name of Tribe]**

# These water quality standards apply to all reservation waters listed below:

**[List here the reservation waters to which these WQS apply]**

# *Designated Uses*

The following designated uses shall apply to all waters included in paragraph (a) of this section, except wetlands as defined in paragraph (g) of this section, and except as specified in paragraph (k):

**[Uses (b)(1) and (b)(2) below reflect the uses specified in section 101(a)(2) of the Clean Water Act. Since 1983, EPA’s WQS regulation at 40 CFR 131.10 has interpreted and implemented the Clean Water Act through requirements that WQS protect these uses unless the state or tribe demonstrates by a use attainability analysis that those uses are infeasible to attain. Therefore, EPA generally recommends using the text below. Where such uses are not feasible, the Tribe in coordination with the EPA Regional Office can modify, sub-categorize, or remove these uses consistent with the 40 CFR 131.10 regulation.]**

* 1. Water quality must provide for the protection and propagation of fish, shellfish, and wildlife;
	2. Water quality must provide for recreation in and on the water;

**[The following non-101(a) designated uses listed in (b)(3) and (b)(4) may be adopted at the Tribe’s discretion based on the use and value of the Tribe’s waters for these purposes, in accordance with 40 CFR 131.10. The Tribe may choose different language to describe the cultural and traditional uses to be made of their waters.]**

* 1. Water quality must provide for cultural and traditional uses of the reservation waters; and
	2. Water quality must provide for use of the water as a public water supply, excluding saline waters.

# *Narrative water quality criteria*

**[According to EPA’s regulation at 40 CFR 131.11(b)(2), the Tribe should establish narrative criteria where numeric criteria cannot be established or to supplement numeric criteria. EPA recommends that the Tribe adopt the narrative criteria in (c)(1) and (c)(2) below. The Tribe may modify these criteria in coordination with the EPA Regional Office.]**

* 1. *General requirements.* All waters included in paragraph (a) of this section shall be free from toxic, radioactive, conventional, non-conventional, deleterious or other polluting substances in amounts that will prevent attainment of the designated uses specified in paragraph (b) of this section, as modified in paragraph (k) of this section.
	2. *Aesthetic qualities.* All waters included in paragraph (a) of this section shall be free from substances, attributable to wastewater discharges or any other pollutant sources, that:
		1. Settle to form objectionable deposits;
		2. Float as debris, scum, oil, or other matter forming nuisances;
		3. Produce objectionable color, odor, taste, or turbidity;
		4. Cause injury to, are toxic to, or produce adverse physiological responses in humans, animals, or plants; and/or
		5. Produce undesirable or nuisance aquatic life.

**[The following narrative criterion (c)(3) pertains to the non-101(a) designated use listed in paragraph (b)(3). It may be included – as is or modified to provide more specificity – at the Tribe’s discretion.]**

* 1. *Protection of cultural and traditional uses.* All waters with the cultural and traditional designated use specified in paragraph (b)(3) of this section, as modified by paragraph (k) of this section, shall be free from contaminants at levels that cause or contribute to an impairment in water-based activities essential to maintaining the Tribe’s cultural and traditional practices.

**[EPA’s regulation at 40 CFR 131.10(b) requires that the Tribe shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream state or authorized tribes. Generally speaking, the Tribe’s downstream protection provisions may be narrative or numeric, and the Tribe has discretion in choosing its preferred approach based on individual circumstances. As a starting point, EPA recommends that the Tribe adopt the following narrative criterion (c)(4) to provide such protection. EPA’s current policy on downstream protection is described in the document** [***Protection of Downstream Waters in Water Quality Standards: Frequently Asked Questions (June 2014)***](https://nepis.epa.gov/Exe/ZyNET.exe/P100LIJF.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2011+Thru+2015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C11thru15%5CTxt%5C00000013%5CP100LIJF.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL)**. EPA has developed** [***Templates for Narrative Downstream Protection Criteria in State Water Quality Standards***](https://www.epa.gov/wqs-tech/templates-narrative-downstream-protection-criteria-state-water-quality-standards)**that the Tribe can use in place of the recommended criterion. At the Tribe’s discretion, these more detailed narrative templates can be used as starting points to further customize the downstream protection provision in its WQS.]**

* 1. *Downstream protection.* All waters designated in paragraph (a) of this section shall maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters, including the downstream waters of a state or another federally-recognized tribe.

# *Numeric water quality criteria*

**[EPA’s regulation at 40 CFR 131.11(a)(1) require that the Tribe adopt water quality criteria that protect the Tribe’s designated uses, that such criteria be based on sound scientific rationale, and that there be sufficient parameters or constituents to protect the designated uses.]**

**[EPA recommends that the Tribe adopt all of the numeric water quality criteria shown in Tables 1 through 6. They are adapted directly from EPA’s section 304(a)** [***National Recommended Water Quality Criteria***](https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table)**. The tribe has some discretion in omitting a criterion for some or all of its waters. For example, criteria can be omitted for a priority toxic pollutant for water bodies where the Tribe in coordination with the EPA Regional Office concludes that the discharge or presence of the pollutant is not reasonably expected to interfere with any of the Tribe’s designated uses. Criteria can be omitted for a non-priority toxic pollutant if it is not needed to protect any of the designated uses. See Chapter 3 (Water Quality Criteria) of the** [***Water Quality Standards Handbook***](https://www.epa.gov/wqs-tech/water-quality-standards-handbook)**for more information about such flexibility, and about flexibility to modify criteria.]**

**[The numeric criteria in tables 1, 2, 3, and 4 reflect EPA's national recommended water quality criteria for aquatic life protection. The Tribe may need to adjust some of the criteria values before adopting them into their water quality standards. For example, for some of the criteria values shown, EPA made default assumptions about local water chemistry that may not reflect conditions for the Tribe. Specifically, criteria for ammonia and certain metals listed in tables 1, 2, 3, and 4 are expressed as formulas that are dependent on local factors such as pH, water hardness, and other parameters. If local data are available, the Tribe should use those data to recalculate the criteria values, in accordance with EPA guidance available in Chapter 3 of EPA’s** [***Water Quality Standards Handbook***](https://www.epa.gov/wqs-tech/water-quality-standards-handbook)**. In addition, the Tribe may choose to adjust certain criteria to reflect local natural background levels. The Tribe should coordinate with the EPA Regional Office before developing numeric criteria.]**

* 1. *Aquatic life criteria*. The aquatic life criteria for these water quality standards are contained in Tables 1, 2, 3, and 4 of this section. The aquatic life criteria apply as follows:

**[EPA recommends that the Tribe use the following text to apply the aquatic life criteria to all waters with the “protection and propagation of fish, shellfish, and wildlife” designated use. The Tribe may coordinate with the EPA Regional Office to amend this paragraph and or paragraph (k) to reflect any special circumstances for specific pollutants and/or specific waters.]**

* + 1. The aquatic life criteria in Tables 1, 2, 3, and 4 of this section apply to all waters designated for the protection and propagation of fish, shellfish, and wildlife in paragraph (b)(1) of this section.
		2. For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the applicable criteria are the freshwater criteria in Column B of Table 1, and in Tables 2, 3, and 4 of this section;
		3. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, the applicable criteria are the saltwater criteria in Column C Table 1 of this section; and

**[The following paragraph (d)(1)(iv) contains default language for water bodies where salinity is between 1 and 10 parts per thousand. If scientifically defensible information and data demonstrate on a site-specific basis that (a) the biology of such a water body is dominated by freshwater aquatic life and that freshwater criteria are more appropriate, or conversely, (b) the biology of such a water body is dominated by saltwater aquatic life and that saltwater criteria are more appropriate, then the Tribe should adjust the paragraph accordingly.]**

* + 1. For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs (d)(1)(ii) and (iii) of this section, the applicable criteria are the more stringent of the freshwater or saltwater criteria.

**[The numeric criteria in Table 5 reflect EPA's national recommended water quality criteria for human health life protection, and EPA’s** [**2000 *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health***](https://www.epa.gov/wqc/human-health-water-quality-criteria)**. As an alternative to the numeric criteria provided in Table 5, the Tribe may use the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes) **to develop tailored human health criteria values which reflect the Tribe’s fish consumption rate and selected cancer risk level. The Tribe should work with their EPA Regional Office as they determine the appropriate FCR.]**

* 1. *Human health criteria*. The human health criteria for these water quality standards are contained in Table 5 of this section.

**[Cancer risk level: As a matter of policy, EPA calculates its national recommended human health criteria for carcinogens at concentrations corresponding to a 10-6 cancer risk level, meaning that if exposure were to occur at the prescribed concentration over the course of one’s lifetime, then the risk of developing cancer from the exposure as described would be one in a million on top of the background risk of developing cancer from all other exposures. EPA recommends that states and authorized tribes use cancer risk levels of 10-6 (one in a million) or 10-5 (one in one hundred thousand) for the general population and notes that states and authorized tribes can also choose a more protective risk level, such as 10-7 (one in ten million). In this template EPA has calculated the criteria at a cancer risk level of 10-6, which most states and authorized tribes have used in their standards, and provides the text in (d)(2)(i) and the values in Table 5 accordingly. If the Tribe, after coordination with the EPA Regional Office, selects a different cancer risk level, it should modify the (d)(2)(i) text and recalculate the corresponding values in Table 5 accordingly. See the** [**2000 *Methodology***](https://www.epa.gov/wqc/human-health-water-quality-criteria)**for more guidance.]**

* + 1. The human health criteria for carcinogens in Table 5 were calculated based on an excess lifetime cancer risk level of 1 in 1 million, or 10-6.

