State of Oregon Department of Environmental Quality

Oregon Environmental Quality Commission Meeting

Nov. 16, 2023

Rulemaking Action Item F

Amendments to Water Quality Standards: Updating Fish and Aquatic Life Use Designations

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DEQ recommendation to the EQC

DEQ recommends that the Environmental Quality Commission adopt the proposed amendments to OAR 340-041-0002 and OAR 340-041-0101 through 340-041-0340, as shown in Attachment A.

Language of proposed EQC motion:

"I move that the commission adopt the proposed rule amendments to OAR 340-041-0002 and OAR 340-041-0101 through 340-041-0340, as shown in Attachment A ."

Introduction

Overview

DEQ proposes the Environmental Quality Commission adopt amendments to the state's water quality standards. The amendments update the aquatic life use designations associated with Oregon's temperature standard and designate aquatic life uses associated with Oregon's dissolved oxygen standard for the first time in rule. The updates and the new designations are based on the best available scientific data and information.

Additional proposed amendments clarify the terms "Cold-Water Aquatic Life" and "Cool Water Aquatic Life" in the Division 41 definitions.

DEQ published revised pH criteria for the Crooked River and Trout Creek subbasins of the Deschutes basin for public comment. However, staff are not proposing to revise the pH criteria at this time.

Short summary of proposed rule changes

The proposed amendments update the fish and aquatic life use designations in OAR 340-041-0101 to OAR 340-041-0340. The proposed rules replace the existing fish and spawning use maps and amend the fish use tables for the use subcategories associated with the temperature standard. The proposed rules also add new maps and tables to designate the use of subcategories associated with the dissolved oxygen use in the water quality standards regulation for the first time.

DEQ also proposes to revise the terms "Cool Water Aquatic Life" and "Cold-Water Aquatic Life" in OAR-340-041-0002 (9) and (12), to "Cool Water Species" and "Cold Water Species," respectively.

Background of reasons for doing this rulemaking

Water Quality Standards are comprised of designated beneficial uses, water quality criteria established to protect the designated uses, and an antidegradation policy (40 CFR 131.6). The beneficial use designations for fish and aquatic life set the protection goals for a waterbody and determine which temperature and dissolved oxygen criteria apply to the waterbody. This rulemaking is needed to ensure that Oregon's use designations are accurate and appropriate based on the best available scientific information. The proposed rule amendments will improve DEQ's ability to apply the appropriate temperature and dissolved oxygen criteria to protect fish and aquatic life uses.

In 2003, as part of the temperature standard rulemaking, DEQ mapped the fish use subcategories associated with the various criteria of the temperature standard. This specificity was required as the result of litigation because the court found that it was not clear what times of the year and to which waterbodies or waterbody segments the various temperature criteria applied. The 2003 mapping relied primarily on fish species and life stage distribution and timing information from

the Oregon Department of Fish and Wildlife. ODFW's database relied on direct observations and field survey data as well as the professional opinions of biologists where direct observation or survey data were not available. The uses adopted in 2003 are contained in tables and maps in the water quality standards rules (OAR-340-041-0101 to OAR-340-041-0340).

With few exceptions, DEQ has not updated the fish use maps and tables for temperature since 2003. However, much additional data and information have become available over those 20 years. The proposed updates incorporate the following changes since 2003:

1. ODFW has completed significant updates to their statewide fish habitat distribution database. Many of the updates replace the professional judgment available in 2003 with data from direct field observations and assessments of species and habitat distribution.
2. Restoration projects and dam enhancements and removals have restored access to some previously blocked streams.
3. In 2010, the U.S. Fish and Wildlife Service designated critical habitats for Bull Trout, which are not accurately reflected in the state's current designations.
4. In 2009, the State of Oregon adopted the National Hydrography Dataset as the state geospatial standard for hydrographic data. DEQ's current fish use maps were made using an older hydrographic mapping system and are incompatible with the newer spatial data standards for Oregon.

