

WSR 22-07-095

PERMANENT RULES

DEPARTMENT OF ECOLOGY

[Order 19-05—Filed March 22, 2022, 11:57 a.m., effective April 22, 2022]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The Washington state department of ecology revised chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington. We made the following revisions in this rule making:

- Added definitions to WAC 173-201A-020.
- Amended WAC 173-201A-200 (1)(d), aquatic life dissolved oxygen (D.O.) criteria for fresh water for aquatic life use classes that protect salmon spawning.
- Added a subsection WAC 173-201A-200 (1)(h) Aquatic life fine sediment criteria.
- Minor, nonsubstantive edits to rule language in WAC 173-201A-200 to correct typographical and formatting errors as recommended by the Washington office of the code reviser.

We revised aquatic life criteria to provide additional water quality and habitat protection for early life stages of salmonids, including salmon, steelhead, and trout, and their spawning gravels. These changes include:

- Revising the existing D.O. criteria to better protect early life stages of salmonids in gravel beds.
- Adding a D.O. requirement in freshwater gravel beds to provide a more direct measure of D.O. levels where early life stages live.
- Adding a percent saturation criteria to account for environmental factors that cause low D.O. levels such as high water temperature and elevation.
- Adding a narrative fine sediment criterion to provide additional protection for incubating salmonid eggs and larvae.

Citation of Rules Affected by this Order: Amending chapter 173-201A WAC.

Statutory Authority for Adoption: RCW 90.48.035 provides clear and direct authority to ecology to revise the surface water quality standards.

Other Authority: 40 C.F.R. 131.20 requires states and tribes (with primacy for clean water actions) to periodically review and update the water quality standards.

Adopted under notice filed as WSR 21-21-080 on October 18, 2021.

Changes Other than Editing from Proposed to Adopted Version:

There are some differences between the text of the proposed rule filed on October 18, 2021, and the text of the adopted rule filed on March 22, 2022. Ecology made these changes for all or some of the following reasons:

- In response to comments we received.
- To ensure clarity and consistency.
- To meet the intent of the authorizing statute.

Below, we have described the changes between the proposed and adopted rule language, and ecology's reasons for making them. For full details on the changes, including a comparison of proposed rule language and final rule language, see the concise explanatory statement [contact agency for link].

Change to WAC 173-201A-020: Added language to the proposed definition for "intragravel dissolved oxygen" to clarify that the definition pertains to D.O. and not atmospheric oxygen.

Change to WAC 173-201A-020: Deleted language from the proposed definition of "spatial median" in order to generalize the definition, making it more applicable to all water quality standards in the future.

Changes to WAC 173-201A-200 (1) (d): Language was edited to clarify that compliance may be demonstrated through either the water column or intragravel D.O. criteria.

Changes to the format of WAC 173-201A-200, Table 200 (1) (d): Changes were made to the format of the proposed table, which included an additional column for intragravel D.O. criteria that would apply to those use categories that are associated with salmonid spawning. We received feedback that the proposed table was confusing and difficult to follow. To simplify the table, formatting changes were made to remove the final column containing the intragravel D.O. criteria, placing the information in the note to the table. Changes to the table also included identifying where the intragravel [D.O.] criteria apply by placing an asterisk beside each of the applicable aquatic life use categories associated with salmonid spawning habitat protection.

Changes to the note in WAC 173-201A-200, Table 200 (1) (d): In order to increase readability, the intragravel D.O. one-day minimum criteria in the column of proposed Table 200 (1) (d) was moved down to the note below the table. In addition to moving intragravel D.O. criteria into the note, we added an associated minimum water column concentration of 9 mg/L (as a one-day minimum) that must be met when intragravel D.O. is measured for compliance purposes. This change was based on comments received, in order to ensure full protection for water column dwelling salmonids at other life stages. The note was further edited by moving language that was proposed to be added to WAC 173-201A-200 (1) (d) (iv) (C) to the last sentence in the note, to provide more clarity on sampling needed for intragravel D.O. measurements and to make the information easier to find.

Changes to WAC 173-201A-200, Table 200 (1) (d): Changes were made to the water column percent saturation component that apply to the different use categories found in Table 200 (1) (d). These changes were made based on comments received and to correct what uses the percent saturation component of the water column criteria apply. Changes to percent saturation:

1. The percent saturation component for the core summer salmonid habitat use was changed from 90 percent to 95 percent. We received comments questioning whether the 90 percent saturation component for the core summer salmonid habitat use category in the proposed Table 200 (1) (d) was protective of early life stages during the summer months. After review of the scientific literature and discussion with staff scientists, we agreed that the core summer salmonid habitat use should be changed to 95 percent because early life stages are present during the summer months for water bodies assigned this use. The 90 percent saturation coupled with the maximum temperature criteria for the core summer salmonid habitat use (16°C or 13°C) would not provide full protection for spawning or early life stages. The 95 percent saturation criterion provides equivalent protection compared with the protective concentration-based D.O. criterion of 10 mg/L.

