**EPA 815-D-24-003**  **EPA Office of Science and Technology**  **November 2024**

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

EPA is committed to supporting authorized Tribes[[1]](#footnote-2) as they develop their own water quality standards (WQS) for adoption and approval under the Clean Water Act (CWA). After WQS adopted by such Tribes are approved by EPA in accordance with applicable CWA Section 303(c) statutory and 40 CFR part 131 and 132 regulatory requirements, they become the applicable WQS for the Tribe’s waters for all purposes under the Act.[[2]](#footnote-3)

EPA developed this Model Water Quality Standards Template for Waters on Indian Reservations to assist authorized Tribes in developing and revising their WQS. EPA expects that authorized Tribes will be able to insert the template language and tables directly into their draft WQS 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 black instructions in square brackets** like this]. Because each authorized Tribe’s situation and local conditions are unique, following this template does not guarantee that an authorized Tribe’s submitted WQS will be approved by EPA in accordance with CWA Section 303(c). Coordination with the EPA Regional Office is important to help ensure successful use of the template.

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 tailor any necessary language to comply with 40 CFR part 132 requirements, in addition to the requirements of 40 CFR part 131.

**Disclaimer**

This document is designed to assist authorized Tribes developing WQS for submission to EPA under the CWA 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 modifications) 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 CWA 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 CWA 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 black text in square brackets** like this]. *Once you insert the appropriate text, please remove the bolded black brackets and instructions.*

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

# These water quality standards apply to all marine and fresh surface waters of the reservation, including the following:

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

**[If the Tribe does not have marine waters within its jurisdiction, please remove the reference to marine waters from paragraph (a).]**

# *Definitions*

**[These are optional definitions that the Tribe may choose to include in its WQS for clarity and transparency. The purpose of the definitions is to define words used in the Tribe’s WQS. The Tribe may choose to use some or all of these definitions and may choose to add additional definitions as appropriate. EPA sourced these definitions from EPA documents, the Code of Federal Regulations, and various tribal WQS packages.]**

(1) “Acute” refers to a stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96- hours or less is typically considered acute. When referring to aquatic toxicology or human health, an acute affect is not always measured in terms of lethality.

(2) “Aquatic community” is an association of interacting populations of aquatic organisms in a given water body or habitat.

(3) “Averaging period” is the period of time over which the receiving water concentration is averaged for comparison with criteria concentrations. This specification limits the duration of concentrations above the criteria.

(4) “Best management practices” or “BMP” means physical, structural, and/or managerial practices that, when used singularly or in combination, prevent or reduce pollution.

(5) “Bioaccumulation” is the process by which a compound is taken up by an aquatic organism, both from water and through food.

(6) “Biological integrity” is the condition of the aquatic community inhabiting unimpaired water bodies of a specified habitat as measured by community structure and function.

(7) “Chronic” defines a stimulus that lingers or continues for a relatively long period of time, often one tenth of the life span or more. Chronic should be considered a relative term depending on the life span of an organism. The measurement of a chronic effect can be reduced growth, reduced reproduction, etc., in addition to lethality.

(8) “Clean Water Act” or “CWA” means the federal Clean Water Act, 33 U.S.C. §§ 1251-1387, as amended.

(9) “Compliance schedule” means a schedule of remedial measures, including an enforceable sequence of actions or operations, leading to compliance with an effluent limitation or other limitation, prohibition or standard.

(10) “Criteria” are elements of the Tribe’s water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

(11) “Criteria continuous concentration” (CCC) is the highest instream concentration of a toxicant or an effluent to which organisms can be exposed indefinitely without causing unacceptable effect.

(12) “Criteria maximum concentration” (CMC) is the highest instream concentration of a toxicant or an effluent to which organisms can be exposed for a brief period of time without causing an acute effect.

(13) “Cyanotoxins” are toxins produced by cyanobacteria. Cyanobacteria, a type of phytoplankton also known as blue-green algae, are often the cause of algal blooms in fresh water and occasionally in marine water. Their toxins can harm people, animals, aquatic ecosystems, the economy, drinking water supplies, property values, cultural activities, and recreational activities, including swimming and fishing.

(14) “Design flow" is the flow used for steady-state waste load allocation modeling.

(15) “Designated uses” are those uses specified in water quality standards for each water body or segment whether or not they are being attained.

(16) “Diversity” is the number and abundance of biological taxa in a specified location.

(17) “E. coli or Escherichia coli” is the name of a specific bacterium used as an indicator of fecal (pathogen) pollution in fresh water environments and is expressed as colony forming units (cfu) per 100 milliliters or most probable number (mpn) per 100 milliliters. Analytic procedures include multiple-tube fermentation and membrane filter techniques. Elevated levels can be an indicator of the presence of pathogens that can cause human health problems. **[The “E. coli or Escherichia coli” definition should be included in this list only if the Tribe chooses to adopt E. coli as the indicator within Table 6.]**

(18) “Enterococci” is the name of a group of bacteria used as an indicator of fecal (pathogen) pollution in saline water environments and is expressed as colony forming units (cfu) per 100 milliliters or most probable number (MPN) per 100 milliliters. Analytic procedures include multiple-tube fermentation and membrane filter techniques. Elevated levels can be an indicator of the presence of pathogens that can cause human health problems. **[The “Enterococci” definition should be included in this list only if the Tribe chooses to adopt Enterococci as the indicator within Table 6.]**

(19) “Existing uses” are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.