In addition, this rulemaking designates aquatic life uses associated with the dissolved oxygen standard in rule for the first time. The standard was adopted in 1996. At that time, Oregon did not designate aquatic life use subcategories in rule. However, Oregon has applied the standards consistently for many years as described in memoranda to the U.S. Environmental Protection Agency in 1998 and 2004. These memos identify how DEQ determines where and when the various DO criteria are applied to protect aquatic life and have been DEQ's standard practice since 1998. There has been a longstanding need to clarify in rule where and when the salmonid spawning criteria for DO apply because this criterion applies to resident trout spawning in addition to salmon and steelhead spawning. DEQ is proposing to adopt waterbody-specific aquatic life use subcategory designations for DO in rule consistent with existing implementation procedures, where appropriate, using the greater amount of data now available. There are still data gaps for where resident trout species spawn. Therefore, DEQ will designate spawning where it is known to or highly likely to occur and establish an inventory to document additional "active spawning areas used by resident trout" as new data becomes available. Per the DO spawning criterion, the criteria apply to these active spawning areas even if the use is not yet formally designated in rule.

The terms "Cold Water Aquatic Life" and "Cool Water Aquatic Life" are used in the DO standard adopted in 1996. and have been applied according to the definitions in OAR 340-041-0016, Table 21 since that time. The DO standard uses these terms to describe two of the aquatic life use subcategories, each with a different DO criterion. The terms in the definitions rule (OAR-240-041-0002) were amended during the temperature standard rulemaking in 2003 and are inconsistent with the definitions in the DO standard. However, these terms are not used in the temperature standard. The definitions were intended to identify which fish species are typically classified as cold versus cool water species for information purposes and the temperature standard does use the term "cool water species." The standard does use these terms to describe

two of the aquatic life use subcategories defined in OAR 340-041-0016, and OAR 340-041-0016 Table 21. DEQ is proposing to revise the terms in the definitions rule OAR 340-041-0002 to "Cold Water Species" and "Cool Water Species." These terms are more precise given the definitions in OAR 340-041-0002 and eliminate the inconsistency with the terms and definitions in OAR 340-041-0016, Table 21.

DEQ considered revising the pH criteria for the Crooked River and Trout Creek subbasins of the Deschutes Basin. EQC adopted the current pH criteria for the Deschutes basin in 1996. The pH criteria vary by region, with an upper limit of 8.5 pH units in coastal and Cascade streams, and an upper limit of 9.0 pH units in eastern and south central Oregon streams. The range up to 9.0 pH units protects aquatic life, including salmon and trout. The upper limit of 8.5 pH units was adopted for coastal and Cascade streams, because levels greater than 8.5 pH units would be unusual under natural conditions in those waterbodies.

While many of the Deschutes basin streams originate in the Cascade Mountains, the streams in the Crooked River and Trout Creek subbasins originate in the more arid ecoregion east of the Deschutes River. The geology and climate of these subbasins are similar to other eastern Oregon streams, including the adjacent John Day basin. These watersheds are primarily located in the John Day/Clarno Uplands Level IV ecoregion along with most of the adjacent John Day basin. Changing the upper pH criteria for the Crooked River and Trout Creek subbasins to 9.0 would make the pH standard consistent with subbasins of similar geological, hydrological and ecological character in eastern and south central Oregon while remaining protective of aquatic life. If the current criteria are not attainable due to natural conditions, an upper pH limit of 9.0 would provide a more appropriate target for implementation of TMDLs and other water quality programs.

How this rulemaking addresses the reasons for doing the rulemaking

This rulemaking applies the best available and most up to date scientific information about the distribution of sensitive species of aquatic life and habitats across the state of Oregon to update the aquatic life use designations used to apply criteria for temperature and dissolved oxygen. The proposed rule amendments ensure the aquatic life uses designated for waterbodies are correct, and the appropriate criteria will be applied to protect fish and aquatic life. The additional rule amendments will clarify terms used in the water quality standards rules. DEQ does not propose to revise the pH criteria for the Crooked River and Trout Creek subbasins at this time. In response to concerns expressed in public comment, DEQ recommends we defer adoption of this revision. In the meantime, DEQ plans to collect and analyze additional data on natural background pH levels in these subbasins and then reevaluate whether to revise the pH criteria.