2. Changes were made from the proposed rule language to remove the percent saturation component from the salmonid rearing and migration only and indigenous warm water species use categories. The pro-

posed rule inadvertently included a percent saturation for these uses. However, the focus of this rule making is on protection of early life stages of salmonids. These two uses do not include the protection of early life stages of salmonids as it relates to spawning and emergence; thus, the percent saturation component was removed in the final language.

Changes to WAC 173-201A-200 (1) (d) (iv): Language proposed to be added to this subsection was moved to the last sentence in the note of Table 200 (1) (d) to provide better clarity on sampling needed for in-tragavel D.O. measurements and to make the information easier to find.

Changes to WAC 173-201A-200 (1) (h): Language for the proposed narrative fine sediment criteria was changed as a result of comments received and to provide clarification on the intent of the narrative criteria. The narrative criteria was divided into two subsections for easier reading. We received comments questioning whether there is available science to determine relationships between fine sediment and adverse effects on aquatic life. We added "excess" to the text to clarify that current methods to determine impairments focus on statistically or biologically significant changes in fine sediment-based metrics. This change was needed to clarify that small undetectable changes in fine sediment may not be identified in a fine sediment assessment due to natural fluctuations in environmental conditions of a water body. We deleted language associated with "anthropogenic sources at levels that cause adverse effects on aquatic life" because relationships between fine sediment-based parameters and adverse effects on aquatic life have not been established by the available science. We have revised the text to link excess fine sediment to impaired designated uses. We revised the text to better align with the intent of the rule making. Language in the proposed rule describing the use of reference sites to demonstrate compliance with the narrative fine sediment criteria was edited to provide clarity on the intent of how reference site values should be used. We revised the language to be more inclusive of the multiple methods that may be used to assess a fine sediment impairment and to provide clarity on what similarities should be considered for reference locations.

A final cost-benefit analysis is available by contacting Susan Braley, Department of Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504, phone 360-407-6600, people with speech disability may call TTY at 877-833-6341, people with impaired hearing may call Washington relay service at 711, email swqs@ecy.wa.gov, website <https://apps.ecology.wa.gov/publications/SummaryPages/2210006.html>.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 2, Repealed 0; Federal Rules or Standards: New 0, Amended 2, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 1, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 2, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 2, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 22, 2022.

Laura J. Watson
Director

OTS-3276.5

AMENDATORY SECTION (Amending WSR 21-19-097, filed 9/17/21, effective 10/18/21)

WAC 173-201A-020 Definitions. The following definitions are intended to facilitate the use of chapter 173-201A WAC:

"1-DMax" or "1-day maximum temperature" is the highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of ((~~thirty~~) 30) minutes or less.

"7-DADMax" or "7-day average of the daily maximum temperatures" is the arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

"Action value" means a total phosphorus (TP) value established at the upper limit of the trophic states in each ecoregion (see Table 230(1)). Exceedance of an action value indicates that a problem is suspected. A lake-specific study may be needed to confirm if a nutrient problem exists.

"Actions" refers broadly to any human projects or activities.

"Acute conditions" are changes in the physical, chemical, or biologic environment which are expected or demonstrated to result in injury or death to an organism as a result of short-term exposure to the substance or detrimental environmental condition.

"AKART" is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART shall represent the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge. The concept of AKART applies to both point and nonpoint sources of pollution. The term "best management practices," typically applied to nonpoint source pollution controls is considered a subset of the AKART requirement.

"Ambient water quality" refers to the conditions and properties of a surface water of the state as determined by the results of water samples, measurements, or observations.

"Background" means the biological, chemical, and physical conditions of a water body, outside the area of influence of the discharge under consideration. Background sampling locations in an enforcement action would be up-gradient or outside the area of influence of the discharge. If several discharges to any water body exist, and enforcement action is being taken for possible violations to the standards, background sampling would be undertaken immediately up-gradient from each discharge.

"Best management practices (BMP)" means physical, structural, and/or managerial practices approved by the department that, when used singularly or in combination, prevent or reduce pollutant discharges.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure and function and other direct measurements of resident biota in surface waters.

"Bog" means those wetlands that are acidic, peat forming, and whose primary water source is precipitation, with little, if any, outflow.

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on the United States Environmental Protection Agency lists of A (known human) and B (probable human) carcinogens, and any substance which causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogenic Risk Assessment as set forth in 51 FR 33992 et seq. as presently published or as subsequently amended or republished.

"Chronic conditions" are changes in the physical, chemical, or biologic environment which are expected or demonstrated to result in injury or death to an organism as a result of repeated or constant exposure over an extended period of time to a substance or detrimental environmental condition.

"Combined sewer overflow (CSO) treatment plant" is a facility that provides at-site treatment as provided for in chapter 173-245 WAC. A CSO treatment plant is a specific facility identified in a department-approved CSO reduction plan (long-term control plan) that is designed, operated and controlled by a municipal utility to capture and treat excess combined sanitary sewage and stormwater from a combined sewer system.

"Compliance schedule" or **"schedule of compliance"** is a schedule of remedial measures included in a permit or an order, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with an effluent limit, other prohibition, or standard.

