

## WSR 21-21-080

## PROPOSED RULES

## DEPARTMENT OF ECOLOGY

[Order 19-05—Filed October 18, 2021, 2:20 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 19-24-073.

Title of Rule and Other Identifying Information: The Washington state department of ecology (ecology) is considering revising chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington. We are considering the following revisions in this rule making:

- Adding definitions to WAC 173-201A-020 Definitions.
- Amending WAC 173-201A-200 (1)(d) aquatic life dissolved oxygen criteria for fresh water.
- Adding a subsection WAC 173-201A-200 (1)(h) aquatic life fine sediment narrative criterion.

For more information on this rule making visit <https://ecology.wa.gov/SalmonHabitatRule>.

Hearing Location(s): On December 8, 2021, at 5:30 p.m., webinar <https://watech.webex.com/watech/onstage/g.php?MTID=e724a8c0cb8cda600a60000e8a85c60d1>. Presentation, question and answer session followed by the hearing. We are holding this hearing via webinar. This is an online meeting that you can attend from any computer using internet access. Join online and see instructions <https://watech.webex.com/watech/onstage/g.php?MTID=e724a8c0cb8cda600a60000e8a85c60d1>. For audio call US Toll number 1-415-655-0001 and enter access code 2462 183 2124; and on December 9, 2021, at 1:30 p.m., webinar <https://watech.webex.com/watech/onstage/g.php?MTID=e9677d0a2b2fff7eb1bc1ee483394a933>. Presentation, question and answer session followed by the hearing. We are holding this hearing via webinar. This is an online meeting that you can attend from any computer using internet access. Join online and see instructions <https://watech.webex.com/watech/onstage/g.php?MTID=e9677d0a2b2fff7eb1bc1ee483394a933>. For audio call US Toll number 1-415-655-0001 and enter access code 2460 493 9912.

Date of Intended Adoption: March 9, 2022.

Submit Written Comments to: Susan Braley, send via U.S. mail at Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504-7600 (U.S. mail); or send parcel delivery services to Ecology, Water Quality Program, 300 Desmond Drive S.E., Lacey, WA 98503. Submit comments by mail, online, or at the hearing(s). Online <https://wq.ecology.commentinput.com/?id=RFGDN>, by December 16, 2021.

Assistance for Persons with Disabilities: Contact ecology ADA coordinator, phone 360-407-6831; people with speech disability may call TTY at 877-833-6341; people with impaired hearing may call Washington relay service at 711, email [ecyADACoordinator@ecy.wa.gov](mailto:ecyADACoordinator@ecy.wa.gov), visit <https://ecology.wa.gov/accessibility> for more information, by December 3, 2021.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: We are considering revisions 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 dissolved oxygen criteria to better protect early life stages of salmonids in gravel beds.

- Adding a dissolved oxygen requirement in freshwater gravel beds to provide a more direct measure of dissolved oxygen levels where early life stages live.
- Adding a dissolved oxygen saturation requirement to account for environmental factors that cause low dissolved oxygen levels such as high water temperature and elevation.
- Adding a narrative fine sediment criterion to provide additional protection for incubating salmonid eggs and larvae.

Reasons Supporting Proposal: The goal of this rule making is to ensure adequate oxygen levels and habitat conditions are maintained for salmonids at critical early life stages, and to protect aquatic life under varying water conditions.

Salmon and steelhead populations have been declining in Washington state for more than a decade. Salmonids play a pivotal role in the structure and health of our fresh and marine water ecosystems. Chinook salmon, for example, are the primary food for the endangered Southern Resident Orca, and the decline of Chinook is one of the main factors attributed to the decline of this orca population, according to the 2018 Southern Resident Orca Task Force Final Report. Migrating salmon and steelhead bring essential nutrients from the ocean back to rivers, streams, and surrounding habitat. These nutrients are a significant part of the freshwater food web. Salmonids represent one of the most sensitive aquatic life species in Washington and therefore form the basis for protecting all aquatic life uses, as defined in the water quality standards for surface waters of the state of Washington.

**a. Salmonids need adequate dissolved oxygen and habitat conditions for spawning:** Salmonid eggs and larvae incubate in freshwater gravels in lakes, rivers, and streams, and require specific dissolved oxygen (DO) levels to properly grow and develop. We are considering revising the DO criteria to ensure habitat conditions in gravel are optimal for salmonid spawning.