Key policy and technical issues

Information needed for Use Attainability Analysis

A key technical issue is determining and acquiring the data and information needed to support an updated aquatic life use designation that is subject to less stringent criteria than the currently designated use. When a state changes the use designation to one with a less stringent water quality criterion, federal regulations require a Use Attainability Analysis. The analysis must

demonstrate that the current use subcategory is not attainable and must identify the highest attainable use. Federal regulations and EPA policy require a very high bar of information to demonstrate why the use is not attainable and what the highest attainable use is. DEQ developed this analysis in consultation with EPA. The scope and information required for these analyses increases the complexity of the rulemaking process and documentation. DEQ is proposing to revise the current aquatic life use designations based on the best available data and information and multiple lines of evidence. However, there are locations where use changes would be consistent with ODFW's updated fish distribution database that DEQ is not proposing to change because EPA has indicated that DEQ does not have sufficient site-specific information to justify the change or determine the highest attainable use.

Whether the current pH criteria of the Crooked River and Trout Creek subbasins are attainable

In the draft rules for public comment, DEQ proposed to change the upper limit of the pH criteria for these subbasins from 8.5 to 9.0. DEQ is concerned that the current upper limit pH criteria of 8.5 is not attainable throughout the subbasins and wants to establish accurate and appropriate criteria as targets for the upcoming TMDL. A new limit of 9.0 would protect aquatic life, as it does in similar eastern Oregon basins. DEQ considered the weight of evidence suggesting it is likely that the natural background of pH exceeds 8.5 within these subbasins. However, several parties were concerned that pH levels in these basins are being impacted by human activity, that improvements could be made by reducing pollution loading, and that there is insufficient data to conclude that pH levels above 8.5 are within the natural range.

A Total Maximum Daily Load is scheduled to address water quality impairments in the Crooked River, including pH, but will not begin for a few years. Because the TMDL is not imminent, DEQ will evaluate additional data, which would be beneficial to support the pH criteria revision for these subbasins. Therefore, in response to public comments, DEQ has withdrawn the proposed pH criteria from this rulemaking and will re-evaluate the need to revise the criteria at a later time.

Incomplete information available to identify all "active spawning areas" used by resident trout

Data on the specific locations of resident trout spawning habitat are incomplete. This information is needed to designate spawning habitat for purposes of applying the dissolved oxygen salmonid spawning criteria. There is now ample information identifying the waterbodies where resident trout occur, but not all of these waters provide spawning habitat. Wherever the best available data identifies the stream is an active spawning area used by resident trout, DEQ is designating those waters for salmonid spawning in the rule. DEQ is also making some conservative assumptions, with input from ODFW, to designate waters highly likely to provide resident trout spawning habitat. In addition, DEQ is designating spawning for Lahontan cutthroat trout throughout their range irrespective of whether site-specific information exists confirming spawning occurs in these locations because they are listed as threatened under the Endangered Species Act, their range in Oregon is very limited, and the spawning areas within their range can change from year to year based on fluctuating stream flows in the arid part of the state where they occur.

DEQ will incorporate new information on resident trout spawning locations as additional data become available

DEQ's goal is to ensure that Oregon's use designations are accurate and appropriately based on the best scientific data available to protect aquatic life uses. Therefore, DEQ will also develop procedures, in coordination with ODFW, to identify and evaluate additional data on resident trout spawning habitat as it becomes available. DEQ will track newly identified spawning areas and apply the DO spawning criterion to protect that aquatic life use as stated in the DO standard rule (OAR 340-041-0016(1)). These reaches can be formally designated as salmonid spawning uses in a future rulemaking.