(20) “Federal Indian Reservation,” “Indian Reservation,” or “Reservation” is defined as all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation.

(21) “Frequency” is how often criteria can be exceeded without unacceptably affecting the community.

(22) “Geometric mean” (GM) refers to the Nth root of the product of N numbers. Alternatively, the geometric mean can be calculated by adding the logarithms of N numbers, dividing the sum by N, and taking the antilog of the quotient. The geometric mean of two numbers is the square root of the product of the two numbers, and the geometric mean of one number is that number. Either natural (base e) or common (base 10) logarithms can be used to calculate geometric means as long as they are used consistently within each set of data, i.e., the antilog used must match the logarithm used.

(23) “Harmonic mean flow” is the number of daily flow measurements divided by the sum of the reciprocals of the flows. That is, it is the reciprocal of the mean of reciprocals.

(24) “Indian Tribe” or “Tribe” describes any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian reservation.

(25) “Magnitude” is how much of a pollutant (or pollutant parameter such as toxicity), expressed as a concentration or toxic unit is allowable.

(26) “Mixing zone” is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient water body. A mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented.

(27) "Nonpoint source" means any dispersed land-based or water-based activity rather than a point source that contributes to water quality degradation, including but not limited to, atmospheric deposition; surface water runoff from agricultural, urban, forest, construction and mining lands; subsurface or underground sources; or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System program.

(28) “NPDES” means National Pollutant Discharge Elimination System, the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA § 307, 318, 402, and 405 of the CWA.

(29) “Outstanding National Resource Water” is a high quality water that constitutes an outstanding Tribal resource due to its extraordinary water quality or ecological values, or where special protection is needed to maintain critical habitat areas.

(30) “Permit” means a document issued pursuant to Tribal code or federal laws (such as CWA §§ 401, 402 and 404) specifying waste treatment and control requirements or discharge conditions.

(31) “Point source” means any discernible, confined or discrete conveyance, including, but not limited to, any pipe, ditch, channel, sewer, tunnel, conduit, well, discrete fissure, container, confined animal feeding operation, vessel, or other floating craft, from which pollutants are or may be discharged.

(32) “Pollutant” means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

(33) “Pollution” is defined as the man-made or man-induced alteration of the chemical, physical, biological and radiological integrity of water.

(34) “Practicable” means technologically possible, able to be put into practice, and economically viable.

(35) “Priority pollutants” are those pollutants listed under section 307(a) of the CWA.

(36) “Site-specific criterion” is a water quality criterion that has been derived to be specifically appropriate to the water quality characteristics and/or species composition at a particular location.

(37) “Statistical threshold value” (STV) refers to the approximation of the 90th percentile of the water quality distribution and is intended to be a value that should not be exceeded by more than 10 percent of the samples taken.

(38) “Total maximum daily load” (TMDL) is the sum of the individual waste load allocations (WLAs) and load allocations (LAS); a margin of safety is included with the two types of allocations so that any additional loading, regardless of source, would not produce a violation of water quality standards.

(39) “Toxicity test” is a procedure to determine the toxicity of a chemical or an effluent using living organisms. A toxicity test measures the degree of effect on exposed test organisms of a specific chemical or effluent.

(40) “Toxic pollutant” refers to those pollutants, or combination of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, or on the basis of information available to the administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

(41) “Turbidity” means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidity meter.

(42) “Use attainability analysis” (UAA) is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR section 131.10(g).

(43) “Whole effluent toxicity” (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test.

# *Designated uses*

The following designated uses shall apply to all waters included in paragraph (a), except wetlands as defined in paragraph (h), and except as specified in paragraph (l):

**[Designated uses (c)(1) and (c)(2) below reflect the designated 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 authorized 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 designated uses consistent with the 40 CFR 131.10 regulation.** **Different combinations of designated uses may be appropriate for different water bodies. Some authorized Tribes and states include a table in their water quality standards that identifies designated uses for each water body or type of water body (e.g., perennial streams).]**

* 1. Aquatic life, including organism consumption - Water quality must provide for the protection and propagation of fish, shellfish, and wildlife;
	2. Recreation - Water quality must provide for recreation in and on the water;

**[The following non-101(a) designated uses listed in (c)(3) and (c)(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 prefer different language to describe the cultural and traditional uses to be made of its waters. Further uses that may be considered are provided in CWA section 303(c)(2)(A).]**

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

# *Narrative water quality criteria*

**[According to EPA’s regulation at 40 CFR 131.11(b)(2), an authorized Tribe should establish narrative criteria where numeric criteria cannot be established or to supplement numeric criteria.]**