We also are considering the addition of a new criterion to limit the negative impacts of fine sediment and protect salmonid spawning gravel habitat. Fine sediments that settle over salmonid spawning gravels can prevent adequate flow of water through the gravels, depriving eggs and larvae of the oxygen they need. Currently, the water quality standards for surface waters of the state of Washington do not specifically address fine sediments. This rule-making process is not associated with the sediment management standards in chapter 173-204 WAC, which are managed by ecology's toxic cleanup program and are set to address toxic contaminants in sediment.

**b. Ecology has received federal, tribal, and public comment on revisions to protect salmonid spawning gravels:** In January 2003, we developed a discussion document and literature summary entitled Evaluating Criteria for the Protection of Aquatic Life in Washington's Surface Water Quality Standards for Fresh Water - Dissolved Oxygen (Hicks, 2002). This document proposed changes to the DO criteria as part of the 2003 rule making. Public comments questioned these proposed revisions and ecology postponed changes to the DO criteria until we could gather additional information.

In 2006, ecology revised the state's water quality standards for surface waters of the state of Washington. We did not revise the freshwater DO criteria at that time, although much review of the criteria was done prior to finalizing the rule. The Environmental Protection Agency (EPA)'s final Clean Water Act approval of the revised standards included consultation with the U.S. Fish and Wildlife Serv-

ice (USFWS) and the National Marine Fishery Service under Section 7 (a)(2) of the Endangered Species Act (ESA). That consultation concluded that EPA's approval action was largely beneficial and would not jeopardize the continued existence of any endangered or threatened species. As part of that consultation, conditions were set forth to minimize any adverse effects to ESA-listed species, which included an evaluation of the DO criteria to protect aquatic life.

In January 2006, EPA, USFWS, NOAA Fisheries, and ecology met to discuss federal agency concerns about the DO criteria in the standard for protection of incubating salmonids. Ecology agreed to further study the relationship between surface water DO concentrations and intragravel dissolved oxygen (IGDO) concentrations. Ecology then established a work group to develop an IGDO study. The goal of the study was to investigate uncertainties that the current 9.5 mg/L water column criterion was sufficiently protective to meet IGDO salmonid requirements. The work group included staff from federal agencies, tribes, and other interested parties. As a result of the work group research and discussion, ecology published Washington State Dissolved Oxygen Standard: A Review and Discussion of Freshwater Intragravel Criteria Development (Brown and Hallock, 2009). Study conclusions include:

- A percent oxygen saturation criterion may be a more meaningful measure of oxygen conditions to protect spawning gravels than increasing the absolute DO criteria because it takes into account the effect of temperature on DO concentration.
- A direct measure of the DO concentration within spawning gravels is not a feasible criteria that can be effectively implemented.

This rule making seeks to resolve these conclusions to appropriately modify the freshwater DO criteria to better protect intragravel habitat by improving the water column DO criteria, incorporate a percent saturation element to the criteria, and protect spawning gravel substrate more directly by limiting fine sediment intrusion.

**c. We agreed to address fine sediments in the surface water quality standards**

Adding fine sediment criteria aligns with our agreement in the 2018 U.S. District Court Stipulated Order of Dismissal (Order) between Northwest Environmental Advocates (NWEA), EPA, and ecology. In the order, ecology agreed to propose fine sediment criteria to protect salmonid nests, known as redds. ["We committed to completing proposed language by October 18, 2021."]

Statutory Authority for Adoption: RCW 90.48.035 provides clear and direct authority to ecology to revise the surface water quality standards (SWQS). Additionally, 40 C.F.R. 131.20 requires states and tribes with Federal Clean Water Act authority to periodically review and update the SWQS.

Statute Being Implemented: Chapter 90.48 RCW, Water pollution control.

Rule is necessary because of federal law, and state court decision, *NWEA v. USEPA and Northwest Pulp & Paper Association*. Stipulated Order of Dismissal. No. C14-196-RSM. Filed 10/18/18.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: For more information, see the Technical Support Document, Ecology Publication 21-10-050, and the Preliminary Regulatory Analyses, Ecology Publication 21-10-057.

Name of Proponent: Ecology, governmental.

Name of Agency Personnel Responsible for Drafting: Bryson Finch, Headquarters - Lacey, 360-407-7158; Implementation: Chad Brown, Headquarters - Lacey, 360-407-6128; and Enforcement: Vincent McGowan, Headquarters - Lacey, 360-407-6405.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Susan Braley, Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, phone 360-764-6563; 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](mailto:swqs@ecy.wa.gov).