"Created wetlands" means those wetlands intentionally created from nonwetland sites to produce or replace natural wetland habitat.

"Critical condition" is when the physical, chemical, and biological characteristics of the receiving water environment interact with the effluent to produce the greatest potential adverse impact on aquatic biota and existing or designated water uses. For steady-state discharges to riverine systems the critical condition may be assumed to be equal to the 7Q10 flow event unless determined otherwise by the department.

"Damage to the ecosystem" means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the department reasonably concludes may interfere in the health or survival success or natural structure of such populations. This stress may be due to, but is not limited to, alteration in habitat or changes in water temperature, chemistry, or turbidity, and shall consider the potential build up of discharge constituents or temporal increases in habitat alteration which may create such stress in the long term.

"Department" means the state of Washington department of ecology.

"Designated uses" are those uses specified in this chapter for each water body or segment, regardless of whether or not the uses are currently attained.

"**Director**" means the director of the state of Washington department of ecology.

"**Drainage ditch**" means that portion of a designed and constructed conveyance system that serves the purpose of transporting surplus water; this may include natural water courses or channels incorporated in the system design, but does not include the area adjacent to the water course or channel.

"**Ecoregions**" are defined using EPAs *Ecoregions of the Pacific Northwest* Document No. 600/3-86/033 July 1986 by Omernik and Gallant.

"**Enterococci**" refers to a subgroup of fecal streptococci that includes *S. faecalis*, *S. faecium*, *S. gallinarum*, and *S. avium*. The enterococci are differentiated from other streptococci by their ability to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C.

"**E. coli**" is a bacterium in the family Enterobacteriaceae named *Escherichia coli* and is a common inhabitant of the intestinal tract of warm-blooded animals, and its presence in water samples is an indication of fecal pollution and the possible presence of enteric pathogens.

"**Existing uses**" means those uses actually attained in fresh or marine waters on or after November 28, 1975, whether or not they are designated uses. Introduced species that are not native to Washington, and put-and-take fisheries comprised of nonself-replicating introduced native species, do not need to receive full support as an existing use.

"**Fecal coliform**" means that portion of the coliform group which is present in the intestinal tracts and feces of warm-blooded animals as detected by the product of acid or gas from lactose in a suitable culture medium within (~~twenty-four~~) 24 hours at 44.5 plus or minus 0.2 degrees Celsius.

"**Geometric mean**" means either the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

"**Ground water exchange**" means the discharge and recharge of ground water to a surface water. Discharge is inflow from an aquifer, seeps or springs that increases the available supply of surface water. Recharge is outflow downgradient to an aquifer or downstream to surface water for base flow maintenance. Exchange may include ground water discharge in one season followed by recharge later in the year.

"**Hardness**" means a measure of the calcium and magnesium salts present in water. For purposes of this chapter, hardness is measured in milligrams per liter and expressed as calcium carbonate (CaCO₃).

"**Intake credit**" is a procedure for establishing effluent limits that takes into account the amount of a pollutant that is present in waters of the state, at the time water is removed from the same body of water by the discharger or other facility supplying the discharger with intake water.

"**Intragravel dissolved oxygen**" means the concentration of dissolved oxygen in the spaces between sediment particles in a streambed.

"**Irrigation ditch**" means that portion of a designed and constructed conveyance system that serves the purpose of transporting irrigation water from its supply source to its place of use; this may include natural water courses or channels incorporated in the system design, but does not include the area adjacent to the water course or channel.

"**Lakes**" shall be distinguished from riverine systems as being water bodies, including reservoirs, with a mean detention time of greater than (~~fifteen~~) 15 days.

"**Lake-specific study**" means a study intended to quantify existing nutrient concentrations, determine existing characteristic uses for lake class waters, and potential lake uses. The study determines how to protect these uses and if any uses are lost or impaired because of nutrients, algae, or aquatic plants. An appropriate study must recommend a criterion for total phosphorus (TP), total nitrogen (TN) in µg/l, or other nutrient that impairs characteristic uses by causing excessive algae blooms or aquatic plant growth.

"**Mean detention time**" means the time obtained by dividing a reservoir's mean annual minimum total storage by the (~~thirty-day ten-year~~) 30-day 10-year low-flow from the reservoir.

"**Migration**" or "**translocation**" means any natural movement of an organism or community of organisms from one locality to another locality.

"**Migration for naturally limited waters**" is a subcategory of the aquatic life use of salmonid rearing and migration that is limited by the natural physical, chemical, or biological characteristics of the water body.

"**Mixing zone**" means that portion of a water body adjacent to an effluent outfall where mixing results in the dilution of the effluent with the receiving water. Water quality criteria may be exceeded in a mixing zone as conditioned and provided for in WAC 173-201A-400.

"**Natural conditions**" or "**natural background levels**" means surface water quality that was present before any human-caused pollution. When estimating natural conditions in the headwaters of a disturbed watershed it may be necessary to use the less disturbed conditions of a neighboring or similar watershed as a reference condition. (See also WAC 173-201A-260(1).)

