



DEPARTMENT OF
ECOLOGY
State of Washington

Final Rule Implementation Plan for Chelan River Use Attainability Analysis and Associated Water Quality Criteria

**Chapter 173-201A WAC, Water Quality
Standards for Surface Waters of the State of
Washington**

September 2021

Publication 21-10-036

Publication and Contact Information

This document is available on the Department of Ecology's website at:
<https://apps.ecology.wa.gov/publications/summarypages/2110036.html>

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Final Rule Implementation Plan
Chapter 173-201A WAC
Water Quality Standards for Surface Waters of the
State of Washington

Water Quality Program
Washington State Department of Ecology
Olympia, Washington

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Purpose

The Washington State Department of Ecology (Ecology) provides the information in this implementation plan to meet agency and Administrative Procedure Act (RCW 34.05.328) requirements related to rule adoptions.

Introduction

On September 17, 2021, Ecology adopted amendments to Chapter 173-201A WAC Water Quality Standards for Surface Waters of the State of Washington (AO # 20-01). The purpose of this rule implementation plan is to inform those who must comply with chapter 173-201A WAC about how Ecology intends to:

- Implement and enforce the rule.
- Inform and educate persons affected by the rule.
- Promote and assist voluntary compliance for the rule.
- Evaluate the rule.
- Train and inform Ecology staff about the new or amended rule.

Also included in this plan is information about:

- Other resources where more information about the rule is available.
- Contact information for Ecology employees who can answer questions about the rule implementation.

Implementation and Enforcement

Facility Affected by the Rule

Chelan PUD owns and operates the Lake Chelan hydropower project built at the headwaters of the Chelan River, and is currently under a 50-year Federal Energy Regulatory Commission (FERC) license. The hydropower project consists of a barrier dam that is now used to delineate Lake Chelan from Chelan River.

FERC relicensed the Lake Chelan hydroelectric project in 2006. As part of the relicensing, Ecology issued a [401 Water Quality Certification](#)¹ (401 WQC). The FERC license and 401 WQC required Chelan PUD to re-water the river from which flows had been diverted for hydropower for over 80 years.

The returned waters now flow year-round through the four miles of the Chelan River to the confluence with the Columbia River. The Chelan River travels through a naturally steep canyon that acts as a barrier to salmonid migration to most of the river. However, salmonids now return to spawn in the lowest half-mile reach near the confluence with the Columbia.

The Chelan River flows from the headwaters located at the Lake Chelan Dam to the mouth at the confluence with the Columbia River. The river has four reaches delineated by distinct geological features. Lake Chelan Dam operations control the elevation of the lake as well as flows in the Chelan River. From 1929-2008, most of the annual flow out of the lake was diverted to the power tunnel, except during high flows when the lake was full, leaving the Chelan River dry under non-spill conditions. Year-round flows for the full stretch of the river began in 2009. The surface water quality standards designate the Chelan River as salmonid spawning, rearing, and migration.

In 1998, Chelan PUD began coordinating with a working group comprised of Ecology, state and federal fisheries managers, tribes and stakeholders to establish biological objectives and a 10-year monitoring and adaptive management plan for the Chelan River, as required by Ecology's 401 WQC and the FERC license. The working group set objectives for Chinook, steelhead, and cutthroat trout for spawning, survival, and habitat use. These objectives were established in the Chelan River Biological Evaluation and Implementation Plan to evaluate attainable aquatic life uses. The plan presented the following actions to meet the biological objectives:

- Study water temperature to inform the best location for a flow release structure to allow cold water withdrawal
- Construct a flow release structure to move coldest water from the dam forebay into the riverbed
- Establish minimum instream flows

¹ https://www.ezview.wa.gov/Portals/_1962/images/FERC%20401s/LkChelanOrder1233.pdf

- Construct a pumping station to provide flows for spawning salmon and steelhead
- Ensure flows adequately meet the biological needs of spawning and juvenile salmonids
- Construct a new river channel and restore riparian habitat in Reach 4
- 10 year monitoring and adaptive management

Between 2007 and 2009, Chelan PUD implemented the above habitat and flow improvement actions. Following implementation, Chelan PUD collected data through a 10-year monitoring and adaptive management program to determine whether the Chelan River met specific biological objectives identified by the working group. The Chelan River Fishery Forum reviewed this monitoring program.

In 2019, Chelan PUD submitted a Use Attainability Analysis Report (UAA Report) to Ecology on the outcome of their implementation, monitoring, and adaptive management plan. According to the report, all objectives established for Chinook salmon and steelhead in Reach 4 were achieved, though the report noted that high summer temperatures may have limited rearing. However, none of the objectives in reaches 1-3 for cutthroat trout, including the establishment of a year-round presence and creating habitat to support a viable population, were met.