The proposed rule does impose more-than-minor costs on businesses.

**Small Business Economic Impact Statement (SBEIS)  
Relevant Information for State Register Publication**

**Proposed amendments to chapter 173-201A WAC  
Water Quality Standards for Surface Waters of the State of Washington.  
Salmon Spawning Habitat Protection**

This SBEIS presents the:

- Compliance requirements of the proposed rule.
- Results of the analysis of relative compliance cost burden.
- Consideration of lost sales or revenue.
- Cost-mitigating action taken by ecology, if required.
- Small business and local government consultation.
- Industries likely impacted by the proposed rule.
- Expected net impact on jobs statewide.

A small business is defined by the Regulatory Fairness Act (chapter 19.85 RCW) as having 50 or fewer employees. Estimated costs are determined as compared to the existing regulatory environment—the regulations in the absence of the rule. The SBEIS only considers costs to "businesses in an industry" in Washington state. This means that impacts, for this document, are not evaluated for government agencies.

The existing regulatory environment is called the "baseline" in this document. It includes only existing laws and rules at federal and state levels.

**COMPLIANCE REQUIREMENTS OF THE PROPOSED RULE, INCLUDING PROFESSIONAL SERVICES:** The baseline for our analyses generally consists of existing rules and laws and their requirements. This is what allows us to make a consistent comparison between the state of the Washington with and without the proposed rule amendments.

For this rule making, the baseline includes:

- The existing rule, chapter 173-201A WAC.
- Chapter 90.48 RCW, Water pollution control.
- 40 C.F.R. 131.20 Water Quality Standards - State review and revision of water quality standards; requires states and tribes (with primacy for clean water actions) to periodically review and update the water quality standards.
- 018 U.S. District Court Stipulated Order of Dismissal.<sup>1</sup>

<sup>1</sup> 2018 U.S. District Court Stipulated Order of Dismissal <https://www.bdlaw.com/content/uploads/2018/10/NWEA-stip.pdf>.

The proposed rule amendments would make the following changes:

- Revising the freshwater DO criteria.

- Adding the definitions of "Intragravel DO" and "Spatial median."
- Setting more stringent water column DO criteria.
- Adding an intragravel DO component to the DO criteria.
- Adding an oxygen saturation component to the DO criteria.
- Clarifying the habitat type and spatial extent for sample collection when evaluating intragravel DO.
- Adding a narrative fine sediment criterion to all existing and designated aquatic life uses for freshwater.

**Revising the freshwater DO criteria.**

The current DO 303(d) listings include some listings in which temperature may be the cause or a large contributing factor of the low DO values. The oxygen saturation criteria is anticipated to refine the 303(d) list to identify those waters that are low in DO largely due to nutrients, potentially reducing the number of 303(d) listings by removing those that are solely attributed to temperature. Those changes are not likely to affect dischargers' behavior because waters will be assessed separately for compliance with temperature and DO criteria. Given that the updated 303(d) listings will better identify which waters are impaired due to nutrients (better detected by percent oxygen saturation) and those affected by human-caused temperature increases (better identified by the temperature criteria) the actions necessary to bring the waterbody into compliance will be identified earlier in the water cleanup process. We do not anticipate more DO listings due to the additional compliance option of percent saturation, regardless of the DO concentration.

The proposed rule adds an intragravel DO component to the DO criteria. Because the rule proposes that compliance may be demonstrated through one or more of the DO criteria, this provides flexibility and potential cost savings (benefits) for the dischargers. A discharger would choose to monitor and report the intragravel DO parameter only if it expects the potential costs of the sampling to be less than the potential benefits (or cost savings) of verifying their compliance using the alternative method.

**Adding a narrative fine sediment criterion to all existing and designated aquatic life uses for freshwater:** The proposed rule would create costs and benefits by requiring an evaluation of anthropogenic sources of fine sediment that may adversely affect early life stages of salmonids and result in a waterbody impairment.

The rule would impact point and nonpoint dischargers differently. Point dischargers are regulated through permits. If a waterbody with a current permittee discharging sediments is listed as impaired for the new narrative fine sediment criterion, that permittee could incur monitoring costs.