* 1. *General requirements.* All waters included in paragraph (a) 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 (c), as modified in paragraph (l). Generally applicable Designated Uses are listed in paragraph (c), but Water Body-Specific Designated Uses, Criteria, and WQS Variances are included in paragraph (l). Narrative provisions apply to protect designated uses listed in both (c) and (l), where applicable.
	2. *Aesthetic qualities and protection of aquatic life and human health*. All waters included in paragraph (a) must be capable of supporting aquatic life uses identified in paragraphs (c) and (l), where applicable, and 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 (d)(3) pertains to the non-101(a) designated use listed in paragraph (c)(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 (c)(3), as modified by paragraph (l), 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 an authorized Tribe shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream state or authorized Tribes. Generally speaking, an authorized Tribe’s downstream protection provisions may be narrative or numeric, and the Tribe has discretion in choosing its preferred approach based on individual circumstances. 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://www.epa.gov/sites/default/files/2018-10/documents/protection-downstream-wqs-faqs.pdf)**. EPA has developed an interactive interface titled "Decision Tool for Downstream Water Quality Protection" which is designed to direct states, Tribes, and territories to resources and methodologies when developing water quality criteria that provide for the attainment and maintenance of downstream water quality standards.]**

**[As a starting point, EPA recommends that the Tribe adopt the following narrative criterion (d)(4) to provide such protection. Alternatively, 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) 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) requires that an authorized Tribe adopt water quality criteria that protect the authorized 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)**. 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 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 authorized Tribe’s designated uses. Criteria can be omitted for a non-priority 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.]**

**[EPA recommends that the Tribe also adopt numeric nutrient criteria to protect applicable designated uses for waterbodies. EPA recommends the Tribe coordinate with the EPA Regional Office to pursue derivation of numeric nutrient criteria based on EPA’s** [***National Recommended Water Quality Criteria for Nutrients***](https://www.epa.gov/nutrientpollution/epas-recommended-ambient-water-quality-criteria-nutrients)***,* including EPA’s water quality criteria to address nutrient pollution in lakes and reservoirs].**

**[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 the Tribe’s water quality standards. Several criteria are represented by formulas, with the criteria values themselves established on a site-specific basis using ambient data for the required input parameters, such as pH, hardness etc. The Tribe should coordinate with the EPA Regional Office before developing numeric criteria and to determine if there are additional criteria to adopt that are not specifically identified in paragraph (e), e.g. numeric nutrient criteria, turbidity, total dissolved gas, etc, or whether any criteria in paragraph (e) should be modified to reflect local conditions and information.]**

* 1. *Aquatic life criteria*. The aquatic life criteria for these water quality standards are contained in Tables 1, 2, 3, and 4. 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 (l) to reflect any special circumstances for specific pollutants and/or specific waters. Paragraphs (iii) and (iv) should be removed if marine waters are not present in the reservation.]**

* + 1. The aquatic life criteria in Tables 1, 2, 3, and 4 apply to all waters designated for the protection and propagation of fish, shellfish, and wildlife in paragraph (c)(1).
		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;
		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; and

**[The following paragraph (e)(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 (1) the biology of such a water body is dominated by freshwater aquatic life and that freshwater criteria are more appropriate, or conversely, (2) 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 (e)(1)(ii) and (iii), the applicable criteria are the more stringent of the freshwater or saltwater criteria.

**[EPA has derived national recommended water quality criteria for the protection of human health , consistent with 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)**. These criteria are intended to protect the “Aquatic life, including organism consumption” designated use, the “Cultural and traditional” designated use, and the “Water supply” designated use per the instructions below. The Tribe may use the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes) **to adapt the national recommended values to meet the Tribe’s needs. Specifically, the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes)**can tailor the human health criteria values to reflect the Tribe’s fish consumption rate (FCR) and the cancer risk level that the Tribe selects. The Tribe can then copy the criteria from the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes)**directly into Table 5 of this document. See instructions under Table 5 below. The Tribe should work with the EPA Regional Office as they determine the appropriate FCR and cancer risk level.]**

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

**[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). The Tribe, in coordination with the EPA Regional Office, should select one rate that is best for the Tribe and enter it in paragraph (e)(2)(i). See 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)**for more guidance.]**

* + 1. The human health criteria for carcinogens in Table 5 were calculated based on an excess lifetime cancer risk level of **[enter selected cancer risk level].**

**[Fish consumption rate: In developing criteria for pollutants that accumulate in aquatic organisms, EPA generally recommends that states and authorized 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 reference, EPA’s national default fish consumption rate is 22 grams per day (gpd)[[3]](#footnote-4) and EPA’s national default subsistence fish consumption rate is 142.4 gpd.[[4]](#footnote-5) 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 (e)(2)(ii).**

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

**[EPA recommends that the Tribe use the text in paragraph (e)(2)(iii) to apply the human health “Water Plus Organisms” criteria to all waters with the water supply use. The special requirement to include the methylmercury “Organism Only” criterion is needed if the waters are also designated for the paragraph (c)(1) use (protection and propagation of fish, shellfish, and wildlife), since Table 5, derived from the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes)**, contains no “Water Plus Organisms” criterion for methylmercury. 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 (c)(4) (water supply use), as modified by paragraph (l), the human health criteria for “Water Plus Organisms” and the methylmercury “Organisms Only” criterion as presented in Table 5 apply.