**[Fish consumption rate: In developing criteria for pollutants that accumulate in aquatic organisms, EPA generally recommends that states and tribes select a fish consumption rate that is based on local data to best reflect fish consumption by their populations. If such data are not available, EPA recommends, in order of preference, the use of data reflecting similar geography/population groups, the use of data from national surveys, and lastly the use of EPA’s default intake rates. For the convenience of tribes using this template, EPA has provided criteria calculated at four different fish consumption rates: Column B – 22 grams per day (gpd)[[2]](#footnote-3), Column C – 142.4 gpd[[3]](#footnote-4), Column D – 160 gpd[[4]](#footnote-5), and Column E - 175 gpd[[5]](#footnote-6). EPA can assist in calculating the criteria at other rates as well. The Tribe, in coordination with the EPA Regional Office, should select one rate that is best for the Tribe, and enter it in paragraph (d)(2)(ii).**

* + 1. The human health criteria in these standards were calculated using a fish consumption rate of **[enter rate here]** grams per day (gpd).

**[EPA recommends that the Tribe use the text in paragraph (d)(2)(iii) to apply the human health “Water Plus Organisms” criteria to all waters with the public water supply use. The Tribe may coordinate with the EPA Regional Office to amend this paragraph to reflect any special circumstances for specific pollutants and/or specific waters. For example, some additional waters might need the “Water Plus Organisms” criteria for some or all pollutants to reflect exposures for certain tribal cultural and traditional practices.]**

* + 1. For all waters with the designated use specified in paragraph (b)(4) of this section (public water supply use), as modified by paragraph (k) of this section,

**[The human health criteria in Table 5 for “Water Plus Organisms” were calculated using the four fish consumption rates listed below. Please select the insert below corresponding to the fish consumption rate that the Tribe designated in paragraph (d)(2)(ii) above.]**

**[INSERT A]** the criteria in Table 5 column B1 (using a fish consumption rate of 22 gpd) shall apply.

**[INSERT B]** the criteria in Table 5, column C1 (using a fish consumption rate of 142.4 gpd) shall apply.

**[INSERT C]** the criteria in Table 5 column D1 (using a fish consumption rate of 160 gpd) shall apply.

**[INSERT D]** the criteria in Table 5 column E1 (using a fish consumption rate of 175 gpd) shall apply.

**[INSERT E­ – if a value other than the four above is used, please insert the newly calculated criteria in a new column F1]** the criteria in Table 5 column F1 (using a fish consumption rate of **[insert rate here]** gpd shall apply.

**[EPA recommends that the Tribe use the text in paragraph (d)(2)(iv) to apply the human health “Organisms Only” criteria to all waters with the “fishable” use that are not also designated for public water supply. The Tribe may coordinate with the EPA Regional Office to amend this paragraph to coordinate appropriately with the paragraph immediately above and to reflect any special circumstances for specific pollutants and/or specific waters.]**

* + 1. For all waters with the designated use specified in paragraph (b)(1) of this section (protection and propagation of fish, shellfish, and wildlife), but without the designated use specified in paragraph (b)(4) of this section (public water supply), as modified by paragraph (k) of this section,

**[The human health criteria for “Organisms Only” were calculated using the four fish consumption rates listed below. Please select the insert below corresponding to the fish consumption rate that the Tribe designated in paragraph (d)(2)(ii) above.]**

**[INSERT A]** the criteria in Table 5 column B2 (using a fish consumption rate of 22 gpd) shall apply.

**[INSERT B]** the criteria in Table 5, column C2 (using a fish consumption rate of 142.4 gpd) shall apply.

**[INSERT C]** the criteria in Table 5 column D2 (using a fish consumption rate of 160 gpd) shall apply.

**[INSERT D]** the criteria in Table 5 column E2 (using a fish consumption rate of 175 gpd) shall apply.

**[INSERT E­ – if a value other than the four above is used, please insert the newly calculated criteria in a new column F2]** the criteria in Table 5 column F2 (using a fish consumption rate of **[insert rate here]** gpd shall apply.

* 1. *Recreational water quality criteria.* For all waters with the designated use specified in paragraph (b)(2) of this section (recreation in and on the water), as modified by paragraph (k) of this section,

**[OPTION 1: enter the following text to use EPA Recommendation 1 in Table 6]** the criteria in Column A of Table 6 shall apply.

**[OPTION 2: enter the following text to use EPA Recommendation 2 in Table 6]** the criteria in Column B of Table 6 shall apply.

**[If necessary to protect a designated use, the tribe should coordinate with the EPA Regional Office to develop narrative and/or numeric criteria for temperature for reservation waters and include them in paragraph (d)(4). EPA’s guidance concerning temperature criteria is available in** [***Quality Criteria for Water*, 1986 ("Gold Book")**](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=00001MGA.txt)**.**

* 1. *Temperature criteria*. **[Enter temperature criteria here. If none are appropriate, suggest entering “RESERVED” in case such criteria are inserted at a later date.]**

**[For the following paragraph (d)(5), if the design flows in Table 7 are inappropriate for a criterion or for a particular site, in coordination with the Regional Office the Tribe may amend this provision and/or Table 7 in accordance with EPA’s** **regulation at 40 CFR part 131 and EPA guidance in the** [***Technical Support Document for Water Quality-based Toxics Control (March 1991)***](https://nepis.epa.gov/Exe/ZyNET.exe/100002CU.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1986+Thru+1990&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C86thru90%5CTxt%5C00000004%5C100002CU.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL)**.]**

* 1. *Design flows.* The design flows in Table 7 of this section shall be used to implement the aquatic life and human health criteria in paragraph (d).

**[The following is EPA’s model text for an antidegradation policy. EPA’s regulation at 40 CFR 131.12 requires development and adoption of an antidegradation policy, as well as development and identification of antidegradation implementation methods that implement that antidegradation policy. Antidegradation policies must be adopted in rule or other legally binding form, while the regulation provides that antidegradation implementation methods may either be made legally binding or may be identified through a non-legally binding method. The Tribe may amend this section to reflect any special circumstances. EPA recommends coordinating with the EPA Regional Office when developing amendments.]**

# *Antidegradation policy*

* 1. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
	2. Where the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Tribe finds, after full satisfaction of the intergovernmental coordination and public participation provisions, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Tribe shall assure water quality adequate to protect existing uses fully. Further, the Tribe shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

**[EPA’s regulation at 40 CFR 131.12(a)(2)(i) provides that states and tribes may identify high quality waters on either a “parameter-by-parameter basis” or on a “water body-by-water body basis.” The paragraph (e)(2)(i) is drafted using the parameter-by-parameter basis to identify high quality waters. If the Tribe chooses to identify high quality waters using the water body-by-water body basis, it must comply with additional technical and public involvement requirements found in 40 CFR 131.12(a)(2)(i). The Tribe should coordinate with the EPA Regional Office on its approach.]**

* + 1. Identification of reservation waters for the protections described in paragraph (e)(2) of this section will be made on a parameter-by-parameter basis.
		2. Before allowing any lowering of high water quality, pursuant to paragraph (e)(2) of this section, the Tribe shall find, after an analysis of alternatives, that such a lowering is necessary to accommodate important economic or social development in the area in which the waters are located. The analysis of alternatives shall evaluate a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity. When the analysis of alternatives identifies one or more practicable alternatives, the Tribe shall only find that a lowering is necessary if one such alternative is selected for implementation.
	1. Where high quality waters constitute an outstanding National resource, such as waters of National, State, and Tribal parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.
	2. In those cases where potential water quality impairment associated with a thermal discharge is involved, the decision to allow such degradation shall be consistent with section 316 of the Clean Water Act.

**[The following is EPA’s model text for antidegradation implementation methods. The Tribe, in coordination with the EPA Regional Office, may choose to modify aspects of these methods as long as they comply with EPA’s regulation at 40 CFR 131.12. The regulation at 40 CFR 131.12(b) requires states and tribes to provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods, and must make the methods available to the public. The Tribe may satisfy the public involvement and public availability requirements by adopting (i.e., legally binding) antidegradation implementation methods in their WQS, as shown here. If the Tribe chooses to identify its antidegradation implementation methods in another legally-binding document, or in guidance or other non-binding form, it may delete the following section. Note that regardless of where the antidegradation implementation methods are established, the Tribe must ensure that it provides an opportunity for public involvement during the development (and subsequent revisions) of the antidegradation implementation methods, and make the methods available to the public.]**

# *Antidegradation implementation methods*

* 1. *Scope and Applicability.* The antidegradation policy in paragraph (e) of this section and these antidegradation implementation methods shall be applied to all reservation waters of the United States included in paragraph (a) of this section.
		1. All waters receive protection for existing instream uses consistent with paragraph (e)(1) of this section.