It is likely that permitted dischargers already have sediment discharge controls in place due to technology-based limits, or via another parameter of concern (bacteria, metals, toxics, etc.) that binds to sediment. Therefore, any discharger currently covered by the industrial stormwater or construction stormwater general permits would likely avoid investing into additional control technologies. The others, such as some with individual permits, may incur costs for sediment control actions.

**COSTS OF COMPLIANCE: EQUIPMENT:** Adding a narrative fine sediment criterion to all existing and designated aquatic life uses for freshwater may affect facility sites that contribute to nonpoint source pollution. To address these nonpoint sources, ecology develops a list of best man-

agement practices (BMPs) for each of the water quality pollution sources identified. Some sites will require very basic erosion and sediment control BMPs (mulch, silt fence, etc.), while others will need extensive treatment technologies (sediment ponds, filters, etc.). Many of the BMPs address more than one of the water quality issues, such as temperature, bacteria and chemical sediments, etc. Therefore, it is hard to identify which of the BMPs and costs associated with them would address the fine sediments uniquely.

Ecology's water quality combined funding program estimated the average cost to complete riparian restoration - one of the most common BMPs addressing nonpoint sediments is approximately \$15,500 per acre based on 33 previously funded grant agreements across the state from State Fiscal Years 2016 to 2019. Cost per acre varies based on specific site conditions and project scale. Costs range from approximately \$3,500 to \$35,000, depending on the extent of invasive species control, ease of access, plant stock quality, and if maintenance is included in the budget. Typically, larger scale projects have a lower cost per acre. These costs are associated with funding programs and include administrative costs, and costs tend to be higher than if landowners were implementing BMPs on their own.

If the pollutant comes from a set of diffuse sources (referred to as a nonpoint source), such as general urban, residential, farm runoff, or other land activities, that generate pollution discharges. To address these nonpoint sources, ecology develops a list of best management practices (BMPs) for each of the water quality pollution sources identified. Nonpoint dischargers of fine sediments would incur capital and operational costs. Some would require very basic erosion and sediment control BMPs (mulch, silt fence, etc.), while others would need extensive treatment technologies (sediment ponds, filters, etc.).

**COSTS OF COMPLIANCE: SUPPLIES:** Compliance with the proposed rule, compared to the baseline, is not likely to impose additional costs of supplies.

**COSTS OF COMPLIANCE: LABOR:** If a waterbody with a current permittee discharging sediments is listed as impaired for the new narrative fine sediment criterion, that permittee could incur monitoring costs. We assume that monitoring costs would be similar to monitoring costs for turbidity or total suspended solids (TSS). Ecology estimated these costs for sites with 1-5 acres at \$1,650 per year, and at \$2,721 per year for sites 5+ acres in the Small Business Economic Impact Analysis for Construction Stormwater General Permit (2021)<sup>2</sup>. The estimated 20-year present value for finesediments monitoring costs is between \$20,271 and \$33,429, depending on the size of a site.

<sup>2</sup> <https://apps.ecology.wa.gov/publications/documents/2010022.pdf>.

**COSTS OF COMPLIANCE: PROFESSIONAL SERVICES:** Compliance with the proposed rule, compared to the baseline, is not likely to impose additional costs of professional services.

**COSTS OF COMPLIANCE: ADMINISTRATIVE COSTS:** Where applicable, ecology estimates administrative costs (overhead) as part of the cost of labor and professional services, above.

**COMPARISON OF COMPLIANCE COST FOR SMALL VERSUS LARGE BUSINESSES:** We calculated the estimated per-business costs to comply with the proposed rule amendments, based on the costs estimated in chapter 3 of this document. In this section, we estimate compliance costs per employee. As we do not know what industries would be affected by the rule, we used the list of industries currently reporting the TSS and turbidity measurements. We recognize that less, more, or other industries may be affected.

We used current employment security department (ESD)<sup>3</sup> data to estimate the average number of employees through all identified industries. Note that ESD data is collected at the facility level, not the business level of highest owner or operator.

<sup>3</sup> Employment Security Department/Labor Market and Economic Analysis (LMEA), March 2020.

This means:

- The small business number may be underestimated.
- The largest businesses' numbers is likely significantly underestimated.
- Any identified disparity may be larger than presented from the available data.

The average affected small business likely to be covered by the proposed rule amendments employs approximately nine people. The largest 10 percent of affected businesses employ an average of 855 people. Based on cost estimates in chapter 3, we estimated the following compliance costs per employee.