**[EPA recommends that the Tribe use the text in paragraph (e)(2)(iv) to apply the human health “Organisms Only” criteria to all waters with the “fishable” use (i.e. to waters designated to protect for human consumption of fish and other aquatic organisms) that are not also designated for 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 (c)(1) (aquatic life, including organism consumption), but without the designated use specified in paragraph (c)(4) (water supply), as modified by paragraph (l), the human health criteria for “Organisms Only” as presented in Table 5 apply.
	1. *Recreational water quality criteria.* For all waters with the designated use specified in paragraph (c)(2) (recreation in and on the water), as modified by paragraph (l),

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

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

Additionally, the concentration of total microcystins shall not exceed 8 µg/L in more than three ten-day periods per recreational season, for more than one recreational season, over a five-year period and the concentration of total cylindrospermopsin shall not exceed 15 µg/L in more than three ten-day periods per recreational season, for more than one recreational season, over a five-year period.

**[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 (e)(4). EPA’s guidance concerning temperature criteria is available in** [***Quality Criteria for Water*, 1986 ("Gold Book")**](https://www.epa.gov/sites/default/files/2018-10/documents/quality-criteria-water-1986.pdf)**.**

* 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 (e)(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 shall be used to implement the aquatic life and human health criteria in paragraph (e).

**[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 opportunity for intergovernmental coordination and public involvement, 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 authorized Tribes may identify high quality waters on either a “parameter-by-parameter basis” or on a “water body-by-water body basis.” The paragraph (f)(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 (f)(2) will be made on a parameter-by-parameter basis.
		2. Before allowing any lowering of high quality water, pursuant to paragraph (f)(2), 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 **[insert “outstanding National resource” or “outstanding Tribal resource”]**, such as waters of National and Tribal parks and wildlife refuges and waters of exceptional recreational, ecological, or cultural 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 authorized Tribes to provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods and requires the authorized Tribe to make the methods available to the public. An authorized Tribe may satisfy the public involvement and public availability requirements by adopting (i.e., legally binding) antidegradation implementation methods and conducting a public hearing as required for any new or revised WQS.]**

**[If the Tribe chooses to identify its antidegradation implementation methods in guidance or another non-binding form, it may include this following section in that guidance document rather than in the Tribe’s WQS. 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.]**

**[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 will describe, in the permit fact sheet, how the permit is consistent with the antidegradation requirements and the antidegradation policy adopted by the Tribe. The following text (all of section (g)) assumes the Tribe will be conducting the antidegradation review or reviewing the components of the antidegradation review and providing its decision on the authorization to lower water quality to EPA permit writers before or during the permit development process. If the Tribe instead decides to review that material, authorize the lowering of water quality, and ensure compliance with its antidegradation provisions during the CWA section 401 certification process, EPA recommends that the Tribe coordinate with the appropriate EPA Regional Office to amend the language in (g) to reflect that process.]**

# *Antidegradation implementation methods*

* 1. *Applicability.* The antidegradation policy in paragraph (f) and these antidegradation implementation methods shall be applied to all reservation waters of the United States included in paragraph (a).
		1. The requirements of paragraphs (f) and (g) shall be followed when considering all requests to authorize 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 sections 401, 402, and 404 of the CWA.
		2. 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 (f).
	2. *Existing instream use protection consistent with paragraph (f)(1).* 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 regulated activity 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. If the lowering of water quality would not protect and maintain the existing uses of that water body, then the Tribe will not allow the lowering of water quality. 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 authorization.

**[The following text assumes that 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.” If so, the EPA recommends that the Tribe coordinate with the EPA Regional Office to amend the following text to reflect use of the water body-by-water body basis.]**

* 1. *High Quality Water Protection consistent with paragraph (f)(2) of this section.* In determining which waters will receive high quality water protection consistent with paragraph (f)(2), the Tribe will identify high quality water on a parameter-by-parameter basis. Each parameter that is determined to be high quality shall be considered and evaluated independently, consistent with this paragraph (g)(3), at the time an applicant requests authorization to lower high water quality. A parameter is high quality if its water quality level exceeds its water quality criterion in paragraph (d) and (e). The Tribe shall ensure that no regulated activity that results in a lowering of water quality occurs unless the components outlined in paragraph (g)(3)(i) are available to the Tribe and the Tribe has made a finding consistent with paragraph (g)(3)(ii).

**[The Tribe may choose to specify who will prepare the components and information outlined in the following section. For instance, the authorized 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 determining whether to authorize a lowering of 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.

**[The Tribe may want to include a list of alternatives in paragraph (g)(3)(i)(2) that may be considered during the analysis of alternatives. Alternatives to consider may include:**

* **Alternative methods of production or operation;**
* **Water conversation practices;**
* **Wastewater minimization technologies;**
* **Improved wastewater treatment facility operation;**
* **Alternative methods of treatment, including advanced treatment beyond applicable technology requirements of the Clean Water Act;**
* **Relocation or configuration of outfall or diffuser;**
* **Process changes/improved efficiency that reduces pollutant discharge;**
* **Seasonal discharge to avoid critical time period for water quality;**
* **Non-discharge alternatives such as land application;**
* **Offsets to the activity or discharge’s effect on water quality]**
	+ - 1. *Analysis of alternatives.* Identification and evaluation of a range of practicable (as defined at (b)(34)) 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 of high water quality is necessary, consistent with paragraph (f)(2)(ii), if one such alternative is selected for implementation.