**[The following text assumes the Tribe will identify high quality waters using a “parameter-by-parameter basis.” The Tribe may instead choose to identify high quality waters using a “water body-by-water body basis,” as described above, and may coordinate with the EPA Regional Office to amend the antidegradation implementation methods to reflect use of the water body-by-water body basis.]**

* + 1. High quality water protection consistent with paragraph (e)(2) of this section will be identified on a parameter-by-parameter basis. Each parameter for which water quality would be lowered by the regulated activity shall be considered and evaluated independently consistent with paragraph (f)(3) of this section. The Tribe is not expected to maintain a list of waters receiving protection consistent with paragraph (e)(2) of this section.
		2. Waters provided protection as an Outstanding National Resource Water consistent with paragraph (e)(3) of this section will be identified following the process outlined in paragraph (f)(4) of this section and a comprehensive list shall be maintained by the Tribe.
		3. The requirements of paragraph (e)(2) of this section will be triggered by all new or expanded regulated activities. Regulated activities include, but are not limited to, any activity that requires a permit, license or water quality certification pursuant to section 402 of the Act, section 404 of the Act, and section 401 of the Act.

**[The Tribe may choose to coordinate with the EPA Regional Office to amend the antidegradation implementation methods where the Tribe does not yet have the authority to administer the CWA section 402 permitting program. Where the Tribe does not have the authority to administer the CWA section 402 permitting program, EPA will act as the permitting authority in reservation waters and may describe, in the permit fact sheet, how the permit is consistent with the antidegradation requirements of this paragraph and the antidegradation policy in paragraph (e) of this section, and document any finding made by the Tribe to authorize a lowering of high quality water. The Tribe may also choose to include the following language in its regulation:**

**“**(1) No lowering of a high quality water shall be allowed unless the Tribe makes the finding consistent with paragraph (f)(3)(ii) of this section and the lowering is authorized in a permit.**”]**

* + 1. Antidegradation protections will be addressed in new or reissued general permits authorized, implemented, or administered by the permitting authority either at the time the permitting authority develops and issues the general permit or upon review of an applicant’s request to be covered by a general permit. The permitting authority will describe in writing in the permit fact sheet how the general permit is consistent with the antidegradation requirements of this paragraph and the antidegradation policy in paragraph (e) of this section.
	1. *Existing Instream Use Protection consistent with paragraph (e)(1) of this section.* For all waters, the Tribe shall ensure that the level of water quality necessary to protect existing uses is maintained. In order to achieve this requirement, the Tribe shall consider whether a discharge would lower the water quality to the extent that it would no longer be sufficient to protect and maintain the existing uses of that water body. Such consideration shall be based on all existing and readily available water quality-related data and information, as well as any additional water-quality related data and information submitted during the public comment period for the permit or license.

**[The following text assumes the Tribe will identify high quality waters using a “parameter-by-parameter basis.” The Tribe may instead choose to identify high quality waters using a “water body-by-water body basis,” and may coordinate with the EPA Regional Office to amend the antidegradation implementation methods to reflect use of the water body-by-water body basis.]**

* 1. *High Quality Water Protection consistent with paragraph (e)(2) of this section.* High quality waters are water bodies in which, on a parameter-by-parameter basis, the quality of the waters exceeds levels necessary to support protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. The Tribe shall ensure that no action resulting in a lowering of water quality occurs unless the components outlined in paragraph (f)(3)(i) of this section are available to the Tribe and found to adequately support the lowering of water quality as necessary to accommodate important economic and social development in the area in which the water is located consistent with paragraph (f)(3)(ii) of this section.

**[The Tribe may choose to specify who will prepare the components and information outlined in the following section. For instance, the Tribe may choose to require “the entity seeking to lower water quality” to prepare and submit the components and information. The Tribe may coordinate with the EPA Regional Office to amend this section.]**

* + 1. When seeking to lower water quality for one or more parameters that exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, the Tribe will consider the following components and information:
			1. *Identifying Information.* Name of the applicant, a description of the nature of the applicant's business and the pollutants to be discharged, location of the discharge, the name of and any water quality data for the receiving water body, daily maximum and average flow to be discharged, and effluent characterization.
			2. *Analysis of alternatives.* Identification and evaluation of a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity to determine whether the degradation of water quality is necessary. When the analysis of alternatives identifies one or more practicable alternatives, the Tribe shall only find that a lowering is necessary, consistent with paragraph (f)(3)(ii), if one such alternative is selected for implementation.
			3. *Socio-economic analysis.* Identification and evaluation of the social and economic development benefits to the area in which the waters are located that will be foregone if the lowering of water quality is not allowed. Along with the analysis of alternatives, the socio-economic analysis is used to determine whether the lowering of water quality will accommodate important economic and social development in the area in which the water is located. The “area in which the waters are located” shall be determined on a case-by-case basis, and shall include all areas directly impacted by the proposed regulated activity. Factors that must be considered in the socio-economic analysis include, but are not limited to, the ecological and economic importance of the affected waters, identification of the least-cost method needed to prevent degradation, the importance of the development to the affected community, the identity and socio-economic health of the affected community as determined by appropriate analytical methods, and identification of a range of practicable alternatives that could prevent or lessen degradation while allowing the important development to occur.
			4. Any additional documentation requested by the Tribe which, in the judgment of the Tribe, is needed to decide whether to find that a lowering of water quality is necessary to accommodate important economic and social development in the area in which the water is located.
		2. Once the Tribe has the components and information required in paragraph (f)(3)(i) of this section, the Tribe shall use that information to make a finding as to whether the lowering of water quality is necessary to accommodate important social and economic development in the area in which the water is located.
			1. If the proposed lowering of water quality is either not necessary, or not important to accommodate social and economic development, the Tribe shall deny the request to lower water quality.
			2. If the lowering of water quality is necessary, and will accommodate important social and economic development goals, the Tribe may allow a lowering to the high quality water as long as one of the alternatives identified in paragraph (f)(3)(i)(*2*) is selected for implementation. If a non-degrading practicable alternative is selected, no lowering in the high quality water will occur, and the Tribe does not need to authorize the lowering.
			3. In no event may the decision reached under this section allow water quality to be lowered below the level required to support existing and designated uses.
			4. The Tribe’s decision to allow a lowering of water quality shall be subject to applicable public participation requirements. Any reports, documents and data relevant to the discussion at the public hearing shall be available at least thirty days before the hearing. To the extent possible, public notice regarding the finding to allow a lowering of water quality will be coordinated with other required notices for public review.
			5. In allowing any degradation of water quality, the Tribe must assure that there shall be achieved in the watershed the highest statutory and regulatory requirements for all new and existing point sources and cost-effective and reasonable best management practices for nonpoint source controls.
	1. *Outstanding National Resource Water Protection consistent with paragraph (e)(3) of this section.* Any interested party may nominate a specific reservation water to be assigned as an Outstanding National Resource Water and the Tribe will make the final decision to assign the water as an Outstanding National Resource Water. Such nomination shall include written documentation of the qualifications of the reservation water that warrant Outstanding National Resource Water protection.
		1. The Tribe’s decision to assign a water as an Outstanding National Resource Water shall be subject to applicable public participation requirements. Any data and information relevant to the decision shall be available at least thirty days before the hearing. To the extent possible, public notice regarding the decision to assign a reservation water as an Outstanding National Resource Water will be coordinated with other required notices for public review.
		2. The Tribe will maintain a comprehensive list of the reservation waters in their Regions that have been assigned as an Outstanding National Resource Water consistent with paragraph (f)(4)(i) of this section.

**[The last sentence of the following paragraph (f)(4)(iii) allows for short-term, temporary degradation of Outstanding National Resource Waters under certain circumstances. EPA’s guidance (see** [***WQS Handbook***](https://www.epa.gov/wqs-tech/water-quality-standards-handbook)**) discusses such short-term, temporary degradation. If the Tribe, in coordination with the EPA Regional Office, decides not to include this provision, the sentence may be deleted.]**

* + 1. For reservation waters assigned as Outstanding National Resource Waters consistent with paragraph (f)(4)(i) of this section, the Tribe shall ensure, through the application of appropriate controls on point and nonpoint pollutant sources, that water quality is maintained and protected. No new or expanded point source discharges will be allowed to Outstanding National Resource Waters, and no new or expanded point source discharges to tributaries to Outstanding National Resource Waters that would result in lower water quality in the Outstanding National Resource Waters will be allowed. The Tribe intends to allow short-term, temporary degradation in an Outstanding National Resource Water as long as the short-term, temporary degradation is limited to the shortest possible time in the context of weeks to months, does not impact existing uses, and does not alter the essential or special characteristics that make the reservation water an Outstanding National Resource Water.

**[The following is EPA’s model language for wetlands. The Tribe may include WQS specifically for wetlands at its discretion. The Tribe, in coordination with the EPA Regional Office, may choose to use this text as is, modify the text using the online** [***Templates for Developing Wetland Water Quality Standards***](https://www.epa.gov/wqs-tech/templates-developing-wetland-water-quality-standards)**, or omit the section in its entirety. By omitting WQS specifically for wetlands, the uses, criteria, and antidegradation sections in paragraphs (b) through (f) will apply to any wetlands in the reservation].**

# *Wetlands designated uses, narrative and numeric water quality criteria, and antidegradation requirements*

* 1. *Definition:* For the purposes of this section, wetlands are defined by the Cowardin classification scheme.