The UAA Report identifies several natural conditions of the upper reaches (1-3) of the Chelan River that may have precluded meeting the biological objectives. These include naturally warm headwater conditions that occur in Lake Chelan seasonally, a lack of terrestrial conditions to support significant riparian vegetation, inadequate gravel substrate for spawning, and a large natural barrier in the lower reach of the river (just above Reach 4) that prevents fish from migrating upstream. Because fish cannot migrate from the ocean to areas of the river above reach 4, this barrier also prevents the flow of nutrients from the ocean to the upper reaches, by way of decaying fish carcasses after spawning – nutrients that would benefit the surrounding environment.

The UAA Report presented an assessment of the highest attainable aquatic life uses for the Chelan River based on site history, biological and water quality data before and after water quality and habitat improvement measures were implemented, and regulatory considerations. Based on this assessment, Chelan PUD proposed changing the designated use on the Chelan River from salmonid spawning, rearing, and migration to limited downstream migration on the upper and middle sections (reaches 1-3) and to limited salmonid spawning, rearing, and migration in the lower section (Reach 4). Chelan PUD proposed new temperature and dissolved oxygen criteria that protects these proposed aquatic life use designations.

Revisions to Designated Uses

Reaches 1-3

In this rulemaking, we designated aquatic life uses in reaches 1-3 of the Chelan River established by the return of perennial flows. The previous general designated uses of salmonid spawning, rearing, and migration were not existing uses and were applied without review of local

conditions. We adopted the designated use of **migration for naturally limited waters**, which represents the highest attainable use in reaches 1-3 as demonstrated by the occurrence of naturally occurring pollutant concentrations (namely water temperature), limited habitat availability, and a natural passage barrier. This modification of the aquatic life use is justified under WAC 173-201A-440, 40 CFR 131.10(g)(5), and 40 CFR 131.10(g)(1).

Reach 4

We adopted the designated aquatic life uses in Reach 4 of the Chelan River established by the return of perennial flows. The previous general designated use of full protection for salmonid spawning, rearing, and migration was not an existing use and was applied without review of local conditions. We adopted an aquatic life sub-category of **salmonid spawning, rearing, and migration for naturally limited waters**. This sub-category represents the established propagation of salmonids occurring in Reach 4 since flows were restored, while recognizing that the optimal biological criteria for salmonid spawning, rearing, and migration are not fully achievable due to local conditions. Naturally occurring pollutant concentrations (namely water temperature) limit optimal spawning and rearing success. This modification of the aquatic life use is justified under WAC 173-201A-440 and 40 CFR 131.10(g)(1) and meets the intent of the UAA and 40 CFR 131.10(j)(2) to designate a sub-category of a use that requires criteria less stringent than previously applicable.

Associated Water Quality Criteria

Changes to the associated water quality criteria may accompany modification of a designated use under a UAA when naturally occurring pollutant concentrations preclude the attainment of the use. To protect the highest attainable aquatic life uses, water quality criteria that are specific to the Chelan River are needed to account for the unique characteristics of the water body. Furthermore, the water quality criteria should account for variation in water conditions that can accompany different climatic conditions, including predominately wet and dry years. During the monitoring program, Chelan PUD characterized water quality during both dry and wet climatic years. These variations in climate can directly affect water quality conditions in the river and lake.

The adopted water quality criteria for water temperature and dissolved oxygen for reaches 1-3 and Reach 4 are primarily based on the influence of Lake Chelan on water temperatures in Chelan River and a limited capacity to reduce solar heating.

Water quality criteria are dependent on maintaining the highest attainable conditions. These conditions have been identified in the ten-year monitoring program conducted by Chelan PUD. These studies indicate that the warmest water temperature conditions occur from mid-May through mid-October when the lower portions of Lake Chelan reach water temperatures that result in lower water quality. The adopted criteria are based on Lake Chelan water temperatures as well as warming that occurs due to solar heating over the distance of the river. The objective of the adopted criteria is to limit the extent of warming within the river to current conditions after accounting for the temperature of the source water (background).

The criteria developed for temperature account for warming of the Chelan River that occurs naturally through solar heating. Given that the calculation of the criteria is meant to limit heat inputs to only those natural warming conditions, we established in rule that no further point source and nonpoint heat inputs be allowed in the Chelan River. This ensures that the assumptions made in the UAA remain the same in the future and the highest attainable use is not affected by further heat sources.