End dates when spawning criteria for dissolved oxygen are applied

Some interested parties questioned DEQ's methodology for determining the end dates for "Salmonid Spawning" use under the DO standard. DEQ has applied the same methodology to determine the end dates for salmon, steelhead, and resident trout spawning since 2004. The DO "Salmonid Spawning" criteria protect adult spawning and egg incubation. They are applied until May 15 and until June 15 in waters that remain colder throughout the season. There are additional site-specific dates for Bull Trout and Lahontan Cutthroat Trout spawning. DEQ's methodology for deriving these end dates is supported by data and scientific literature. The National Marine Fisheries Service also consulted on and approved the application of spawning criteria using these end dates in a biological opinion on the intergravel DO criteria in 2015. In addition, there were no concerns about this methodology raised by DEQ's Technical Advisory Workgroup. The methodology is also consistent with the time periods when the salmon and steelhead spawning criteria associated with the temperature standard are applied.

Affected parties

This rulemaking has a statewide scope and potentially affects Oregon waters statewide. The interests of a cross-section of communities are likely to be affected by the rule. The revisions to aquatic life use designations contained within this rulemaking have been developed based on the most up-to-date scientific and technical information. Most of the waterbodies will retain the same designations. However, some of the revisions will result in application of less stringent water quality standards and some of the revisions will result in application of more stringent water quality standards to waterbodies. Therefore, some amendments are expected to affect some National Pollutant Discharge Elimination System permit holders with temperature or DO limits that will be subject to more stringent criteria, including some Publicly Owned Treatment Works and dam operators who have Clean Water Act Section 401 water quality certifications. In other cases, those requirements may become less stringent. In addition, some nonpoint source activities may be impacted. The rules could indirectly benefit commercial and sport fishing businesses by ensuring that Oregon's salmonid populations are protected into the future. Other parties that could have interests in the health of fish and aquatic life include the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Tribes with lands or usual and accustomed fishing areas in Oregon, environmental or conservation Non-Governmental Organizations, recreational users and tourists, and researchers. For additional information, see the Fiscal and Economic Impact Statement below.

Outreach efforts and public and interested parties involvement

DEQ formed an external technical workgroup of experts in fish habitat distribution with representatives from state, federal, and tribal natural resource and wildlife management agencies. The technical workgroup advised DEQ on available data sources and revising the methodology to use the data sources to identify where and when aquatic life uses occur. DEQ also formed a rulemaking advisory committee and met with the committee five times to discuss and obtain early input on the proposed aquatic life use updates, the methodologies, and the fiscal impacts of the proposed use updates. The committee provided information DEQ used to draft the fiscal impact statement. More information on the Rule Advisory Committee can be found under the sections of the advisory committee and the fiscal impact statement below.

DEQ provided an advanced notice of the rulemaking to all Oregon tribes. They were welcomed and encouraged to participate in the technical workgroup and stakeholder rule advisory process as well as invited to consult directly with DEQ on a government-to-government basis about this rulemaking, according to their preference. Tribal government representatives participated in both the technical workgroup and the rulemaking advisory committee.

Brief summary of fiscal impact

The proposed rule amendments ensure Oregon's aquatic life use designations are accurate and reflect the current and potential habitats for aquatic life. In some cases, these rule changes will result in more stringent criteria applying in some locations and less stringent criteria applying in other locations. Where uses are changing such that a more stringent criterion applies, the changes may provide additional protection from current pollutant sources, but primarily will ensure the appropriate protections are in place to preserve water quality. DEQ estimates that waters receiving more stringent criteria may have a positive economic impact in some regions. If fish populations are protected in the future and possibly increase, there may be positive fiscal impacts for commercial and recreational fishing related businesses, tribal fisheries, and related jobs and incomes due to increased abundance of fish and aquatic life. In contrast, there may be negative fiscal impacts on other state agencies, businesses or the public if the proposed rules result in more stringent permit limits leading to increased industrial wastewater treatment costs, municipal wastewater treatment costs or sewage treatment fees.