**[Note: The “Cowardin classification system” is used by the U.S. Fish and Wildlife Service for the National Wetlands Inventory. In this system, wetlands are classified by landscape position, vegetation cover and hydrologic regime. The Cowardin system includes five major wetland types: marine, tidal, lacustrine, palustrine, and riverine.]**

* 1. *Designated Uses*. For waters designated in paragraph (a) of this section that constitute wetlands, as defined by the Cowardin classification scheme, the designated uses are: base flow discharge, cultural and traditional uses, flood flow attenuation, groundwater recharge, indigenous floral faunal diversity abundance, nutrient cycling, organic carbon export/cycling, protection of downstream water quality, recreation, resilience against climatic effects, sediment/shoreline stabilization, surface water storage, and water-dependent wildlife.[[6]](#footnote-7)
	2. *Narrative* *criteria*. All waters included in paragraph (a) of this section that constitute wetlands, as defined by the Cowardin classification scheme, shall maintain the biological, physical, and chemical conditions of reference wetlands[[7]](#footnote-8), specifically: base flow, flow regime, wetland hydroperiod; chemical, nutrient, dissolved oxygen regime of the wetland; conditions favorable to protection and propagation of threatened, endangered, and at-risk species; conductivity; floristic quality; integrity of species diversity, abundance, zonation; normal movement of fauna; pH of wetland waters; salinity; size shape; soil type horizon structure; water currents, erosion, or sedimentation patterns; water levels or elevations; and water temperature variations.
	3. *Numeric criteria*. For all waters included in paragraph (a) of this section that constitute wetlands, numeric criteria identified in Table 1 (excluding alkalinity, dissolved oxygen, pH, sulfide, and temperature which are addressed by narrative criteria), Table 2, Table 3, and Table 4 apply as follows:
		1. For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the applicable criteria are the freshwater criteria in Column B of Table 1 and in Table 2;
		2. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, the applicable criteria are the saltwater criteria in Column C Table 1 of this section; and
		3. For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs (d)(1)(ii) and (iii) of this section, the applicable criteria are the more stringent of the freshwater or saltwater criteria.

For all waters included in paragraph (a) of this section that constitute wetlands, “organism only” numeric criteria identified in Table 5 apply as follows:

**[The human health criteria for “organisms only” were calculated using the four fish consumption rates listed below. Please select the insert below corresponding to the fish consumption rate that the Tribe designated in paragraph (d)(2)(ii) above.]**

**[INSERT A]** the criteria in Table 5 column B2 (using a fish consumption of 22 gpd) shall apply.

**[INSERT B]** the criteria in Table 5, column C2 (using a fish consumption of 142.4 gpd) shall apply.

**[INSERT C]** the criteria in Table 5 column D2 (using a fish consumption of 160 gpd) shall apply.

**[INSERT D]** the criteria in Table 5 column E2 (using a fish consumption of 175 gpd) shall apply.

**[INSERT E­ – if a value other than the four above is used, please insert the newly calculated criteria in a new column F2]** the criteria in Table 5 column F2 (using a fish consumption rate of **[insert rate here]** gpd shall apply.

* 1. *Recreational water quality criteria.* For all waters included in paragraph (a) of this section that constitute wetlands, numeric criteria identified in Table 6 apply as follows:

**[OPTION 1: enter the following text to use EPA Recommendation 1 in Table 6]** the criteria in Column A of Table 6 shall apply.

**[OPTION 2: enter the following text to use EPA Recommendation 2 in Table 6]** the criteria in Column B of Table 6 shall apply.

* 1. *Antidegradation requirements.* For waters designated in paragraph (a) of this section that constitute wetlands, as defined by the Cowardin classification scheme, the following antidegradation requirements shall apply:
		1. Maintenance and protection of existing instream water uses and the level of water quality necessary to protect the existing uses consistent with paragraphs (e) and (f) of this section;
		2. No net loss to the water quality, functions, values, area, or ecological integrity of high quality wetlands, unless, after satisfying applicable antidegradation provisions including avoidance, minimization, and mitigation/replacement requirements, the Tribe determines that allowing degradation is necessary to accommodate important social or economic development in the area in which the wetlands are located consistent with paragraphs (e) and (f) of this section; and

(iii) No loss to the water quality, functions, values, area, or ecological integrity of wetlands assigned as Outstanding National Resource Waters consistent with paragraphs (e) and (f) of this section.

**[The Tribe may include a Mixing Zone Policy at its discretion. EPA’s guidance on mixing zones includes EPA’s** [***Technical Support Document For Water Quality-based Toxics Control (March 1991)***](https://nepis.epa.gov/Exe/ZyNET.exe/100002CU.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1986+Thru+1990&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C86thru90%5CTxt%5C00000004%5C100002CU.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL) **(e.g., see pp., 33-34; 69-78). The following is EPA’s recommended text for such a policy. The Tribe, in coordination with the EPA Regional Office, may choose to use this text as is, modify the text, or omit the policy in its entirety.]**

# Mixing Zone Policy

In conjunction with the issuance of CWA section 402 and 404 permits, the Tribe authorizes the use of mixing zones in the reservation waters designated in paragraph (a) of this section on a case-by-case basis, in accordance with the following provisions.

* 1. Mixing zones, including their size, configuration, and location, shall be authorized by the **[insert name of the Tribe’s office that will authorize the mixing zones]** on a case-by-case basis in accordance with the provisions of this section at the time a permit is issued, renewed, or materially modified and is in effect as long as the permit remains in effect. Such an authorization is required before the permitting authority can use the mixing zone to determine the need for, or level of, effluent limits for a particular pollutant.
	2. Mixing zones shall not be authorized for a pollutant when the receiving water does not meet water quality criteria for that pollutant, except where (a) the effluent limits established using a mixing zone are consistent with an EPA-approved or EPA-established TMDL, and (b) the mixing zone is in accordance with this section.
	3. Mixing zones shall not be authorized where they may cause unreasonable interference with, or danger to designated uses, including, but not limited to, any of the following:
		1. Impairment to the integrity of the aquatic community, including interference with successful spawning, egg incubation, rearing, or passage of aquatic life.
		2. Discharges into shellfish beds.
		3. Lethality to aquatic life passing through the mixing zone.
		4. Heat in the discharge that may cause thermal shock, lethality, or loss of cold water habitat or may attract aquatic life to a toxic discharge.
		5. Bioaccumulative pollutants in the discharge.
		6. Pollutant concentrations that exceed maximum contaminant levels at drinking water intakes.
		7. Conditions that impede or prohibit recreation in or on the waterbody. Mixing zones shall not be authorized for the indicators in Table 6.
	4. Mixing zones shall not overlap.
	5. Water quality within an authorized mixing zone is allowed to exceed chronic water quality criteria for those parameters approved by the **[insert name of the Tribe’s office that will authorize the mixing zones]**. Acute water quality criteria may be exceeded for such parameters within the zone of initial dilution inside the mixing zone. Acute criteria shall be met as near to the point of discharge as practicably attainable. Narrative criteria in paragraph (c) of this section apply within the mixing zone. Water quality criteria shall not be exceeded outside of the boundary of a mixing zone as a result of the discharge for which the mixing zone was authorized.
	6. Mixing zones shall be no larger than necessary, and the concentrations of pollutants present shall be minimized. Mixing zones shall meet the following restrictions:
		1. Mixing zones in flowing waters shall not:
			1. Extend in a downstream direction for a distance from the discharge port(s) greater than 300 feet plus the depth of water over the discharge port(s);
			2. Extend upstream for a distance of over 100 feet;
			3. Utilize greater than 25% of the critical low flow; nor
			4. Occupy greater than 25% of the width of the waterbody.
		2. Mixing zones in nonflowing waters shall not:
			1. Exceed 10% of the volume of the waterbody;
			2. Exceed 10% of the surface area of the waterbody (maximum radial extent of the plume regardless of whether it reaches the surface); nor
			3. Extend beyond 15% of the width of the waterbody.
	7. The following elements shall be considered when designing an outfall:
		1. Promote rapid mixing to the extent practicable through careful location and outfall design;
		2. Diffusers shall be used; and
		3. Mixing zones that result in shore-hugging plumes shall not be authorized.

**[The following is EPA’s recommended text for a Compliance Schedule Authorizing Provision. The Tribe may include this provision at its discretion. The Tribe, in coordination with the EPA Regional Office, may choose to use this text as is, modify the text, or omit the provision in its entirety.]**

# *Compliance Schedule Authorization Provision*

The Tribe authorizes the use of compliance schedules, on a case-by-case basis, for water quality-based effluent limits in National Pollutant Discharge Elimination System (NPDES) permits, when appropriate, and consistent with 40 CFR 122.47, for new, recommencing, or existing dischargers to require compliance as soon as possible with water quality-based effluent limitations calculated to meet water quality standards issued or revised after July 1, 1977.