"**New or expanded actions**" mean human actions that occur or are regulated for the first time, or human actions expanded such that they result in an increase in pollution, after July 1, 2003, for the purpose of applying this chapter only.

"**Nonpoint source**" means pollution that enters any waters of the state from any dispersed land-based or water-based activities including, but not limited to, atmospheric deposition; surface water runoff from agricultural lands, urban areas, or forest lands; subsurface or underground sources; or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System program.

"**Permit**" means a document issued pursuant to chapter 90.48 RCW specifying the waste treatment and control requirements and waste discharge conditions.

"**pH**" means the negative logarithm of the hydrogen ion concentration.

"**Pollution**" means such contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish, or other aquatic life.

"Primary contact recreation" means activities where a person would have direct contact with water to the point of complete submergence including, but not limited to, skin diving, swimming, and water skiing.

"Salmonid spawning, rearing, and migration for naturally limited waters" is a subcategory of the aquatic life use of salmonid spawning, rearing, and migration that is limited by the natural physical, chemical, or biological characteristics of the water body.

"Shoreline stabilization" means the anchoring of soil at the water's edge, or in shallow water, by fibrous plant root complexes; this may include long-term accretion of sediment or peat, along with shoreline progradation in such areas.

"Spatial median" is the middle value of multiple ranked measurements taken within the sampling area.

"Stormwater" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

"Stormwater attenuation" means the process by which peak flows from precipitation are reduced and runoff velocities are slowed as a result of passing through a surface water body.

"Surface waters of the state" includes lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands and all other surface waters and water courses within the jurisdiction of the state of Washington.

"Temperature" means water temperature expressed in degrees Celsius ($^{\circ}\text{C}$).

"Treatment wetlands" means those wetlands intentionally constructed on nonwetland sites and managed for the primary purpose of wastewater or stormwater treatment. Treatment wetlands are considered part of a collection and treatment system, and generally are not subject to the criteria of this chapter.

"Trophic state" means a classification of the productivity of a lake ecosystem. Lake productivity depends on the amount of biologically available nutrients in water and sediments and may be based on total phosphorus (TP). Secchi depth and chlorophyll-a measurements may be used to improve the trophic state classification of a lake. Trophic states used in this rule include, from least to most nutrient rich, ultra-oligotrophic, oligotrophic, lower mesotrophic, upper mesotrophic, and eutrophic.

"Turbidity" means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

"Upwelling" means the natural process along Washington's Pacific Coast where the summer prevailing northerly winds produce a seaward transport of surface water. Cold, deeper more saline waters rich in nutrients and low in dissolved oxygen, rise to replace the surface water. The cold oxygen deficient water enters Puget Sound and other coastal estuaries at depth where it displaces the existing deep water and eventually rises to replace the surface water. Such surface water replacement results in an overall increase in salinity and nutrients accompanied by a depression in dissolved oxygen. Localized upwelling of the deeper water of Puget Sound can occur year-round under influence of tidal currents, winds, and geomorphic features.

"USEPA" means the United States Environmental Protection Agency.

"Variance" is a time-limited designated use and criterion as defined in 40 C.F.R. 131.3, and must be adopted by rule.

"Wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands. (Water bodies not included in the definition of wetlands as well as those mentioned in the definition are still waters of the state.)

"Wildlife habitat" means waters of the state used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

[Statutory Authority: RCW 90.48.035 and 40 C.F.R. 131.20. WSR 21-19-097 (Order 20-01), § 173-201A-020, filed 9/17/21, effective 10/18/21; WSR 19-04-007 (Order 16-07), § 173-201A-020, filed 1/23/19, effective 2/23/19. Statutory Authority: RCW 90.48.035, 90.48.605 and section 303(c) of the Federal Water Pollution Control Act (Clean Water Act), C.F.R. 40, C.F.R. 131. WSR 16-16-095 (Order 12-03), § 173-201A-020, filed 8/1/16, effective 9/1/16. Statutory Authority: RCW 90.48.035. WSR 11-09-090 (Order 10-10), § 173-201A-020, filed 4/20/11, effective 5/21/11. Statutory Authority: Chapters 90.48 and 90.54 RCW. WSR 03-14-129 (Order 02-14), § 173-201A-020, filed 7/1/03, effective 8/1/03. Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 131. WSR 97-23-064 (Order 94-19), § 173-201A-020, filed 11/18/97, effective 12/19/97. Statutory Authority: Chapter 90.48 RCW. WSR 92-24-037 (Order 92-29), § 173-201A-020, filed 11/25/92, effective 12/26/92.]

AMENDATORY SECTION (Amending WSR 20-02-091, filed 12/30/19, effective 1/30/20)

WAC 173-201A-200 Fresh water designated uses and criteria. The following uses are designated for protection in fresh surface waters of the state. Use designations for water bodies are listed in WAC 173-201A-600 and 173-201A-602.

(1) **Aquatic life uses.** Aquatic life uses are designated based on the presence of, or the intent to provide protection for, the key uses identified in (a) of this subsection. It is required that all indigenous fish and nonfish aquatic species be protected in waters of the state in addition to the key species described below.