We cannot make an assumption that small sites have less employees or a riparian buffer project (or other BMP) would be less complex. Therefore, we compare small and large business with small and large sites; simple and complex projects.

**Table 1: Compliance costs per employee**

	\$ per employee, small business, small site	\$ per employee, small business, large site	\$ per employee, large business, small site	\$ per employee, large business, large site
Monitoring	2252	3714	24	39
Livestock Exclusion Fencing	464	4639	5	49
Riparian buffer (simple)	389	3889	4	41
Riparian buffer (complex)	3889	38889	41	409

We conclude the rule amendments potentially have disproportionate impacts on small businesses, and therefore ecology must include elements in the rule amendments to mitigate this disproportion, as far as is legal and feasible.

**CONSIDERATION OF LOST SALES OR REVENUE:** Businesses that would incur costs could experience reduced sales or revenues if the proposed rule amendments significantly affect the prices of the goods they sell. The degree to which this could happen is strongly related to each business's production and pricing model (whether additional lump-sum costs would significantly affect marginal costs), as well as the specific attributes of the markets in which they sell goods, including the degree of influence each firm has on market prices, as well as the relative responsiveness of market demand to price changes.

We used the REMI E3+ model for Washington state to estimate the impact of the proposed rule amendments on directly affected markets, accounting for dynamic adjustments throughout the economy. The model accounts for: Inter-industry impacts; price, wage, and population changes; and dynamic adjustment of all economic variables over time.

We cannot predict which existing dischargers would be included on updated 303(d) lists and what their TMDL would be. We also cannot predict what combination of BMPs and other technology controls an impac-

ted discharger would use. Using the REMI E3+ model, we applied potential costs to various industries, based on current sediment monitoring data. We randomly applied cost range to one business in every identified industry (because of the high degree of the uncertainty), and combined them in one model. The higher end of the costs range where applied to "Forestry and logging" sector, which affected the results. Modeling results did not indicate significant impacts to industries. Output would decrease by \$1.3 million in year 2022 over all industries in the state, which in relative indicators shows as a decrease.

- 0.018 percent decrease from the baseline for "Forestry and logging,"
- 0.004 percent decrease for "Support activities for agriculture and forestry," and
- 0.002 percent for "Other wood manufacturing" in 2022.

This is due to the capital costs associated with BPMs implementation would occur in 2021. The monitoring costs did not show any effect on output, and therefore, revenue of the industries. These results are scalable based on the number of dischargers assumed to be impacted in each industry.

**MITIGATION OF DISPROPORTIONATE IMPACT:** The RFA (RCW 19.85.030(2)) states that:

"Based upon the extent of disproportionate impact on small business identified in the statement prepared under RCW 19.85.040, the agency shall, where legal and feasible in meeting the stated objectives of the statutes upon which the rule is based, reduce the costs imposed by the rule on small businesses. The agency must consider, without limitation, each of the following methods of reducing the impact of the proposed rule on small businesses:

- (a) Reducing, modifying, or eliminating substantive regulatory requirements;
- (b) Simplifying, reducing, or eliminating recordkeeping and reporting requirements;
- (c) Reducing the frequency of inspections;
- (d) Delaying compliance timetables;
- (e) Reducing or modifying fine schedules for noncompliance; or
- (f) Any other mitigation techniques including those suggested by small businesses or small business advocates."

We considered all of the above options, the goals and objectives of the authorizing statutes (see chapter 6 of PRA), and the scope of this rule making. We limited compliance cost-reduction methods to those that:

- Are legal and feasible.
- Meet the goals and objectives of the authorizing statute.
- Are within the scope of this rule making.

The scope of this rule making was limited to revising the freshwater DO criteria and adding a fine sediment criteria to all existing and designated aquatic life uses for freshwater. We could not meet legally stated goals and objectives if the proposed rule amendments included reduced or variable water quality standards, recordkeeping, or reporting.

We included the following elements in the proposed rule amendments to reduce costs to small businesses. This rule making is reducing, modifying, or eliminating substantive regulatory requirements by providing alternative compliance options to the existing DO criteria. Because the rule proposes that compliance may be demonstrated through one or more of the DO criteria, this provides flexibility and poten-



tial cost savings (benefits) for the dischargers. A discharger would choose to monitor and report the intragravel DO parameter only if it expects the potential costs of the sampling to be less than the potential benefits (or cost savings) of verifying their compliance using the alternative method.