**[The following is EPA’s recommended text for WQS variances. The Tribe may include WQS variances at its discretion. EPA’s regulation allows for adoption of a WQS variance consistent with the requirements of 40 CFR 131.14. Note that to become effective under the Clean Water Act, any WQS variances issued after the initial WQS are adopted must themselves be adopted by the Tribe, listed in paragraph (k), submitted by the Tribe to EPA, and approved by EPA, in accordance with 40 CFR part 131.]**

# *WQS Variances*

Any WQS variances adopted will be consistent with the regulation at 40 CFR 131.14 and included in paragraph (k) of this section.

**[Paragraph (k) below is reserved for use to list any waterbody-specific designated uses that differ from those in paragraph (b) of this section, any waterbody-specific water quality criteria that differ from those in paragraphs (c) and (d) of this section, and any WQS variances adopted under paragraph (j) of this section. Remove the word “[Reserved]” if entries are made in this paragraph.]**

# *Water Body-Specific Designated Uses, Criteria, and WQS Variances*

[Reserved]

**Tables to this section**

Table . Aquatic life criteria

| A | BFreshwater | CSaltwater |
| --- | --- | --- |
| Compound | CAS Number | Criterion | Criterion | Criterion | Criterion |
| Maximum | Continuous | Maximum | Continuous |
| Concentration (CMC)  | Concentration (CCC)  | Concentration (CMC)  | Concentration (CCC)  |
| (µg/L) | (µg/L) | (µg/L) | (µg/L) |
| B1 | B2 | C1 | C2 |
| **Acrolein** | 107028 | 3 | 3 | - | - |
| **Aldrina** | 309002 | 3 | - | 1.3 | - |
| **Alkalinityb** |   | - | 20000 | - | - |
| **alpha-Endosulfana,c** | 959988 | 0.22 | 0.056 | 0.034 | 0.0087 |
| **Aluminum pH 6.5 – 9.0** | 7429905 | Reservedd | - | - |
| **Ammonia** | 7664417 | See Table 4 |
| **Arsenice,f** | 7440382 | 340 | 150 | 69 | 36 |
| **beta-Endosulfana,c** | 33213659 | 0.22 | 0.056 | 0.034 | 0.0087 |
| **Cadmiumf** | 7440439 | See Table 1b | 33 | 7.9 |
| **Carbaryl** | 63252 | 2.1 | 2.1 | 1.6 | - |
| **Chlordanea** | 57749 | 2.4 | 0.0043 | 0.09 | 0.004 |
| **Chloride** | 16887006 | 860000 | 230000 | - | - |
| **Chlorine** | 7782505 | 19 | 11 | 13 | 7.5 |
| **Chlorpyrifos** | 2921882 | 0.083 | 0.041 | 0.011 | 0.0056 |
| **Chromium (III)f** | 16065831 | See Table 1b | - | - |
| **Chromium (VI)f** | 18540299 | 16 | 11 | 1100 | 50 |
| **Copperf** | 7440508 | See Table 2 | Reservedg |
| **Cyanideh** | 57125 | 22 | 5.2 | 1 | 1 |
| **Demeton** | 8065483 | - | 0.1 | - | 0.1 |
| **Diazinon** | 333415 | 0.17 | 0.17 | 0.82 | 0.82 |
| **Dieldrin** | 60571 | 0.24 | 0.056a | 0.71a | 0.0019a |
| **Endrin** | 72208 | 0.086 | 0.036i | 0.037 | 0.0023i |
| **gamma-BHC (Lindane)** | 58899 | 0.95 | -  | 0.16a | - |
| **Guthion** | 86500 | - | 0.01 | - | 0.01 |
| **Heptachlora** | 76448 | 0.52 | 0.0038 | 0.053 | 0.0036 |
| **Heptachlor Epoxidea,j** | 1024573 | 0.52 | 0.0038 | 0.053 | 0.0036 |
| **Iron** | 7439896 | - | 1000 | - | - |
| **Leadf** | 7439921 | See Table 1b | 210 | 8.1 |
| **Malathion** | 121755 | - | 0.1 | - | 0.1 |
| **Mercuryf,k** | 7439976 | 1.4 | 0.77 | 1.8 | 0.94 |
| **Methoxychlor** | 72435 | - | 0.03 | - | 0.03 |
| **Mirex** | 2385855 | - | 0.001 | - | 0.001 |
| **Nickelf** | 7440020 | See Table 1b | 74 | 8.2 |
| **Nonylphenol** | 84852153 | 28 | 6.6 | 7 | 1.7 |
| **Oxygen, Dissolvedl** | 7782447 |  |  |  |  |
| **Parathion** | 56382 | 0.065 | 0.013 | - | - |
| **Pentachlorophenol** | 87865 | 19m | 15m | 13 | 7.9 |
| **pHn** |   | - | 6.5 – 9 | - | 6.5 – 8.5 |
| **Selenium** | 7782492 | See Table 3 | 290 | 71 |
| **Silvera,f** | 7440224 | See Table 1b | 1.9 | - |
| **Sulfide-Hydrogen Sulfide** | 7783064 | - | 2 | - | 2 |
| **Temperatureo** |   | - | - | - | - |
| **Toxaphene** | 8001352 | 0.73 | 0.0002 | 0.21 | 0.0002 |
| **Tributyltin (TBT)** |   | 0.46 | 0.072 | 0.42 | 0.0074 |
| **Zincf** | 7440666 | See Table 1b | 90 | 81 |
| **4,4'-DDTa** | 50293 | 1.1 | 0.001 | 0.13 | 0.001 |

**Footnotes to Table 1 of this section:**

a. These criteria are based on the [1980 criteria](https://www.epa.gov/wqc/guidelines-and-methodology-used-preparation-health-effect-assessment-chapters-consent-decree), which used different Minimum Data Requirements and derivation procedures from the [1985 Guidelines](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=20003KJK.txt). If evaluation is to be done using an averaging period, the acute criteria values given are not to be exceeded and should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

b. The CCC of 20mg/L is a minimum value except where alkalinity is naturally lower, in which case the criterion cannot be lower than 25% of the natural level.

c. This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

d. Freshwater criteria for aluminum is reserved for new values under development. Criteria will be added once available.

e. This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic.

f. Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See [Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=60001CLZ.txt). See Table 1a for conversion factors.

g. Saltwater criteria for copper is reserved for new values under development. Criteria will be added once available.

h. These recommended water quality criteria are expressed as µg free cyanide (CN/L).

i. The derivation of the CCC for this pollutant did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

j. This value was derived from data for heptachlor and there was insufficient data to determine relative toxicities of heptachlor and heptachlor epoxide.

k. This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total dissolved mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, 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.

l. For fresh waters, see [Quality Criteria for Water, 1986 ("Gold Book")](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=00001MGA.txt). For marine waters, see [Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras (EPA-822-R-00-012).](https://usepa-my.sharepoint.com/personal/aguirre_janita_epa_gov/_layouts/15/WopiFrame.aspx?sourcedoc=%7B35483045-8e1b-4190-a974-0a353150883b%7D&action=default)

m. Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH and values displayed in table correspond to a pH of 7.8. CCC = e 1.005(pH) – 5.134, CMC = e 1.005 (pH) – 4.869

n. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation or any case outside the range of 6.5 to 8.5. For shallow, highly productive coastal and estuarine areas where naturally occurring pH variations approach the lethal limits of some species, changes in pH should be avoided but in any case should not exceed the limits established for fresh water, *i.e.*, 6.5-9.0.

o. Criteria are species dependent. See [Quality Criteria for Water, 1986 ("Gold Book")](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=00001MGA.txt).

**Notes to Table 1**

1. Freshwater and saltwater aquatic life criteria apply as specified in paragraphs (d)(1) of this section.

2. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A to 40 CFR Part 423 - 126 Priority Pollutants. EPA has added the Chemical Abstracts Services (CAS) registry numbers, which provide a unique identification for each chemical.