**[The authorized Tribe may want to include a list of factors in paragraph (g)(3)(i)(3) that will be evaluated during a socio-economic analysis. Factors may include:**

* **Median Household Income;**
* **Community Unemployment Rate;**
* **Overall Net Debt as a Percent of Full Market Value of Taxable Property;**
* **Percent of Households Below Poverty Line;**
* **Impact on Community Development Potential; and**
* **Impact on Property Values.]**
	+ - 1. *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 high 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, the importance of the development to the affected community, and the socio-economic health of the affected community as determined by appropriate analytical methods.
			2. 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.
		1. Once the Tribe has the components and information required in paragraph (g)(3)(i), 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 high 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 high water quality is necessary to 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 (g)(3)(i)(*2*) is selected for implementation and incorporated into the authorization for the activity. If no practicable alternative was identified by the analysis of alternatives, but the lowering of high water quality will accommodate important social or economic development the Tribe may allow the lowering of high water quality. If a non-degrading practicable alternative is selected, no lowering of the high quality water will occur, and the Tribe does not need to allow the lowering.
			3. In no event will the Tribe allow water quality to be lowered below the level required to fully protect existing and designated uses.
			4. To ensure the opportunity for public involvement, the Tribe shall provide public notice and request public comment on the preliminary decision to allow a lowering of high water quality. The preliminary decision will provide relevant information regarding the lowering of high water quality, including the alternatives analysis, socio-economic analysis, the estimated amount of assimilative capacity available in the water body, and the estimated amount of assimilative capacity to be utilized by the proposed activity. 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. To fulfill intergovernmental coordination, the Tribe shall notify local, state, and federal agencies that operate in the area impacted by the activity and request comment on the preliminary decision to allow a lowering of water quality in a high quality water based on whether it is necessary to accommodate important social and economic development in the area of the waters impacted by the activity.
			6. Before allowing any degradation of water quality, the Tribe shall identify point sources and tribal-regulated nonpoint sources that discharge to, or otherwise impact, the receiving water. The Tribe shall coordinate with other agencies, as necessary, to assure compliance with the highest statutory and regulatory requirements for all new and existing point sources and/or all tribal required cost-effective and reasonable best management practices for non-point source control. If compliance with the highest statutory and regulatory requirements for all new and existing point sources and all tribal-regulated cost-effective and reasonable best management practices for non-point sources cannot be assured, the Tribe will not allow a lowering of high water quality.
	1. ***[insert “Outstanding National resource water” or “Outstanding Tribal resource water”]*** *protection consistent with paragraph (f)(3).* For reservation waters assigned as **[insert “outstanding National resource waters” or “outstanding Tribal resource waters”]**, the Tribe shall ensure, through the application of appropriate controls on point and tribal regulated nonpoint pollutant sources, that water quality is maintained and protected. No new or expanded point source discharges will be allowed to **[insert “outstanding National resource waters” or “outstanding Tribal resource waters”]** unless it is on a short term and temporary basis, consistent with paragraph (g)(4)(iii).

(i) Any person or entity may nominate a specific reservation water to be assigned as an **[insert “outstanding National resource water” or “outstanding Tribal resource water”]**. The person or entity may transmit a written nomination to the Tribe, at any time, including why the reservation water warrants **[insert “outstanding National resource” or “outstanding Tribal resource”]** protection. The Tribe shall determine whether the nominated water qualifies as an **[insert “outstanding National resource water” or “outstanding Tribal resource water”]** as described in paragraph (g)(4).

* + 1. The Tribe shall issue a public notice regarding the decision to assign a water as an **[insert “outstanding National resource water” or “outstanding Tribal resource water”]**. The Tribe will maintain a comprehensive list of the reservation waters that have been assigned as an **[insert “outstanding National resource waters” or “outstanding Tribal resource waters”]** consistent with paragraph (f)(3) at **[location of list]**.

**[The last sentence of the following paragraph (g)(4)(iii) allows for short-term, temporary degradation of outstanding National/Tribal 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. The Tribe may allow short-term, temporary water quality degradation in an **[insert “outstanding National resource waters” or “outstanding Tribal resource water”]** only if the short-term, temporary degradation is limited to the shortest possible time, does not impact existing uses, and does not alter the essential or special characteristics that make the reservation water an **[insert “outstanding National resource water” or “outstanding Tribal resource water”]**. Short-term shall be considered any period that is measured in the context of weeks to months, not years.

**[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 (c) through (g) will apply to any wetlands in the reservation].**

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

* 1. *Definition:* 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) 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 and faunal diversity and 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.[[5]](#footnote-6)
	2. *Narrative* *criteria*. All waters included in paragraph (a) that constitute wetlands, as defined by the Cowardin classification scheme, shall maintain the biological, physical, and chemical conditions of reference wetlands[[6]](#footnote-7), 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 and shape of the wetland; soil type horizon structure; water currents; erosion and sedimentation patterns; water levels or elevations; and water temperature variations.
	3. *Numeric criteria*. For all waters included in paragraph (a) that constitute wetlands, numeric criteria identified in Table 1 (excluding alkalinity, dissolved oxygen, pH, sulfide, 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; and
		3. For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs (e)(1)(ii) and (iii), the applicable criteria are the more stringent of the freshwater or saltwater criteria.