(a) The categories for aquatic life uses are:

(i) **Char spawning and rearing.** The key identifying characteristics of this use are spawning or early juvenile rearing by native char (bull trout and Dolly Varden), or use by other aquatic species similarly dependent on such cold water. Other common characteristic aquatic life uses for waters in this category include summer foraging and migration of native char; and spawning, rearing, and migration by other salmonid species.

(ii) **Core summer salmonid habitat.** The key identifying characteristics of this use are summer (June 15 - September 15) salmonid spawning or emergence, or adult holding; use as important summer rearing habitat by one or more salmonids; or foraging by adult and subadult native char. Other common characteristic aquatic life uses for waters in this category include spawning outside of the summer season, rearing, and migration by salmonids.

(iii) **Salmonid spawning, rearing, and migration.** The key identifying characteristic of this use is salmon or trout spawning and emergence that only occurs outside of the summer season (September 16 - June 14). Other common characteristic aquatic life uses for waters in this category include rearing and migration by salmonids.

(iv) **Salmonid rearing and migration only.** The key identifying characteristic of this use is use only for rearing or migration by salmonids (not used for spawning).

(v) **~~(Non-anadromous)~~ Nonanadromous interior redband trout.** For the protection of waters where the only trout species is a ~~((non-anadromous))~~ nonanadromous form of self-reproducing interior redband trout (*O. ~~((mykiss)) mykiss~~*), and other associated aquatic life.

(vi) **Indigenous warm water species.** For the protection of waters where the dominant species under natural conditions would be temperature tolerant indigenous nonsalmonid species. Examples include dace, redband shiner, chiselmouth, sucker, and northern pikeminnow.

(b) **General criteria.** General criteria that apply to all aquatic life fresh water uses are described in WAC 173-201A-260 (2)(a) and (b), and are for:

- (i) Toxic, radioactive, and deleterious materials; and
- (ii) Aesthetic values.

(c) **Aquatic life temperature criteria.** Except where noted, water temperature is measured by the 7-day average of the daily maximum temperatures (7-DADMax). Table 200 (1)(c) lists the temperature criteria for each of the aquatic life use categories.

**Table 200 (1)(c)
Aquatic Life Temperature Criteria in Fresh Water**

Category	Highest 7-DADMax
Char Spawning and Rearing*	12°C (53.6°F)
Core Summer Salmonid Habitat*	16°C (60.8°F)
Salmonid Spawning, Rearing, and Migration*	17.5°C (63.5°F)
Salmonid Rearing and Migration Only	17.5°C (63.5°F)
((Non-anadromous)) <u>Nonanadromous</u> Interior Redband Trout	18°C (64.4°F)
Indigenous Warm Water Species	20°C (68°F)

*Note: Some streams have a more stringent temperature criterion that is applied seasonally to further protect salmonid spawning and egg incubation. See ~~((e)(B)(iv)))~~ (c)(iv) of this subsection.

(i) When a water body's temperature is warmer than the criteria in Table 200 (1)(c) (or within 0.3°C (0.54°F) of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C (0.54°F).

(ii) When the background condition of the water is cooler than the criteria in Table 200 (1)(c), incremental temperature increases resulting from individual point source activities must not exceed the numeric criteria and must not, at any time, exceed $28/(T+7)$ as measured at the edge of a mixing zone boundary (where "T" represents the background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge).

(iii) Temperatures are not to exceed the criteria at a probability frequency of more than once every (~~ten~~) 10 years on average.

(iv) Spawning and incubation protection. The department has identified waterbodies, or portions thereof, which require special protection for spawning and incubation in ecology publication 06-10-038 (also available on ecology's website at www.ecology.wa.gov). This publication indicates where and when the following criteria are to be applied to protect the reproduction of native char, salmon, and trout:

- Maximum 7-DADMax temperatures of 9°C (48.2°F) at the initiation of spawning and at fry emergence for char; and

- Maximum 7-DADMax temperatures of 13°C (55.4°F) at the initiation of spawning for salmon and at fry emergence for salmon and trout.

The two criteria above are protective of incubation as long as human actions do not significantly disrupt the normal patterns of fall cooling and spring warming that provide significantly colder temperatures over the majority of the incubation period.

(v) For lakes, human actions considered cumulatively may not increase the 7-DADMax temperature more than 0.3°C (0.54°F) above natural conditions.

(vi) Temperature measurements should be taken to represent the dominant aquatic habitat of the monitoring site. This typically means samples should:

- (A) Be taken from well mixed portions of rivers and streams; and

- (B) Not be taken from shallow stagnant backwater areas, within isolated thermal refuges, at the surface, or at the water's edge.