Table 1a: 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 | — | — |
| Chromium VI | 0.982 | 0.962 | 0.993 | 0.993 |
| Copper | 0.960 | 0.960 | 0.83 | 0.83 |
| Lead | 1.46203-[(ln hardness)(0.145712)] | 1.46203-[(ln 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 |

Table 1b: 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*hardness)(0.041838)] | 1.101672-[(*ln*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*hardness)(0.145712)] | 1.46203-[(*ln*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-dependent metals criteria may be calculated from the following:

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

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

Table . Copper Aquatic Life Criteria for Fresh Waters

| Metal | CAS No. | Criterion Maximum Concentration (CMC) a(µg/L) | Criterion Continuous Concentration (CCC) b(µg/L) |
| --- | --- | --- | --- |
| Copper | 7440508 | Acute (CMC) and chronic (CCC) freshwater copper criteria shall be developed using EPA’s 2007 *Aquatic Life Ambient Freshwater Quality Criteria—Copper* (EPA–822–R–07–001), which incorporates use of the copper biotic ligand model (BLM). Where sufficiently representative ambient data for DOC, calcium, magnesium, sodium, potassium, sulfate, chloride, or alkalinity are not available, the state or tribe shall use the values from the [*Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA’s Biotic Ligand Model*](https://www.epa.gov/sites/production/files/2016-02/documents/draft-tsd-recommended-blm-parameters.pdf), March 2016, EPA 820-E-15-106, which is hereby incorporated by reference. If taking stream order into account, the state or tribe will use Tables 8, 9, and 10 of the document; for estimates irrespective of stream order, the state or tribe will refer to Table 4. |
| a The CMC is the highest allowable one-hour average instream concentration of copper. The CMC is not to be exceeded more than once every three years. b The CCC is the highest allowable four-day average instream concentration of copper. The CCC is not to be exceeded more than once every three years.  |

Table . Selenium Aquatic Life Criteria for Fresh Waters

| **Criterion Element** | **Magnitude** | **Duration** | **Frequency** |
| --- | --- | --- | --- |
| Fish Tissuea (Egg-Ovary)b  | 15.1 mg/kg dw  | Instantaneous measurementc | Not to be exceeded  |
| Fish Tissuea (Whole Body or Muscle)d  | 8.5 mg/kg dw or11.3 mg/kg dw muscle (skinless, boneless filet) | Instantaneous measurementc | Not to be exceeded  |
| Water Columne (Monthly Average Exposure)  | 1.5 µg/L in lentic aquatic systems3.1 µg/L in lotic aquatic systems | 30 days  | Not more than once in three years on average  |
| Water Columne (Intermittent Exposure)f  | WQCint = WQC30-day – Cbkgrnd(1 – fint)fint | Number of days/month with an elevated concentration  | Not more than once in three years on average  |
| a Fish tissue elements are expressed as steady-state.b Egg/ovary supersedes any whole-body, muscle, or water column element when fish egg/ovary concentrations are measured. c Fish tissue data provide point measurements that reflect integrative accumulation of selenium over time and space in fish population(s) at a given site. d Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured. e Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data. f Where *WQC30*-*day* is the water column monthly element, for either a lentic or lotic waters; *Cbkgrnd* is the average background selenium concentration, and *fint* is the fraction of any 30-day period during which elevated selenium concentrations occur, with fint assigned a value ≥0.033 (corresponding to 1 day).  |

Table . Ammonia Aquatic Life Criteria for Fresh Waters

|  mg TAN/L  |
| --- |
| Acute (CMC) equation (1 hour average) | This image is the equation for deriving the acute criterion for ammonia in fresh water.  |
| Chronic (CCC) equation (30-day rolling average)\* | This image is the equation for deriving the chronic criterion for ammonia in fresh water.  |
| Note: Ammonia criteria are a function of pH and temperature. At the standard normalized pH of 7.0 and temperature of 20 oC, the acute criterion would be 17 mg TAN/L and the chronic criterion would be 1.9 mg TAN/L. Criteria duration: the acute criterion is a one-hour average and the chronic criterion is a thirty-day rolling average. Criteria frequency: Not to be exceeded more than once in 3 years.\* Not to exceed 2.5 times the CCC as a 4-day average within the 30-days, *i.e.* 4.8 mg TAN/L at pH 7 and 20 oC more than once in 3 years on average.  |

**Note to Table 4:** Acute (CMC) and chronic (CCC) freshwater ammonia criteria were developed using EPA’s 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater* (EPA–822–R–13–001), which is hereby incorporated by reference. Illustrations, tables, and formulae used in the development of these equations can be found on pages 40-52 of the criteria document. Alternative equations for the presence or absence of *Oncorhynchus sp.* (rainbow trout) can be found on pages 41-42 of the document.

Saltwater ammonia criteria are pH and temperature dependent. Reference tables can be found in EPA’s 1989 *Ambient Water Quality Criteria for Ammonia (Saltwater).*