Statement of need

Proposed Rule or Topic	Discussion
Aquatic Life Use Designation Updates	
What need would the proposed rule address?	Oregon's current aquatic life use designations, which are part of the state's water quality standards, were last revised in 2003. The rule amendments incorporate the last 20 years of new fish and habitat data and information to ensure that these use designations are accurate, protective, and based on the best available scientific information.
How would the proposed rule address the need?	The rules incorporate and apply the most up -to -date scientific data and information available on the aquatic life uses associated with the temperature and dissolved oxygen standards. The revisions to Oregon's water quality standards rules specify where and when these designations apply based on this information.
How will DEQ know the rule addressed the need?	DEQ will know the rule addressed the need because the new designations incorporate the best available data and information and will protect aquatic life uses.
Aquatic Life Use definitions	
What need would the proposed rule address?	The proposed rule amendments clarify inconsistencies in the use and definition of the terms "Cold Water Aquatic Life" and "Cool Water Aquatic Life" between the general definitions and the dissolved oxygen standard in Oregon's administrative rules.
How would the proposed rule address the need?	This rule will resolve the inconsistency in the terms and definitions in Oregon's administrative rules.
How will DEQ know the rule addressed the need?	DEQ will eliminate the inconsistency and potential for confusion between the terms and definitions in OAR-340-041-0002 and

Proposed Rule or Topic	Discussion
	the definitions in the dissolved oxygen rule OAR-340-041-0016 Table 21.

Rules affected, authorities, supporting documents

Lead division

Water Quality

Program or activity

Water Quality Standards

Chapter 340 action

Amend				
340-041-0002	340-041-0101	340-041-0121	340-041-0130	340-041-0140
340-041-0151	340-041-0160	340-041-0170	340-041-0180	340-041-0190
340-041-0201	340-041-0220	340-041-0230	340-041-0250	340-041-0260
340-041-0271	340-041-0286	340-041-0300	340-041-0310	340-041-0320
340-041-0330	340-041-0340			

Statutory Authority - ORS				
468.020	468B.010	468B.015	468B.030	468B.035
468B.048				

Statutes Implemented - ORS				
ORS 468B.030	ORS 468B.035	468B.048		

Documents relied on for rulemaking:

Document title	Document location
Aquatic Life Use Updates Technical Support Document	LINK to document
Use Attainability Analysis for Aquatic Life Use Designations	LINK to document
Issue Paper: Aquatic Life Use Definitions Clarification	LINK to document
Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon	LINK to document

Fee analysis

This rulemaking does not involve fees.

Statement of fiscal and economic impact

Fiscal and economic impact

The proposed rules will amend the aquatic life use subcategory designations associated with Oregon's temperature standard and clarify in rule where and when the use subcategories associated with the DO standard apply. Previously, the subcategories for the DO standard were not designated to specific waterbodies in rule and were not explicitly mapped. New data are being used to update the aquatic life use subcategories associated with the existing temperature standard, and to designate waterbodies for the use subcategories associated with the DO standard in rule for the first time.

Updates to the aquatic life use subcategories associated with the temperature standard will result in more stringent criteria in some waters and less stringent criteria in others. However, the designated aquatic life use subcategories for most waters will not change. The aquatic life use updates are based on the habitats that are currently present in waterbodies or are attainable in the future; for example, where biologists have determined there is potential for re-introduction of Bull Trout. In most cases, where the use is being changed to a use associated with a more stringent criterion it is because the use or the habitat is currently present. However, applying the appropriate temperature and dissolved oxygen criteria will ensure that the uses and habitat conditions continue to be protected.

Waters with more stringent criteria include those for which the state has improved information and data about aquatic life uses. In addition, since DEQ initially mapped aquatic life use subcategories in 2003, restoration projects and dam removals have opened certain previously blocked streams to fish passage. DEQ estimates that waters with more stringent criteria may have a positive economic impact in some regions. For example, application of more stringent water quality standards resulting from the proposed rulemaking may have positive effects by ensuring that Oregon's salmonid and resident trout populations are protected into the future. Where DEQ's assessment of appropriate criteria for a location results in more stringent criteria, the fish will be better protected, and there may be positive fiscal impacts for commercial and recreational fishing related businesses, jobs, and incomes. In contrast, there may be negative fiscal impacts on businesses or the public as a result of the proposed rules if the resultant permit limits are more stringent, which could cause increased wastewater treatment costs or sewage treatment fees.