Special Temperature Provision

We have adopted the special temperature provision that “no further point or non-point heat source inputs are allowed downstream of the Lake Chelan Dam outlet to the Chelan River confluence with the Columbia River.” This provision is intended to limit additional heat sources beyond the current state of operations of the hydropower project, point source dischargers, and non-point sources controlled by the Lake Chelan Hydroelectric Project. The adopted designated uses and associated criteria are intended to protect existing aquatic life and river conditions in their current state.

Implementation of the revised designated uses and associated water quality criteria

The adopted temperature criteria require that Chelan PUD monitor water temperature from the top of Reach 1 to the end of Reach 3 and from the end of Reach 3 to the end of the Reach 4 habitat channel. This water quality monitoring is necessary to determine the natural temperature increase occurring over the distance of reaches 1 to 3 and Reach 4. The temperature criteria restricts the warming of the Chelan River to only naturally occurring heat inputs. Chelan PUD will need to continuously monitor at the Lake Chelan dam outlet, the end of the Reach 3 canyon, and at the end of the Reach 4 habitat channel. This monitoring will be necessary to determine compliance with the new temperature criteria to maintain the highest attainable aquatic life uses identified in this rulemaking.

Ecology specified in the 401 WQC that it retains the right to require additional monitoring or studies if necessary to provide reasonable assurance of compliance with water quality standards or other appropriate requirements of state law. Ecology will utilize this provision to require that Chelan PUD monitor, at a minimum, those locations described above that are necessary for demonstrating compliance with the adopted temperature criteria.

Implementing changes to permits

Currently, Washington has not issued any National Pollutant Discharge Elimination System (NPDES) permits for discharges to the Chelan River. If any facilities request permits to discharge point source pollutants to this waterbody then those permits would be written to not result in an exceedance of these new standards.

We have incorporated a special provision into the water quality standards that limits heat inputs to only natural heat sources and prohibit further point or non-point heat inputs in the Chelan River. The adopted temperature criteria developed for the Chelan River limit water temperatures to natural warming that occurs due to solar heating. This means no discharges to the Chelan River may increase temperature conditions.

Implementing the adopted criteria in the Water Quality Assessment (303d/305b Integrated Report)

The Water Quality Assessment for Washington State is a report on the status of state waters, which fulfills Section 303(d) and 305(b) requirements in the Federal Clean Water Act (CWA).

Under the CWA, Ecology produces a list of impaired waters that do not meet the water quality standards. This list is commonly called the 303(d) list, since the requirement comes from Section 303(d) of the federal CWA. Future 303(d) lists will use the most current water quality standards that have been approved by EPA at the time the 303(d) list is compiled. These new water quality standards for the Chelan River will be used in the next Water Quality Assessment that is expected in the next 2 years.

The adopted temperature and dissolved oxygen criteria must be attained by the Chelan PUD hydropower operations. Additionally the 401 WQC requires monitoring to ensure compliance with water quality standards. Due to this regulatory control of the Chelan PUD hydropower operations, Ecology does not anticipate a future 303(d) listing in this waterbody caused by Chelan PUD. However, if other anthropogenic inputs or activities in the Lake Chelan headwaters that are independent of Chelan PUD hydropower operations cause degradation of the river conditions in the future, a 303(d) listing could be appropriate.

Implementing adopted criteria in current and future Total Maximum Daily Loads (TMDLs)

In the future, if the Chelan River is identified as impaired on the Washington State 303(d) list for any parameter, then a Total Maximum Daily Load (TMDL) or water cleanup plan will be developed that will determine how to get the waterbody back to meeting water quality standards. This rule and the 401 WQC will ensure that temperature and dissolved oxygen conditions meet water quality standards in relation to inputs within the Chelan River and required hydropower operations. If dissolved oxygen and temperature conditions in Lake Chelan were to lead to future degradation in the river, a TMDL would be written reduce any anthropogenic sources in the lake that contribute to that condition.

Implementing adopted criteria in Ecology's Nonpoint Program

Chapter 90.48 RCW, Water Pollution Control Act, regulates nonpoint source pollution. No nonpoint inputs to the river have been identified that would impact the temperature or dissolved oxygen conditions of the river. The implementation of our nonpoint programs and authorities will not change as a result of this rule.

Informing and Educating Persons Affected by the Rule

Previous Outreach

During the Code Reviser (CR)-101 phase of this rulemaking, we reached out to entities through emails, relevant water quality listservs, websites, and in-person meetings in order to discuss the implications of the potential revisions and answer questions.