Table . Human Health Criteria

| **A** | **B****Criteria using a fish consumption of 22 gpd** | **C****Criteria using a fish consumption of 142.4 gpd** | **D****Criteria using a fish consumption of 160 gpd** | **E****Criteria using a fish consumption of 175 gpd** |
| --- | --- | --- | --- | --- |
| **Pollutant** | **CAS Number** | **B1****Water +** **Organism** **(µg/L)** | **B2****Organism****Only****(µg/L)** | **C1****Water +** **Organism (µg/L)** | **C2****Organism** **Only****(µg/L)** | **D1****Water + Organism (µg/L)** | **D2****Organism Only****(µg/L)** | **E1****Water + Organism (µg/L)** | **E2****Organism****Only****(µg/L)** |
| 1,1,1-Trichloroethanea  | 71556 | 10000 | 200000 | 9000 | 30000 | 9000 | 20000 | 8000 | 20000 |
| 1,1,2,2-Tetrachloroethaneb | 79345 | 0.2 | 3 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.3 |
| 1,1,2-Trichloroethanea,b | 79005 | 0.55 | 8.6 | 0.41 | 1.3 | 0.39 | 1.2 | 0.38 | 1.1 |
| 1,1-Dichloroethylenea | 75354 | 300 | 20000 | 300 | 2000 | 300 | 2000 | 300 | 2000 |
| 1,2,4,5-Tetrachlorobenzene | 95943 | 0.03 | 0.03 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| 1,2,4-Trichlorobenzenea | 120821 | 0.069 | 0.073 | 0.011 | 0.011 | 0.01 | 0.01 | 0.0092 | 0.0092 |
| 1,2-Dichlorobenzenea | 95501 | 1000 | 3000 | 400 | 500 | 400 | 400 | 300 | 400 |
| 1,2-Dichloroethanea,b | 107062 | 9.9 | 630 | 9.1 | 97 | 9 | 86 | 9 | 79 |
| 1,2-Dichloropropaneb | 78875 | 0.9 | 30 | 0.77 | 4.6 | 0.76 | 4.1 | 0.74 | 3.8 |
| 1,2-Diphenylhydrazineb | 122667 | 0.03 | 0.2 | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 |
| 1,2-Trans-Dichloroethylenea | 156605 | 100 | 4000 | 100 | 600 | 100 | 500 | 100 | 500 |
| 1,3-Dichlorobenzene | 541731 | 7 | 10 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1,3-Dichloropropeneb | 542756 | 0.27 | 11 | 0.24 | 1.8 | 0.23 | 1.6 | 0.23 | 1.4 |
| 1,4-Dichlorobenzenea | 106467 | 300 | 900 | 100 | 100 | 100 | 100 | 90 | 100 |
| 2,4,5-Trichlorophenolc | 95954 | 300 | 600 | 80 | 90 | 70 | 80 | 60 | 70 |
| 2,4,6-Trichlorophenolb,c | 88062 | 1.4 | 2.7 | 0.37 | 0.42 | 0.33 | 0.37 | 0.31 | 0.34 |
| 2,4-Dichlorophenolc | 120832 | 10 | 60 | 6 | 9 | 6 | 8 | 5 | 7 |
| 2,4-Dimethylphenolc | 105679 | 100 | 2000 | 100 | 400 | 100 | 300 | 90 | 300 |
| 2,4-Dinitrophenol | 51285 | 10 | 300 | 10 | 50 | 10 | 50 | 10 | 40 |
| 2,4-Dinitrotolueneb | 121142 | 0.048 | 1.6 | 0.042 | 0.25 | 0.041 | 0.22 | 0.04 | 0.2 |
| 2-Chloronaphthalene | 91587 | 800 | 1000 | 200 | 200 | 200 | 200 | 100 | 100 |
| 2-Chlorophenolc | 95578 | 30 | 800 | 30 | 100 | 30 | 100 | 20 | 100 |
| 2-Methyl-4,6-Dinitrophenol | 534521 | 2 | 30 | 1 | 4 | 1 | 4 | 1 | 3 |
| 3,3'-Dichloro-benzidineb | 91941 | 0.049 | 0.14 | 0.017 | 0.022 | 0.016 | 0.02 | 0.014 | 0.018 |
| 3-Methyl-4-Chlorophenolc | 59507 | 500 | 2000 | 200 | 400 | 200 | 300 | 200 | 300 |
| 4,4'-DDDb | 72548 | 0.00012 | 0.00012 | 0.000019 | 0.000019 | 0.000017 | 0.000017 | 0.000015 | 0.000015 |
| 4,4'-DDEb | 72559 | 0.000017 | 0.000017 | 0.0000026 | 0.0000026 | 0.0000023 | 0.0000023 | 0.0000021 | 0.0000021 |
| 4,4'-DDTb | 50293 | 0.00003 | 0.00003 | 0.000004 | 0.000004 | 0.000004 | 0.000004 | 0.000004 | 0.000004 |
| Acenaphthenec | 83329 | 70 | 90 | 10 | 10 | 10 | 10 | 10 | 10 |
| Acrolein | 107028 | 3 | 400 | 3 | 60 | 3 | 50 | 3 | 50 |
| Acrylonitrileb | 107131 | 0.061 | 6.7 | 0.058 | 1 | 0.058 | 0.93 | 0.058 | 0.85 |
| Aldrinb | 309002 | 0.00000074 | 0.00000074 | 0.00000012 | 0.00000012 | 0.0000001 | 0.0000001 | 0.000000094 | 0.000000094 |
| alpha-BHC | 319846 | 0.00035 | 0.00038 | 0.000058 | 0.000058 | 0.000051 | 0.000052 | 0.000047 | 0.000047 |
| alpha-Endosulfan | 959988 | 20 | 30 | 4 | 4 | 3 | 4 | 3 | 3 |
| Anthracene | 120127 | 300 | 400 | 50 | 60 | 50 | 50 | 40 | 40 |
| Antimonya,d | 7440360 | 5.3 | 580 | 5 | 90 | 5 | 80 | 5 | 73 |
| Asbestosa | 1332214 | 7 million fibers/L | -- | 7 million fibers/L | -- | 7 million fibers/L | -- | 7 million fibers/L | -- |
| Bariuma,e | 7440393 | 1000 | -- | 1000 | -- | 1000 | -- | 1000 | -- |
| Benzene- Upper CSFa,b | 71432 | 0.58 | 15 | 0.48 | 2.4 | 0.47 | 2.1 | 0.46 | 1.9 |
| Benzidineb | 92875 | 0.00014 | 0.01 | 0.00013 | 0.0016 | 0.00013 | 0.0014 | 0.00013 | 0.0013 |
| Benzo(a) Anthraceneb | 56553 | 0.0012 | 0.0013 | 0.0002 | 0.0002 | 0.00017 | 0.00018 | 0.00016 | 0.00016 |
| Benzo(a) Pyrenea,b | 50328 | 0.00012 | 0.00013 | 0.00002 | 0.00002 | 0.000017 | 0.000018 | 0.000016 | 0.000016 |
| Benzo(b) Fluorantheneb | 205992 | 0.0012 | 0.0013 | 0.0002 | 0.0002 | 0.00017 | 0.00018 | 0.00016 | 0.00016 |
| Benzo(k) Fluorantheneb | 207089 | 0.012 | 0.013 | 0.002 | 0.002 | 0.0017 | 0.0018 | 0.0016 | 0.0016 |
| beta-BHC (beta-HCH)b | 319857 | 0.0079 | 0.014 | 0.0019 | 0.0021 | 0.0017 | 0.0019 | 0.0016 | 0.0017 |
| beta-Endosulfan | 33213659 | 20 | 40 | 6 | 6 | 5 | 6 | 5 | 5 |
| Bis(2-Chloro-1-Methylethyl) Ether  | 108601 | 200 | 3000 | 200 | 500 | 200 | 500 | 200 | 400 |
| Bis(2-Chloroethyl) Etherb | 111444 | 0.03 | 2.1 | 0.028 | 0.33 | 0.027 | 0.29 | 0.027 | 0.27 |
| Bis(2-Ethylhexyl) Phthalatea,b | 117817 | 0.32 | 0.37 | 0.055 | 0.057 | 0.049 | 0.05 | 0.045 | 0.046 |
| Bis(Chlormethyl) Ether | 542881 | 0.00015 | 0.017 | 0.00014 | 0.0026 | 0.00014 | 0.0023 | 0.00014 | 0.0021 |
| Bromoforma,b | 75252 | 7 | 110 | 5.2 | 18 | 5 | 16 | 4.9 | 14 |
| Butylbenzyl Phthalate | 85687 | 0.1 | 0.1 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| Carbon Tetrachloridea,b | 56235 | 0.4 | 5 | 0.3 | 0.7 | 0.3 | 0.6 | 0.3 | 0.6 |
| Chlordanea | 57749 | 0.0003 | 0.00031 | 0.000047 | 0.000047 | 0.000042 | 0.000042 | 0.000038 | 0.000038 |
| Chlorobenzenea,c | 108907 | 100 | 800 | 60 | 100 | 60 | 100 | 60 | 100 |
| Chlorodibromo-methanea,b | 124481 | 0.8 | 20 | 0.66 | 3.1 | 0.64 | 2.8 | 0.63 | 2.5 |
| Chloroforma,b | 67663 | 60 | 2000 | 60 | 300 | 50 | 300 | 50 | 300 |
| Chlorophenoxy Herbicide (2,4,5-TP) [Silvex]a | 93721 | 100 | 400 | 50 | 60 | 750 | 1600 | 40 | 50 |
| Chlorophenoxy Herbicide (2,4-D)a | 94757 | 1300 | 12000 | 790 | 1800 | 40 | 60 | 720 | 1500 |
| Chrysenea,b | 218019 | 0.12 | 0.13 | 0.02 | 0.02 | 0.017 | 0.018 | 0.016 | 0.016 |
| Coppera,b,c | 7440508 | 1300 | -- | 1300 | -- | 1300 | -- | 1300 | -- |
| Cyanidea | 57125 | 4 | 400 | 4 | 70 | 4 | 60 | 4 | 50 |
| Dibenzo(a,h) Anthraceneb | 53703 | 0.00012 | 0.00013 | 0.00002 | 0.00002 | 0.000017 | 0.000018 | 0.000016 | 0.000016 |
| Dichlorobromo-methanea,b | 75274 | 0.94 | 26 | 0.79 | 4 | 0.77 | 3.6 | 0.75 | 3.3 |
| Dieldrinb | 60571 | 0.0000012 | 0.0000012 | 0.00000019 | 0.00000019 | 0.00000017 | 0.00000017 | 0.00000015 | 0.00000015 |
| Diethyl Phthalate | 84662 | 600 | 600 | 100 | 100 | 90 | 90 | 80 | 80 |
| Dimethyl Phthalate | 131113 | 2000 | 2000 | 300 | 300 | 200 | 300 | 200 | 200 |
| Di-n-Butyl Phthalate | 84742 | 20 | 30 | 4 | 4 | 3 | 3 | 3 | 3 |
| Dinitrophenols | 25550587 | 10 | 1000 | 10 | 100 | 10 | 100 | 10 | 100 |
| Endosulfan Sulfate | 1031078 | 20 | 40 | 5 | 6 | 5 | 5 | 4 | 5 |
| Endrina | 72208 | 0.03 | 0.03 | 0.005 | 0.005 | 0.004 | 0.004 | 0.004 | 0.004 |
| Endrin Aldehyde | 7421934 | 1 | 1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 |
| Ethylbenzenea | 100414 | 67 | 120 | 17 | 19 | 15 | 17 | 14 | 15 |
| Fluoranthene | 206440 | 20 | 20 | 3 | 3 | 3 | 3 | 2 | 2 |
| Fluorene | 86737 | 50 | 70 | 10 | 10 | 9 | 9 | 8 | 8 |
| Gamma-BHC (HCH); Lindanea | 58899 | 4.1 | 4.3 | 0.66 | 0.66 | 0.58 | 0.59 | 0.53 | 0.54 |
| Heptachlora,b | 76448 | 0.0000057 | 0.0000057 | 0.00000088 | 0.00000088 | 0.00000078 | 0.00000078 | 0.00000071 | 0.00000071 |
| Heptachlor Epoxidea,b | 1024573 | 0.000031 | 0.000031 | 0.0000048 | 0.0000048 | 0.0000043 | 0.0000043 | 0.0000039 | 0.0000039 |
| Hexachlorobenzenea,b | 118741 | 0.000076 | 0.000076 | 0.000012 | 0.000012 | 0.000011 | 0.000011 | 0.0000096 | 0.0000096 |
| Hexachlorobutadienea,b | 87683 | 0.009 | 0.009 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| Hexachlorocyclo-hexane (HCH) - Technical | 608731 | 0.0064 | 0.0098 | 0.0014 | 0.0015 | 0.0013 | 0.0013 | 0.0012 | 0.0012 |
| Hexachlorocyclo-pentadienea,c | 77474 | 3 | 4 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 |
| Hexachloroethaneb | 67721 | 0.1 | 0.1 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Indeno(1,2,3-cd) Pyreneb | 193395 | 0.0012 | 0.0013 | 0.0002 | 0.0002 | 0.00017 | 0.00018 | 0.00016 | 0.00016 |
| Isophoroneb | 78591 | 34 | 1800 | 31 | 280 | 31 | 250 | 30 | 220 |
| Manganesec,f | 7439965 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 |
| Methoxychlora | 72435 | 0.02 | 0.02 | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 |
| Methyl Bromide | 74839 | 100 | 10000 | 100 | 2000 | 100 | 2000 | 100 | 1000 |
| Methylene Chloridea,b | 75092 | 20 | 1000 | 20 | 200 | 20 | 200 | 20 | 200 |
| Methylmercury g | 22967926 |  | 0.3 mg/kg |  | 0.04 mg/kg |  | 0.04 mg/kg |  | 0.03 mg/kg |
| Nickeld | 7440020 | 470 | 1500 | 180 | 240 | 160 | 210 | 150 | 190 |
| Nitratesa | 14797558 | 10000 | -- | 10000 | -- | 10000 | -- | 10000 | -- |
| Nitrobenzenec | 98953 | 10 | 500 | 10 | 80 | 10 | 70 | 10 | 70 |
| Nitrosamines | - | 0.0008 | 1.24 | 0.0008 | 1.24 | 0.0008 | 1.24 | 0.0008 | 1.24 |
| Nitro-sodibutylamineb | 924163 | 0.006 | 0.2 | 0.0051 | 0.031 | 0.005 | 0.027 | 0.0049 | 0.025 |
| Nitro-sodiethylamine b | 55185 | 0.0008 | 1.24 | 0.0008 | 1.24 | 0.0008 | 1.24 | 0.0008 | 1.24 |
| Nitrosopyrrolidineb | 930552 | 0.016 | 31 | 0.016 | 4.8 | 0.016 | 4.3 | 0.016 | 3.9 |
| N-Nitro-sodimethylamineb | 62759 | 0.00065 | 2.7 | 0.00065 | 0.42 | 0.00065 | 0.38 | 0.00065 | 0.34 |
| N-Nitrosodi-n-Propylamineb | 621647 | 0.0047 | 0.46 | 0.0045 | 0.071 | 0.0044 | 0.063 | 0.0044 | 0.058 |
| N-Nitro-sodiphenylamineb | 86306 | 3 | 5.5 | 0.75 | 0.84 | 0.68 | 0.75 | 0.62 | 0.69 |
| Pentachloro-benzene | 608935 | 0.1 | 0.1 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| Pentachlorophenol (PCP)a,b,c | 87865 | 0.02 | 0.04 | 0.005 | 0.005 | 0.005 | 0.005 | 0.004 | 0.004 |
| pH | - | 5-9 | -- | 5-9 | -- | 5-9 | -- | 5-9 | -- |
| Phenolc | 108952 | 4000 | 300000 | 4000 | 40000 | 4000 | 40000 | 4000 | 30000 |
| Polychlorinated Biphenyls (PCBs)a,b,h | PCB | 0.000058 | 0.000058 | 0.000009 | 0.000009 | 0.000008 | 0.000008 | 0.0000073 | 0.0000073 |
| Pyrene | 129000 | 20 | 30 | 4 | 4 | 3 | 3 | 3 | 3 |
| Recreational Criteria | See Table 6 of this section |
| Seleniuma | 7782492 | 160 | 3800 | 130 | 590 | 130 | 520 | 120 | 480 |
| Solids Dissolved and Salinity | - | 250000 | -- | 250000 | -- | 250000 | -- | 250000 | -- |
| Tetrachloroethylenea,b | 127184 | 10 | 28 | 3.4 | 4.3 | 3.1 | 3.8 | 2.9 | 3.5 |
| Toluenea | 108883 | 57 | 500 | 35 | 78 | 33 | 69 | 32 | 63 |
| Toxaphenea,b | 8001352 | 0.00068 | 0.00069 | 0.00011 | 0.00011 | 0.000095 | 0.000095 | 0.000087 | 0.000087 |
| Trichloroethylenea,b | 79016 | 0.6 | 7 | 0.4 | 1 | 0.4 | 0.9 | 0.4 | 0.8 |
| Vinyl Chloridea,b | 75014 | 0.022 | 1.6 | 0.02 | 0.24 | 0.02 | 0.21 | 0.02 | 0.2 |
| Zincc | 7440666 | 7000 | 23000 | 2600 | 3600 | 2400 | 3200 | 2300 | 2900 |