For all waters included in paragraph (a) that constitute wetlands, “Organism Only” numeric criteria identified in Table 5 apply.

* 1. *Recreational water quality criteria.* For all waters included in paragraph (a) 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.

Additionally, the concentration of total microcystins shall not exceed 8 µg/L in more than three ten-day periods per recreational season, for more than one recreational season, over a five-year period and the concentration of total cylindrospermopsin shall not exceed 15 µg/L in more than three ten-day periods per recreational season, for more than one recreational season, over a five-year period.

* 1. *Antidegradation requirements.* For waters designated in paragraph (a) 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 (f) and (g);
		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 (f) and (g); 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 (f) and (g).

**[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 (d) 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 authorizing 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.

**[EPA’s regulation allows for adoption of WQS variances 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 authorized Tribe, listed in paragraph (l), submitted by the authorized Tribe to EPA, and approved by EPA, in accordance with 40 CFR part 131.]**

**[While a WQS variance authorizing provision is not required by EPA regulations in order for the Tribe to subsequently adopt WQS variances, the Tribe may choose to adopt one. If the Tribe wishes to include a WQS Variance authorizing provision, the following is EPA’s recommended text. With or without a WQS variance authorizing provision, the Tribe may adopt WQS variances at its discretion. If the following text is included, the authorized Tribe may also want to list the definition of a WQS variance, as defined in 40 CFR 131.3(o), in paragraph (b) of this template: “Water quality standards variance is a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the WQS variance.”]**

# *WQS variance authorizing provision*

The Tribe may consider issuing WQS variances per this section. Any WQS variances adopted subsequent to the adoption of this section must be consistent with the regulation at 40 CFR 131.14 and included in paragraph (l). A WQS variance is not effective for CWA purposes and thus cannot be implemented for purposes of NPDES permitting or CWA section 401 certification until EPA has approved it under CWA section 303(c).

**[Paragraph (l) below is reserved for use to list any waterbody-specific designated uses that differ from those in paragraph (c), any waterbody-specific water quality criteria that differ from those in paragraphs (d) and (e), and any WQS variances adopted under paragraph (k). 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 1. Aquatic life criteria

[Table 1 includes a number of footnotes that provide options for the Tribe to consider in adapting criteria for its waters. EPA recommends that the Tribe coordinate with the EPA Regional Office to make appropriate decisions on those options. The Tribe should then revise the footnotes as appropriate for adoption into the WQS.]