(vii) The department will incorporate the following guidelines on preventing acute lethality and barriers to migration of salmonids into determinations of compliance with the narrative requirements for use protection established in this chapter (e.g., WAC 173-201A-310(1), 173-201A-400(4), and 173-201A-410 (1)(c)). The following site-level considerations do not, however, override the temperature criteria established for waters in subsection (1)(c) of this section or WAC 173-201A-600 through 173-201A-602:

- (A) Moderately acclimated ($16-20^{\circ}\text{C}$, or $60.8-68^{\circ}\text{F}$) adult and juvenile salmonids will generally be protected from acute lethality by discrete human actions maintaining the 7-DADMax temperature at or below 22°C (71.6°F) and the 1-day maximum (1-DMax) temperature at or below 23°C (73.4°F).

- (B) Lethality to developing fish embryos can be expected to occur at a 1-DMax temperature greater than 17.5°C (63.5°F).

- (C) To protect aquatic organisms, discharge plume temperatures must be maintained such that fish could not be entrained (based on plume time of travel) for more than two seconds at temperatures above 33°C (91.4°F) to avoid creating areas that will cause near instantaneous lethality.

- (D) Barriers to adult salmonid migration are assumed to exist any time the 1-DMax temperature is greater than 22°C (71.6°F) and the adjacent downstream water temperatures are 3°C (5.4°F) or more cooler.

(viii) Nothing in this chapter shall be interpreted to prohibit the establishment of effluent limitations for the control of the thermal component of any discharge in accordance with 33 U.S.C. 1326 (commonly known as section 316 of the Clean Water Act).

(d) **Aquatic life dissolved oxygen (D.O.) criteria.** The D.O. criteria are measured in milligrams per liter (mg/L) or percent oxygen saturation. Table 200 (1) (d) lists the ((1-day minimum)) D.O. criteria for each of the aquatic life use categories. Compliance may be demonstrated through either the water column or intragravel criteria in Table 200 (1) (d).

**Table 200 (1) (d)
Aquatic Life Dissolved Oxygen Criteria in
Fresh Water**

((Category	Lowest 1-Day Minimum
Char Spawning and Rearing	9.5 mg/L
Core Summer Salmonid Habitat	9.5 mg/L
Salmonid Spawning, Rearing, and Migration	8.0 mg/L
Salmonid Rearing and Migration Only	6.5 mg/L
Non-anadromous Interior Redband Trout	8.0 mg/L
Indigenous Warm Water Species	6.5 mg/L))

Category	Water Column (1-Day Minimum)
Char Spawning and Rearing*	10 mg/L or 90% saturation
Core Summer Salmonid Habitat*	10 mg/L or 95% saturation
Salmonid Spawning, Rearing, and Migration*	10 mg/L or 90% saturation
Salmonid Rearing and Migration Only	6.5 mg/L
<u>Nonanadromous</u> Interior Redband Trout*	10 mg/L or 90% saturation
Indigenous Warm Water Species	6.5 mg/L

* Intragravel D.O. criteria for these aquatic life use categories may be used for compliance purposes. When intragravel D.O. is used for compliance, the intragravel D.O. (1-day minimum) concentration must be 8.0 mg/L or greater, and the D.O. water column (1-day minimum) concentration must be 9.0 mg/L or greater. Intragravel D.O. must be measured as a spatial median within the same habitat area.

(i) When a water body's D.O. is lower than the criteria in Table 200 (1) (d) (or within 0.2 mg/L of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the D.O. of that water body to decrease more than 0.2 mg/L.

(ii) For lakes, human actions considered cumulatively may not decrease the dissolved oxygen concentration more than 0.2 mg/L below natural conditions.

(iii) Concentrations of D.O. are not to fall below the criteria in the table at a probability frequency of more than once every ~~((ten))~~ 10 years on average.

(iv) D.O. measurements should be taken to represent the dominant aquatic habitat of the monitoring site. This typically means samples should:

- (A) Be taken from well mixed portions of rivers and streams; and
- (B) Not be taken from shallow stagnant backwater areas, within isolated thermal refuges, at the surface, or at the water's edge.

(e) **Aquatic life turbidity criteria.** Turbidity is measured in "nephelometric turbidity units" or "NTUs." Table 200 (1)(e) lists the maximum turbidity criteria for each of the aquatic life use categories.

**Table 200 (1)(e)
Aquatic Life Turbidity Criteria in Fresh Water**

Category	NTUs
Char Spawning and Rearing	Turbidity shall not exceed: <ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Core Summer Salmonid Habitat	Same as above.
Salmonid Spawning, Rearing, and Migration Salmonid Rearing and Migration Only	Same as above. Turbidity shall not exceed: <ul style="list-style-type: none"> • 10 NTU over background when the background is 50 NTU or less; or • A 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
(Non-anadromous) <u>Nonanadromous</u> Interior Redband Trout	Turbidity shall not exceed: <ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Indigenous Warm Water Species	Turbidity shall not exceed: <ul style="list-style-type: none"> • 10 NTU over background when the background is 50 NTU or less; or • A 20 percent increase in turbidity when the background turbidity is more than 50 NTU.

~~((+i))~~ The turbidity criteria established under WAC 173-201A-200 (1)(e) shall be modified, without specific written authorization from the department, to allow a temporary area of mixing during and immediately after necessary in-water construction activities that result in

the disturbance of in-place sediments. This temporary area of mixing is subject to the constraints of WAC 173-201A-400 (4) and (6) and can occur only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria. A temporary area of mixing shall be as follows:

~~((A))~~ (i) For waters up to 10 cfs flow at the time of construction, the point of compliance shall be ~~((one hundred))~~ 100 feet downstream from the activity causing the turbidity exceedance.