Updated DO criteria would enable the refinement of the list of impaired waters. The current DO 303(d) listings include some listings in which temperature may be the cause or a large contributing factor of the low DO values. The alternate criteria expressed in percent saturation would help to refine the list to identify those waters that are low in DO largely due to nutrients, potentially reducing the number of 303(d) listings by removing those that are solely attributed to temperature.

**SMALL BUSINESS AND LOCAL GOVERNMENT CONSULTATION:** We involved small businesses and local governments in its development of the proposed rule amendments, using:

- Water Quality Information Listserv:
  - Voluntary membership to stay informed on the salmon spawning habitat protection rule making.
- Public webinars:
  - Clark Regional wastewater district, Sunnyside Valley Irrigation District, Trout Unlimited, Clean Water ATS, Puget Sound Keeper Alliance, South Columbia Basin Irrigation District, The National Council for Air and Stream Improvement (NCASI), Northwest Environmental Advocates, Washington State Water Resources Association, RE Sources, Port of Longview, Parametrix, WSP, Port of Tacoma, Dell, Chelan PUD, Avista Corp, NW Fishletter, Tupper Mack Wells PLLC, Skagit River System Cooperative, Skagit Fishereies [Fisheries] Enhancement Group.
  - NWIFC, Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians, City of Tacoma, Washington Department of Natural Resources, City of Kirkland, Idaho department of environmental quality, Quileute Nation, Pierce County, City of Spokane, City of Seattle, Lower Columbia Fish Enhancement Group, US Bureau of Reclamation, City of Federal Way, Snohomish Conservation District, Pierce Conservation District, Snohomish County, US Department of Agriculture, City of Vancouver, Tacoma-Pierce County Health Department, King County, Tulalip Tribe, Spokane Tribe, Port Gamble S'Klallam Tribe, Suquamish Tribe, Environmental Protection Agency, City of Bainbridge, City of Vancouver, Chehalis Tribe, City of Bellingham, US Corp of Engineers, Skokomish Tribe, Lewis Conservation District, Thurston County, CRITFC, City of Vancouver, Quileute Tribe, Washington Department of Fish and Wildlife, Alaska Department of Environmental Conservation, Hoh Tribe, Klickitat County, Stillaguamish Tribe.
- Science Advisory Team:
  - Ashley Coble (NCASI), Chris Frissell (Salish Kootenai College), Brian Mattax (WSP).
  - Joy Archuleta (US Forest Service), Jennifer Arthur (Seattle Public Utilities), Jordan Bauer (Ecology), Seth Book (Skokomish Tribe), Joanna Crowe Curran (US Corp of Engineers), Lindsay Guzzo (EPA), Tim Hagen (Pierce County), Kirk Krueger (WA Fish and Wildlife), Patrick Lizon (Ecology), Glen Merritt (Ecology), Cleo Nuculae (Ecology), Ted Parker (Snohomish County), Cole Provence (Ecology), Rainy Rau (City of

Vancouver), Keunyea Song (Ecology), Leanne Weiss (Ecology), Angela Zeigenfuse (Ecology).

**NAICS CODES OF INDUSTRIES IMPACTED BY THE PROPOSED RULE:** The proposed rule amendments likely impact the following industries, with associated NAICS codes. NAICS definitions and industry hierarchies are discussed at <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2017>.

- 113310 Forestry and Logging
- 321912, 321918 Wood Product Manufacturing
- 332323 Fabricated Metal Product Manufacturing
- 423310, 423930 Merchant Wholesalers, Durable Goods
- 452319 General Merchandise Stores
- 488210 Support Activities for Transportation
- 561990 Administrative and Support Services
- 811122 Repair and Maintenance

**IMPACT ON JOBS:** We used the REMI E3+ model for Washington state to estimate the impact of the proposed rule amendments on jobs in the state, accounting for dynamic adjustments throughout the economy.

The proposed rule amendments would result in transfers of money within and between industries, as compared to the baseline. The modeled impacts on employment are the result of multiple small increases and decreases in employment, prices, and other economic variables across all industries in the state.

We cannot predict which existing dischargers would be included on updated 303(d) lists and what their TMDL would be. We also cannot predict what combination of BMPs and other technology controls an impacted discharger would use. Using the REMI E3+ model, we applied potential costs to various industries, based on current sediment monitoring data. We randomly applied cost range to one business in every identified industry (because of the high degree of the uncertainty), and combined them in one model. The higher end of the costs range were applied to "Forestry and logging" sector, which also affected the results of impact on jobs on the particular industry.