| A | BFreshwater | CSaltwater |
| --- | --- | --- |
| Compound | CAS Number | Criterion Maximum Concentration (CMC) (µg/L)B1 | Criterion Continuous Concentration (CCC)(µg/L)B2 | Criterion Maximum Concentration (CMC)(µg/L)C1 | Criterion Continuous Concentration (CCC)(µg/L)C2 |
| **Acrolein** | 107028 | 3 | 3 | - | - |
| **Aldrina** | 309002 | 1.5 | - | 0.65 | - |
| **Alkalinityb** |   | - | 20000 | - | - |
| **alpha-Endosulfana,c** | 959988 | 0.11 | 0.056 | 0.017 | 0.0087 |
| **Aluminum pH 5.0 – 10.5** | 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 established in EPA’s Final Aquatic Life Ambient Water Quality Criteria for Aluminum 2018 (EPA 822–R–18–001). Where required by federal regulations, measurements of total recoverable aluminum shall be used. *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 variability, including during conditions when aluminum is most toxic.* |
| **Ammonia** | 7664417 | See Table 4 |
| **Arsenicd,e** | 7440382 | 340 | 150 | 69 | 36 |
| **beta-Endosulfana,c** | 33213659 | 0.11 | 0.056 | 0.017 | 0.0087 |
| **Cadmiume** | 7440439 | See Table 1b | 33 | 7.9 |
| **Carbaryl** | 63252 | 2.1 | 2.1 | 1.6 | - |
| **Chlordanea** | 57749 | 1.2 | 0.0043 | 0.045 | 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)e** | 16065831 | See Table 1b | - | - |
| **Chromium (VI)e** | 18540299 | 16 | 11 | 1100 | 50 |
| **Coppere** | 7440508 | See Table 2 | 4.8 | 3.1 |
| **Cyanideg** | 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 | 0.056 | 0.355a | 0.0019 |
| **Endrin** | 72208 | 0.086 | 0.036h | 0.037 | 0.0023h |
| **gamma-BHC (Lindane)** | 58899 | 0.95 | -  | 0.08a | - |
| **Guthion** | 86500 | - | 0.01 | - | 0.01 |
| **Heptachlora** | 76448 | 0.26 | 0.0038 | 0.027 | 0.0036 |
| **Heptachlor Epoxidea,i** | 1024573 | 0.26 | 0.0038 | 0.027 | 0.0036 |
| **Irone** | 7439896 | - | 1000 | - | - |
| **Leade** | 7439921 | See Table 1b | 210 | 8.1 |
| **Malathion** | 121755 | - | 0.1 | - | 0.1 |
| **Mercurye,j** | 7439976 | 1.4 | - | 1.8 | 0.94 |
| **Methoxychlor** | 72435 | - | 0.03 | - | 0.03 |
| **Mirex** | 2385855 | - | 0.001 | - | 0.001 |
| **Nickele** | 7440020 | See Table 1b | 74 | 8.2 |
| **Nonylphenol** | 84852153 | 28 | 6.6 | 7 | 1.7 |
| **Oxygen, Dissolvedk** | 7782447 |  |  |  |  |
| **Parathion** | 56382 | 0.065 | 0.013 | - | - |
| **Pentachlorophenol** | 87865 | 19l | 15l | 13 | 7.9 |
| **Perfluorooctane Suflonate (PFOS)** | 45298906; 1763231; 2795393; 56773423; 4021470; 29457725 | 71 | 0.25 | 550q |  |
| **Perfluorooctanoic Acid (PFOA)** | 45285516; 335671; 3825261 | 3100 | 100 | 7000q |  |
| **Perfluorobutanoic acid (PFBA)** | 375224; 45048622; 2218544 | 5300q |  |  |  |
| **Perfluorohexanoic acid (PFHxA)** | 307244; 92612527 | 4800q |  |  |  |
| **Perfluorononanoic acid (PFNA)** | 375951 | 650q |  |  |  |
| **Perfluorodecanoic acid (PFDA)** | 335762 | 500q |  |  |  |
| **Perfluorobutanesulfonic acid (PFBS)** | 375735; 108427527; 29420493 | 5000q |  |  |  |
| **Perfluorohexanesulfonic acid (PFHxS)** | 355464; 108427538; 3871996; 82382125 | 210q |  |  |  |
| **Hexadecafluoro-2-decenoic acid (8:2 FTUCA)** | 70887842 | 37q |  |  |  |
| **Pentadecafluorodecanoic acid (7:3 FTCA)** | 812704 | 12q |  |  |  |
| **pHm** |   | - | 6.5 – 9 | - | 6.5 – 8.5 |
| **Polychlorinated Biphenyls (PCBs)** |  |  | 0.014 |  | 0.03 |
| **Seleniume** | 7782492 | See Table 3 | 290 | 71 |
| **Silvera,e,o** | 7440224 | See Table 1b | 0.95 | - |
| **Sulfide-Hydrogen Sulfide** | 7783064 | - | 2 | - | 2 |
| **Toxaphene** | 8001352 | 0.73 | 0.0002 | 0.21 | 0.0002 |
| **Tributyltin (TBT)** |   | 0.46 | 0.072 | 0.42 | 0.0074 |
| **Zince** | 7440666 | See Table 1b | 90 | 81 |
| **4,4'-DDTap** | 50293 | 0.55 | 0.001 | .065 | 0.001 |

**Notes to Table 1**

1. The CMC is the highest allowable one-hour average instream concentration of a pollutant and is not to be exceeded more than once every three years. Except where noted otherwise, the CCC is the highest allowable four-day average instream concentration of a pollutant and is not to be exceeded more than once every three years.

2. Freshwater and saltwater aquatic life criteria apply as specified in paragraph (e)(1).

3. 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. The Chemical Abstracts Services (CAS) registry numbers provide a unique identification for each chemical.

**Footnotes to Table 1:**

a. These criteria are based on the [1980 criteria](https://www.epa.gov/sites/default/files/2015-10/documents/45fedreg7.pdf), which used different Minimum Data Requirements and derivation procedures from the [1985 Guidelines](https://www.epa.gov/sites/default/files/2018-12/documents/guidelines-ambient-al-advisory-1985.pdf). The CMC derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. Therefore, in order to treat these in a similar manner to more recent criteria developed using the 1985 Guidelines, the CMC values given are the result of dividing 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 is the natural alkalinity of the water in question. Where natural alkalinity is > 20 mg/L, the criterion cannot be lower than 25% of the natural level, or 20 mg/L whichever is higher.

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

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

e. Freshwater and saltwater criteria for these 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](https://www.epa.gov/sites/default/files/2019-03/documents/metals-criteria-interpret-aqlife-memo.pdf). See Table 1a for conversion factors to convert between total recoverable and dissolved measurements.

g. These water quality criteria are expressed as µg free cyanide per liter.

h. 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.

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

j. 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. 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.

k. For fresh waters, see [Quality Criteria for Water, 1986 ("Gold Book")](https://www.epa.gov/sites/default/files/2018-10/documents/quality-criteria-water-1986.pdf). 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://www.epa.gov/sites/default/files/2018-10/documents/ambient-al-wqc-dissolved-oxygen-cape-code.pdf)

l. 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

m. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH may 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. The result of the equation given in Table 1b for silver must be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

p. This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

q. These aquatic life benchmarks, developed under 304(a)(2) of the CWA, are informational values that the EPA generates when there are limited high quality toxicity data available and data gaps exist for several families of aquatic organisms. Aquatic life benchmarks provide information that Tribes may consider in their water quality protection programs. EPA recommends Tribes coordinate with the relevant EPA Regional Office to determine the appropriateness of adopting these values for Tribal waters.