**Footnotes to Table 5 of this section:**

1. EPA has issued a Maximum Contaminant Level (MCL) for this chemical that may be more stringent. See [EPA's National Primary Drinking Water Regulations](https://www.epa.gov/dwstandardsregulations).
2. This criterion is based on carcinogenicity of 10-6 risk. Alternate risk levels may be obtained by moving the decimal point (*e.g.*, for a risk level of 10-5, move the decimal point in the recommended criterion one place to the right).
3. The criterion for organoleptic (taste and order) effects may be more stringent. See [National Recommended Water Quality Criteria - Organoleptic Effects](https://www.epa.gov/wqc/national-recommended-water-quality-criteria-organoleptic-effects).
4. This criterion was revised to reflect EPA's q1\* or RfD as contained in the [Integrated Risk Information System (IRIS)](https://www.epa.gov/iris) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) is from the 1980 Ambient Water Quality Criteria document.
5. This human health criterion is the same as originally published in the [Quality Criteria for Water, 1976 ("Red Book")](http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000IYMP.txt) which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is published in the [Quality Criteria for Water, 1986 ("Gold Book")](http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=00001MGA.txt).
6. The Human Health for the consumption of Water + Organism criterion for manganese is not based on toxic effects, but rather is intended to minimize objectionable qualities such as laundry stains and objectionable tastes in beverages.
7. This fish tissue residue criterion for methylmercury is based on the total fish consumption rates used in columns B through E.
8. This criterion applies to total PCBs (*e.g.*, the sum of all congener or all isomer or homolog or Aroclor analyses).

Table . Recreational Water Quality Criteria

|  | **A****Recommendation 1** | **B****Recommendation 2** |
| --- | --- | --- |
|  | Estimated Illiness Rate (NGI):32 per 1,000 primary contact recreators | Estimated Illiness Rate (NGI):36 per 1,000 primary contact recreators |
| Criteria Element | Magnitude | Magnitude |
| Indicator | GM (cfu/100 mL)a | STV (cfu/100 mL) | GM (cfu/100 mL)a | STV (cfu/100 mL) |
| Enterococci(marine and fresh) | 30 | 110 | 35 | 130 |
| *E. coli*(fresh) | 100 | 320 | 126 | 410 |
| **a** EPA recommends using *EPA Method 1600* (U.S. EPA, 2002a) to measure culturable enterococci, or another equivalent method that measures culturable enterococci*.* EPA recommends using *EPA Method 1603* (U.S. EPA, 2002b), or any other equivalent method that measures culturable *E. coli.* |
| **Duration and Frequency**: The water body GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval. |
| Office of Water 820-F-12-058, [*Recreational Water Quality Criteria*](https://www.epa.gov/sites/production/files/2015-10/documents/rwqc2012.pdf) |

Table . Design Flows

| Criteria | Design Flow |
| --- | --- |
| Aquatic Life Acute Criteria (CMC) | 1 Q 10 or 1 B 3 |
| Aquatic Life Chronic Criteria (CCC) | 7 Q 10 or 4 B 3 |
| Human Health Criteria | Harmonic Mean Flow |

**Notes to Table 7 of this section:**

1. CMC (Criteria Maximum Concentration) is the water quality criterion to protect against acute effects in aquatic life and is the highest instream concentration of a priority toxic pollutant consisting of a short term‑ average not to be exceeded more than once every three years on the average;
2. CCC (Continuous Criteria Concentration) is the water quality criterion to protect against chronic effects in aquatic life and is the highest in stream concentration of a priority toxic pollutant consisting of a 4‑day average not to be exceeded more than once every three years on the average;
3. 1 Q 10 is the lowest one day flow with an average recurrence frequency of once in 10 years determined hydrologically;
4. 1 B 3 is biologically based and indicates an allowable exceedance of once every 3 years. It is determined by EPA's computerized method (DFLOW model);
5. 7 Q 10 is the lowest average 7 consecutive day low flow with an average recurrence frequency of once in 10 years determined hydrologically;
6. 4 B 3 is biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years. It is determined by EPA's computerized method (DFLOW model).
1. As an alternative, the tribe could adopt the WQS solely under tribal law. This may have a benefit in some situations, but because the WQS would not be applicable WQS under the Clean Water Act, they would not be the basis for the full range of Clean Water Act regulatory mechanisms that are linked to applicable WQS. [↑](#footnote-ref-2)
2. EPA’s national default fish consumption rate, which is a 90th percentile value found to be reasonable and adequately representative of the general population of fish consumers based on the 2003-2010 data from the NHANES. See footnote 1. [↑](#footnote-ref-3)
3. EPA’s national default subsistence value, representing subsistence fishers whose daily consumption is greater than the general population, which is the 99th percentile value of the 2003-2010 data from the [*National Health and Nutrition Examination Survey (NHANES)*](https://nepis.epa.gov/Exe/ZyNET.exe/P100LP4O.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2011+Thru+2015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C11thru15%5CTxt%5C00000014%5CP100LP4O.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL). EPA’s national fish consumption rate is based on the total rate of consumption of fish and shellfish from inland and nearshore waters (including fish and shellfish from local, commercial, aquaculture, interstate, and international sources). USEPA. January 2013. [*Human Health Ambient Water Quality Criteria and Fish Consumption Rates: Frequently Asked Questions*.](https://www.epa.gov/wqc/human-health-ambient-water-quality-criteria-and-fish-consumption-rates-frequently-asked) [↑](#footnote-ref-4)
4. Provides for half of the USDA’s recommended daily protein intake from all sources to come from fish consumption (which would assume the other half would come from sources other than fish and shellfish). [↑](#footnote-ref-5)
5. 95th percentile value of the data from surveyed tribal members in the Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin (Columbia River Inter-Tribal Fish Commission (CRITFC), 1994). Accounts for consumption of fish from inland and nearshore waters, as well as anadromous fish. [↑](#footnote-ref-6)
6. These wetlands-specific designated uses represent the uses specified in 101(a)(2) of the Clean Water Act. [↑](#footnote-ref-7)
7. Note: A “reference wetland” is a specific locality on a water body which is unimpaired or minimally impaired and is representative of the expected biological integrity of other localities on the same water body or nearby water bodies. [↑](#footnote-ref-8)