**Table 2: Impacts on jobs**

Industry	Initial Jobs Impact	Jobs Impact in 20 years
Whole state	8	0.25
Forestry and logging	1.7	0.005
Support activities for agriculture and forestry	1.4	0.005
Construction	0.8	0.007
Manufacturing	0.5	0.025
Wholesale trade	0.222	0.008
Retail trade	0.66	0.023
Transportation and warehousing	0.228	0.012

A copy of the statement may be obtained by contacting Susan Bralley, Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, phone 360-764-6560, people with speech disability may call TTY at 877-833-6341, people with impaired hearing may call Washington relay service at 711. To request ADA accommodation for disabilities, or printed materials in a format for the visually impaired, call ecol-

ogy at 360-407-7668 or visit <https://ecology.wa.gov/accessibility>,  
email [swqs@ecy.wa.gov](mailto:swqs@ecy.wa.gov).

October 18, 2021  
Heather R. Bartlett  
Deputy Director

### OTS-3276.3

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 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 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 (CaCO<sub>3</sub>).

**"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 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 de-

sign, 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 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 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 intragravel D.O. 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*), 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 <b>Only</b>	17.5°C (63.5°F)
<del>((Non-anadromous))</del> <u>Nonanadromous Interior Redband Trout</u>	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 (c)(B)(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 con-

sidered 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 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](http://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°C, or 60.8-68°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 one or more of the D.O. criteria.

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

Category	<del>(Lowest)</del> <u>Water Column (1-Day Minimum)</u>		<u>Intragravel* (1-Day Minimum)</u>
Char Spawning and Rearing	<del>((9.5))</del> <u>10 mg/L or 90% oxygen saturation</u>	<b>OR</b>	<u>8.0 mg/L</u>
Core Summer Salmonid Habitat	<del>((9.5))</del> <u>10 mg/L or 90% oxygen saturation</u>		<u>8.0 mg/L</u>
Salmonid Spawning, Rearing, and Migration	<del>((8.0))</del> <u>10 mg/L or 90% oxygen saturation</u>		<u>8.0 mg/L</u>
Salmonid Rearing and Migration <b>Only</b>	<u>6.5 mg/L or 90% oxygen saturation</u>		-
<del>((Non-anadromous))</del> <u>Nonanadromous Interior Redband Trout</u>	<del>((8.0))</del> <u>10 mg/L or 90% oxygen saturation</u>		<u>8.0 mg/L</u>
Indigenous Warm Water Species	<u>6.5 mg/L or 90% oxygen saturation</u>		-

\* Intragravel D.O. must be measured as a spatial median (see WAC 173-201A-020 Definitions).

(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 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 ~~((-));~~ and

(C) Be taken within the same aquatic habitat area when measuring intragravel D.O.

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

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

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

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

(D) 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 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**

<b>Category</b>	<b>Percent Saturation</b>
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 <b>Only</b>	Same as above.
<del>((Non-anadromous))</del> Nonanadromous 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 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 percent as measured in the forebays of the next downstream dams and must not exceed an average of one hundred twenty percent as measured in the tailraces of each dam (these averages are calculated as an average of the twelve highest hourly readings in a calendar day, relative to atmospheric pressure); and

- A maximum TDG saturation level of one hundred twenty-five 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 per cent calculated as an average of the twelve highest hourly TDG measures in a calendar day; and
- A maximum TDG saturation level of one hundred twenty-six per cent 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 fish required weekly) or nonsalmonids (with a minimum sample size of fifty fish required weekly) exceeds:

- Gas bubble trauma in nonpaired fins of fifteen percent; or
- Gas bubble trauma in nonpaired fins of five percent and gas bubbles occlude more than twenty-five 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.

Use Category	pH Units
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 <b>Only</b>	Same as above.
<del>(Non-anadromous)</del> Nonanadromous Interior Redband Trout	Same as above.
Indigenous Warm Water Species	Same as above.

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

(ii) Water bodies shall not contain fine sediment (<2 mm) from anthropogenic sources at levels that cause adverse effects on aquatic life, their reproduction, or habitat. When reference sites are used, sediment conditions shall be compared to sites that represent least disturbed conditions of a neighboring or similar water body.

(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 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 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 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 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.]