Table 1a: Conversion Factors for Dissolved Metals Criteria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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

[As a result of an August 2023 court decision (Center for Biological Diversity v. EPA et al., No cv-22-00138-TUC-JCH (D. Ariz, Aug. 18, 2023); appeal pending in Center for Biological Diversity v. U.S. EPA et al., 9th Cir. No. 23-2946), the chronic cadmium criterion reflects the EPA's 2001 national recommended chronic freshwater cadmium aquatic life criterion. EPA recommends Tribes coordinate with the relevant EPA Regional Office to determine the appropriate freshwater chronic cadmium criterion to adopt for Tribal waters.]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Chemical | mA | bA | mC | bC | Freshwater Conversion Factors (CF) |
| **CMC** | **CCC** |
| Cadmium | 0.9789 | -3.866 | 0.7409 | -4.719 | 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 are calculated using the following equations:

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

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

Table 2. 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 Tribe shall use the 10th percentile values from publicly available peer-reviewed datasets such as the US Geological Survey National Waters Information System (NWIS) and EPA’s Storage and Retrieval Data Warehouse.  |
| 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 3. 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, except as noted in footnote d below. c Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured, except as noted in footnote d below. d Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. When selenium inputs are increasing, water column values are the applicable criterion element in the absence of steady-state condition fish tissue data. e Where WQC30-dayis the water column monthly element for either lentic or lotic waters; Cbkgrndis 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). f Fish tissue data provide instantaneous point measurements that reflect integrative accumulation of selenium over time and space in fish population(s) at a given site.  |

**[EPA’s 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater* (**[**EPA 822-R-13-001**](https://www.epa.gov/sites/production/files/2015-08/documents/aquatic-life-ambient-water-quality-criteria-for-ammonia-freshwater-2013.pdf)**) includes three tables which present calculated ammonia criteria values for combinations of pH and temperature. Page 44 of that document has acute values for water bodies where fish species of the genus Oncorhynchus are present. Page 45 of that document has acute values for water bodies where Oncorhynchus species are absent. Page 49 of that document has chronic values that are protective of waters bodies with or without Oncorhynchus spp. Some Indian Tribes and states have adopted these tables in their WQS, in addition to, or in place of, the equations presented in Table 4 of this template.]**

Table 4. Ammonia Aquatic Life Criteria for Fresh Waters

|  mg Total Ammonia Nitrogen (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 5. Human Health Criteria**

**[After developing the Tribe’s human health criteria using the** [***Human Health Criteria Calculator***](https://epa.gov/wqs-tech/water-quality-standards-tools-tribes)**, press the blue button labeled “Copy Table and Footnotes,” then paste the contents here**]

Table 6. Recreational Water Quality Criteria

**[When inserting the table below, the Tribe should decide whether to use criteria set A or B, and whether to include both enterococci and *E. coli* criteria. The choice of A or B is governed by the Tribe’s preference for the illness rate to allow. EPA believes both criteria sets A and B below are protective of the designated use of primary contact recreation. EPA recommends that Tribes make a risk management decision regarding the illness rate to determine which set of criteria values (both a GM and related STV) to adopt into their WQS and that this risk management decision should be applied to all waters under tribal jurisdiction that are designated for recreation. In order to ensure downstream protection of estuarine and marine swimming waters, upstream inland waters should have WQS based on the same illness rate as those downstream waters. Adopting criteria based on one illness rate for some waters and criteria based on the other illness rate for remaining waters is not recommended. Note that either enterococci or E. coli can be selected for fresh waters, as adopting one of the indicators is sufficient; only enterococci can be selected for marine waters.]**

| **Criteria Elements** | **A** | **B** |
| --- | --- | --- |
| Estimated Illiness Rate:32 per 1,000 primary contact recreators | Estimated Illiness Rate:36 per 1,000 primary contact recreators |
| 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 water) | 30 | 110 | 35 | 130 |
| *E. coli*(fresh water) | 100 | 320 | 126 | 410 |
| **a** *EPA Method 1600*, or another equivalent method, shall be used to measure culturable enterococci. *EPA Method 1603* (U.S. EPA, 2002b), or another equivalent method, shall be used to measure *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. |

Table 7. 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:**

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 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 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. Authorized Tribes are those that EPA has found eligible to be treated in a similar manner as a state for the purposes of administering water quality standards under the Clean Water Act. [↑](#footnote-ref-2)
2. As an alternative, a Tribe could adopt WQS solely under tribal law. This may have benefits in some situations. Because the WQS would not be effective for CWA purposes, however, they would not be the basis for the full range of CWA regulatory mechanisms that are linked to CWA-effective WQS. [↑](#footnote-ref-3)
3. 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-4)
4. 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://www.epa.gov/sites/default/files/2015-01/documents/fish-consumption-rates-2014.pdf). 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/sites/default/files/2015-12/documents/hh-fish-consumption-faqs.pdf) [↑](#footnote-ref-5)
5. These wetlands-specific designated uses represent the uses specified in 101(a)(2) of the Clean Water Act. [↑](#footnote-ref-6)
6. 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-7)