Specifically, during this phase we:

- Met with representatives from the Yakama Nation, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Reservation, and the Columbia River Intertribal Fisheries Commission to gain perspectives and answer questions.
- Presented at the Northwest Indian Fisheries Commission tribal water quality team meeting.
- Presented at the Chelan River Fish Forum, Rocky Reach Fish Forum, Priest Rapids/Wanapum Fish Forum, and the Aquatic Settlement Workgroup, which included entities from the Confederated Tribes of the Colville Reservation, Yakama Nation, Chelan County PUD, Grant County PUD, Douglas County PUD, U.S. Fish & Wildlife Service, National Park Service, United State Geological Survey, and Washington Department of Fish & Wildlife.

Rule Proposal

During the rule proposal (CR-102) phase, we accepted public comment on the proposed rule from March 24 until May 21, 2021. State guidance on the COVID-19 pandemic did not provide for in-person hearings, therefore, we held online public hearings to discuss the proposed rule change and collect formal comments. The public hearings consisted of a presentation of the rulemaking information, after which we offered the opportunity to provide formal testimony. We did not receive any formal testimony at the public hearings. We received written comments from several entities. All comments received and Ecology's responses are available in the Concise Explanatory Statement associated with this rule.

We met with Yakama Nation fisheries and natural resources staff to discuss comments submitted during the CR-102. This meeting helped Ecology provide further information about this rule and better understand the concerns expressed in the Yakama Nation comment letter.

Future Outreach

We intend to inform and educate persons affected by the adopted rule by:

- Providing continued opportunities to meet and discuss the implementation of the adopted rule with stakeholders.

- Providing continued opportunities for discussions and government-to-government consultation about the adopted rule with interested tribes.
- Educating Ecology staff on how best to implement the rule in their CWA action work.
- Reviewing and approving Chelan PUDs monitoring plans to demonstrate compliance with revised water quality standards.

Promoting and Assisting Voluntary Compliance

Because of the nature of the rule, Ecology does not need to promote or assist voluntary compliance. However, Ecology will continue to provide support and guidance to Chelan PUD on compliance with the Lake Chelan hydroelectric project 401 WQC and revised criteria for the Chelan River.

Evaluating the Rule

The purpose of the surface water quality standards is to restore and maintain the chemical, physical, and biological integrity of Washington's waters. More specifically, the water quality standards are designed to protect public health, public recreation in the waters, and the propagation of fish, shellfish, and wildlife. The numeric and narrative criteria in the water quality standards are intended to protect those beneficial uses. Water quality criteria are designed to protect the highest attainable aquatic life uses. When naturally occurring pollutant concentrations preclude the attainment of an aquatic life use, changes in both the use and water quality criteria are warranted to reflect the unique characteristics of the river.

The 401 WQC includes a condition that requires the Chelan PUD to monitor to ensure water quality standards are met. Additionally, condition (IV)(D)(ii) in the 401 WQC allows modification to the monitoring requirements including additional parameters. Ecology will employ this condition to require modifications to temperature monitoring and additional dissolved oxygen monitoring be collected by Chelan PUD. Monitoring data submitted by Chelan PUD (meeting requirements of the Data Quality Act; RCW 90.48.570-590) will be used to determine whether the designated uses and associated water quality criteria are met.

Training and Informing Ecology Staff

A rulemaking requires broad outreach to Ecology permit writers, staff, and management involved with water quality regulation. This will be achieved through meetings, email communication, written guidance, and one-to-one communication. After this rule is adopted, Ecology will notify all Ecology staff who use the criteria. Ecology will also notify all Ecology staff after EPA has finished its CWA review of the adopted standards. EPA is required to review and approve new rule language before use for CWA actions.

Additional training on implementation of the revised water quality standards will be provided to Ecology staff upon request. We will use this document to guide staff to understand the monitoring requirements and direct review of Chelan PUD temperature and dissolved oxygen data.

List of Supporting Documents that May Need to be Written or Revised

Ecology did not identify any documents that would need to be written or revised because of the final rule adoption.

More Information

- [Final Technical Support Document](#)²
- [Final Rule Language](#)³
- Ecology [blog on the Chelan UAA project](#)⁴
- Ecology's website on the [Chelan UAA rulemaking](#)⁵
- [Washington State Rules on UAAs](#)⁶

² <https://apps.ecology.gov/publications/summarypages/2110037.html>

³ <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC173-201A-Chelan-UAA>

⁴ <https://ecology.wa.gov/Blog/Posts/October-2020/If-they-build-it,-will-the-salmon-come>

⁵ <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC173-201A-Chelan-UAA>

⁶ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-440>

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