~~((B))~~ (ii) For waters above 10 cfs up to 100 cfs flow at the time of construction, the point of compliance shall be ~~((two hundred))~~ 200 feet downstream of the activity causing the turbidity exceedance.

~~((C))~~ (iii) For waters above 100 cfs flow at the time of construction, the point of compliance shall be ~~((three hundred))~~ 300 feet downstream of the activity causing the turbidity exceedance.

~~((D))~~ (iv) For projects working within or along lakes, ponds, wetlands, or other nonflowing waters, the point of compliance shall be at a radius of ~~((one hundred fifty))~~ 150 feet from the activity causing the turbidity exceedance.

(f) **Aquatic life total dissolved gas (TDG) criteria.** TDG is measured in percent saturation. Table 200 (1) (f) lists the maximum TDG criteria for each of the aquatic life use categories.

**Table 200 (1) (f)
Aquatic Life Total Dissolved Gas Criteria
in Fresh Water**

Category	Percent Saturation
Char Spawning and Rearing	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.
Core Summer Salmonid Habitat	Same as above.
Salmonid Spawning, Rearing, and Migration	Same as above.
Salmonid Rearing and Migration Only	Same as above.
((Non-anadromous)) <u>Nonanadromous</u> Interior Redband Trout	Same as above.
Indigenous Warm Water Species	Same as above.

(i) The water quality criteria established in this chapter for TDG shall not apply when the stream flow exceeds the seven-day, ~~((ten-year))~~ 10-year frequency flood.

(ii) The TDG criteria may be adjusted to aid fish passage over hydroelectric dams that spill for anadromous juvenile fish as of the 2020 spill season. The elevated TDG levels are intended to allow increased fish passage without causing more harm to fish populations than caused by turbine fish passage. The following special fish passage exemptions for the Snake and Columbia rivers apply when spilling water at dams is necessary to aid fish passage:

(A) TDG must not exceed:

- An average of ~~((one hundred fifteen))~~ 115 percent as measured in the forebays of the next downstream dams and must not exceed an average of ~~((one hundred twenty))~~ 120 percent as measured in the tail-

rates of each dam (these averages are calculated as an average of the (~~twelve~~) 12 highest hourly readings in a calendar day, relative to atmospheric pressure); and

- A maximum TDG saturation level of (~~one hundred twenty five~~) 125 percent calculated as an average of the two highest hourly TDG measures in a calendar day during spillage for fish passage.

(B) To further aid fish passage during the spring spill season (generally from April through June), spill may be increased up to the following levels as measured at the tailrace fixed site monitoring location:

- A maximum TDG saturation level of (~~one hundred twenty five~~) 125 percent calculated as an average of the (~~twelve~~) 12 highest hourly TDG measures in a calendar day; and

- A maximum TDG saturation level of (~~one hundred twenty six~~) 126 percent calculated as an average of any two consecutive hourly TDG measures.

These TDG criteria may be applied in place of (f)(ii)(A) of this subsection during spring spill operations when applied in accordance with the following conditions:

(I) In addition to complying with the requirements of this chapter, the tailrace maximum TDG criteria at hydropower dams shall be applied in accordance with Endangered Species Act consultation documents associated with spill operations on the Snake and Columbia rivers, including operations for fish passage. The Endangered Species Act consultation documents are those by which dams may legally operate during the time that the adjusted criteria in (f)(ii)(B) of this subsection are in use.

(II) Application of the tailrace maximum TDG criteria must be accompanied by a department approved biological monitoring plan designed to measure impacts of fish exposed to increased TDG conditions throughout the spring spill season. Beginning in the year 2021, plans must include monitoring for nonsalmonid fish species and must continue for a minimum of five years, and thereafter as determined by the department.

(III) TDG must be reduced to allowances specified in (f)(ii)(A) of this subsection if the calculated incidence of gas bubble trauma in salmonids (with a minimum sample size of (~~fifty~~) 50 fish required weekly) or nonsalmonids (with a minimum sample size of (~~fifty~~) 50 fish required weekly) exceeds:

- Gas bubble trauma in nonpaired fins of (~~fifteen~~) 15 percent;

or

- Gas bubble trauma in nonpaired fins of five percent and gas bubbles occlude more than (~~twenty five~~) 25 percent of the surface area of the fin.

If gas bubble trauma exceeds these biological thresholds, additional monitoring must demonstrate the incidence of gas bubble trauma below biological thresholds before TDG can be adjusted to allowances specified in this subsection. Gas bubble trauma monitoring data shall be excluded from comparison to biological thresholds when higher than normal river flow contributes to excess spill above the ability to meet (f)(ii)(B) of this subsection. This monitoring data exclusion shall apply for one full calendar day after reduced river flow allows attainment of (f)(ii)(B) of this subsection.