As part of this rulemaking, DEQ solicited input on a proposal to revise the pH criteria for the Crooked River subbasin and the Trout Creek subbasin in the Deschutes basin. The revised criteria would be consistent with the pH criteria for nearby basins with similar geological, hydrological and ecological conditions and might better reflect the range of natural conditions of these subbasins. DEQ does not expect the proposed pH criteria revisions to adversely affect aquatic life because they would also protect the species found in these subbasins. In addition, DEQ does not expect any fiscal impacts from a revision of the pH criterion.

As part of this rulemaking, DEQ is also proposing to revise two terms defined in OAR 340-041-0002. The terms *cold water aquatic life* and *cool water aquatic life* are being revised to *cold*

water species and *cool water species*. The revisions clarify the terms and eliminate an inconsistency with the terms defined in Table 21 of the DO standard (OAR340-041-0016). DEQ does not expect the revision of these terms to have any fiscal impacts because the revision of these terms will not affect how DEQ applies the DO criteria.

Statement of cost of compliance

DEQ is unable to quantify the cost of compliance due to the lack of data. Where the designated use for a waterbody changes to one with a less stringent temperature or DO criterion, the change could provide a fiscal benefit to regulated point sources. Where the use changes mean the applicable criteria are more stringent, the proposed rules could lead to a fiscal impact for permitted sources. The proposed use updates will include both scenarios. DEQ estimates that the proposed rule amendments (for both temperature and DO) may directly affect up to a total of 44 NPDES-permitted facilities throughout the state of Oregon and estimates that fewer than 15 facilities will be subject to more stringent permit limits.
In general, more accurate mapping, better data and more accurate criteria are expected to reduce regulatory complexity and uncertainty, thus reducing costs of both compliance and implementation of the standards.

State agencies

Direct impacts

Department of Environmental Quality

DEQ is required to renew NPDES discharge permits every five years. Regarding the proposed use updates for temperature, DEQ has identified 39 major and minor NPDES facilities with individual permits that may be impacted by a change in criteria. Nine of the 39 facilities may be subject to more stringent permit limits for temperature. The specific facilities and waterbodies can be seen in the appendix entitled "Potential NPDES Impacts."

Staff identified five NPDES facilities that will discharge to waters with more stringent DO criteria. There is currently insufficient information to determine whether water quality in these waters is achieving the new DO criteria. Only if the waterbodies are found to be impaired for the more stringent criteria, additional staff time will likely be needed to renew these permits due to the need for the analysis and development of effluent limits. However, the amount of time needed will not be known until site specific data is collected and analysis is performed. The impact to a specific facility is best evaluated on a site-specific basis.

If additional waters are listed as impaired for temperature or DO due to the use changes, DEQ will need to develop total maximum daily loads for these waterbodies, which would require added resource expenditures.

Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife operates 34 fish hatcheries to supplement the production of native fish populations and maintain commercial, sport and Tribal fisheries. Thirty hatcheries operate under the NPDES general permit, and four hatcheries operate under individual permits. ODFW has identified ten of these facilities are located on waters that could be subject to

more stringent water quality criteria for temperature under the proposed rules. Whether there are any specific costs for compliance cannot be determined at the time of this rulemaking. ODFW estimates that costs associated with achieving compliance if one or more of these facilities is required to install direct effluent treatment could have capital costs in the range of $28 thousand to $1.67 million per million gallons per day per degree Celsius treated. In addition, ongoing operations and maintenance could cost in the range of $28,000 to $280,000 per MGD per degree Celsius treated per year dependent on the degree of temperature impairment. Alternatively, ODFW estimates that management through water quality trading programs could cost $455,000 to $4.55 million annually based on similar trading programs in Oregon. DEQ has not verified these costs. Alternatives for addressing thermal loading from any given facility would need to be evaluated on a site-specific basis.

Indirect impacts
DEQ does not expect indirect impacts from the proposed rules.