(g) **Aquatic life pH criteria.** Measurement of pH is expressed as the negative logarithm of the hydrogen ion concentration. Table 200 (1)(g) lists the pH levels for each of the aquatic life use categories.

**Table 200 (1) (g)
Aquatic Life pH Criteria in Fresh Water**

Use Category	pH Units
Char Spawning and Rearing	pH shall be within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.
Core Summer Salmonid Habitat	Same as above.
Salmonid Spawning, Rearing, and Migration	pH shall be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Salmonid Rearing and Migration Only	Same as above.
(Non-anadromous) Nonanadromous Interior Redband Trout	Same as above.
Indigenous Warm Water Species	Same as above.

(h) **Aquatic life fine sediment criteria.** The following narrative criteria apply to all existing and designated uses for fresh water:

(i) Water bodies shall not contain excess fine sediment (<2 mm) from human-caused sources that impair designated uses.

(ii) When reference values are used to demonstrate compliance with the fine sediment criteria, measured conditions shall be compared to those from reference sites or regional data that represent least disturbed site conditions of a comparable water body or ecoregion. Reference locations should be comparable in hydrography, geology, ecology, and habitat to that of the water body evaluated.

(2) **Recreational uses.** The recreational use is primary contact recreation.

(a) **General criteria.** General criteria that apply to fresh water recreational uses are described in WAC 173-201A-260 (2) (a) and (b), and are for:

(i) Toxic, radioactive, and deleterious materials; and

(ii) Aesthetic values.

(b) **Water contact recreation bacteria criteria.** Table 200 (2) (b) lists the bacteria criteria to protect water contact recreation in fresh waters. These criteria are based on *Escherichia coli* (*E. coli*) and fecal coliform organism levels, and expressed as colony forming units (CFU) or most probable number (MPN). The use of fecal coliform organism levels to determine compliance will expire December 31, 2020.

**Table 200 (2) (b)
Primary Contact Recreation Bacteria Criteria in Fresh Water**

Bacterial Indicator	Criteria
<i>E. coli</i>	<i>E. coli</i> organism levels within an averaging period must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ((ten)) 10 sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.
Fecal coliform (expires 12/31/2020)	Fecal coliform organism levels within an averaging period must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ((ten)) 10 sample points exist) obtained within an averaging period exceeding 200 CFU or MPN per 100 mL.

(i) A minimum of three samples is required to calculate a geometric mean for comparison to the geometric mean criteria. Sample collection dates shall be well distributed throughout the averaging period so as not to mask noncompliance periods.

(A) Effluent bacteria samples: When averaging effluent bacteria sample values for comparison to the geometric mean criteria, or for determining permit compliance, the averaging period shall be (~~((thirty))~~) 30 days or less.

(B) Ambient water quality samples: When averaging bacteria sample values for comparison to the geometric mean criteria, it is preferable to average by season. The averaging period of bacteria sample data shall be (~~((ninety))~~) 90 days or less.

(ii) When determining compliance with the bacteria criteria in or around small sensitive areas, such as swimming beaches, it is recommended that multiple samples are taken throughout the area during each visit. Such multiple samples should be arithmetically averaged together (to reduce concerns with low bias when the data is later used in calculating a geometric mean) to reduce sample variability and to create a single representative data point.

(iii) As determined necessary by the department, more stringent bacteria criteria may be established for rivers and streams that cause, or significantly contribute to, the decertification or conditional certification of commercial or recreational shellfish harvest areas, even when the preassigned bacteria criteria for the river or stream are being met.

(iv) Where information suggests that sample results are due primarily to sources other than warm-blooded animals (e.g., wood waste), alternative indicator criteria may be established on a site-specific basis as described in WAC 173-201A-430.

(3) **Water supply uses.** The water supply uses are domestic, agricultural, industrial, and stock watering.

General criteria. General criteria that apply to the water supply uses are described in WAC 173-201A-260 (2) (a) and (b), and are for:

- (a) Toxic, radioactive, and deleterious materials; and
- (b) Aesthetic values.

(4) **Miscellaneous uses.** The miscellaneous fresh water uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

General criteria. General criteria that apply to miscellaneous fresh water uses are described in WAC 173-201A-260 (2)(a) and (b), and are for:

- (a) Toxic, radioactive, and deleterious materials; and
- (b) Aesthetic values.

[Statutory Authority: RCW 90.48.035 and 40 C.F.R. 131.20. WSR 20-02-091 (Order 19-02), § 173-201A-200, filed 12/30/19, effective 1/30/20; WSR 19-04-007 (Order 16-07), § 173-201A-200, filed 1/23/19, effective 2/23/19. Statutory Authority: RCW 90.48.035. WSR 11-09-090 (Order 10-10), § 173-201A-200, filed 4/20/11, effective 5/21/11; WSR 06-23-117 (Order 06-04), § 173-201A-200, filed 11/20/06, effective 12/21/06. Statutory Authority: Chapters 90.48 and 90.54 RCW. WSR 03-14-129 (Order 02-14), § 173-201A-200, filed 7/1/03, effective 8/1/03.]