Local governments

Direct impacts
The proposed rules may result in either more or less stringent permit limits for temperature and biological oxygen demand for 31 publicly owned treatment works (POTWs). To the extent that the proposed rules will result in more stringent permit limits, local governments that operate POTWs may need to improve treatment processes to meet these limits. This could involve any number of treatment or implementation options including water quality trading, constructed wetlands, hyporheic zone injection, storage, cooling ponds, spray ponds, cooling towers, mechanical chillers and other technologies. More stringent limits associated with DO criteria might require adjustments in current practices for these facilities, such as increased need for flocculent or other chemicals needed to address biological oxygen demand. Because the need of each facility is unique, there is insufficient information to estimate how many facilities will receive more stringent permit limits or how much it will cost to meet those limits. Similarly, there is not sufficient information to determine whether the proposed changes will result in less stringent permit limits for certain facilities or whether the revised limits would result in cost savings. The circumstances leading to adoption of less stringent permit limits for a facility with an established limit are rare. The impact to a specific facility is best evaluated on a site-specific basis.

Indirect impacts
DEQ does not expect indirect impacts to local governments. However, in some locations revised temperature and DO-related designations resulting in application of more stringent criteria due to the proposed rules may contribute to: (i) increased protection of investments by non-profits, governmental entities, and other parties in improving water quality and protecting native fish across the state, and (ii) ensure continued productivity of recreational and commercial fisheries that are dependent on protective (and accurately mapped) water quality standards.

There are multiple tribal nations throughout Oregon with fishing rights in Oregon waters. Accurate water quality standards that protect fisheries support the role of fishing in tribal cultures and a secure economic future for the tribal nations.

Public

Direct impacts

DEQ expects an overall positive direct fiscal impact to the public as a result of the proposed rules. Commercial and recreational fishing is a major economic driver in the Oregon economy, especially in smaller rural communities. Small Oregon coastal communities that heavily rely on commercial salmon fishing for their income, may experience a positive fiscal impact due to the proposed rules, if salmon populations increase.

According to the Deschutes River Alliance, the statewide economic contribution of recreational anglers to Oregon's economy as of 2018 was $1.5 billion dollars, supporting 13,120 jobs. It was estimated that 569,600 Oregon recreational anglers spent $871.8 million in 2018.[1] The proposed rules may have a positive fiscal impact on income from recreational anglers if salmon populations increase. Providing access to recreational salmon fishing may also have a positive fiscal impact on the public who can use the salmon as a food source.

In contrast, some negative fiscal impacts on the public are possible as a result of the proposed rules if more stringent permit limits for POTWs cause increased fees for the public. However, insufficient data are available to estimate exact costs.

Indirect impacts

The Rulemaking Advisory Committee identified potential for indirect positive fiscal impacts on the public from the proposed rules: 1) improve the ecological health of Oregon's watersheds resulting in lower treatment costs for municipal water providers, 2) improve recreational opportunities resulting from cleaner and more productive waters, or 3) increase transfer of salmon-derived nutrients in the ecosystem from migration resulting in healthier forests and freshwater communities. However, DEQ expects that the rules will have minimal effect on fish populations in the near term. Rather, the new uses better reflect and will protect the habitats that currently exist.

There may be indirect negative fiscal impacts on the public if wastewater utilities increase fees to their customers to comply with more stringent criteria. For example, if any of the NPDES permit holders cannot meet more stringent temperature or DO requirements in their permits with current facilities, operations, and approved water quality trading plans, additional facilities (capital improvements) and increased operational costs (power, operations, and maintenance, and/or expanded water quality trading plans) may be required. To calculate specific cost impacts, updated facilities plans and alternatives analyses would need to be considered. Therefore, specific costs cannot be documented at the time of this rulemaking and are best addressed on a site-specific basis.

The Oregon Association of Clean Water Agencies suggested that wastewater utilities and industries may be required to take additional action to meet compliance if more stringent criteria apply. Wastewater utilities have two sources of revenue to fund capital and operational costs associated with NPDES permit compliance activities: systems development charges, collected

[1] https://www.psc.org/wpfd_file/economic-impacts-of-pacific-salmon-fisheries/

from developers of new construction; and user fees, collected from customers connected to the wastewater collection and treatment systems. SDCs and user fee rates are set by communities to fund the costs of capital and operations. Except in rare instances, utilities do not have other revenue sources to fund expanded facilities and operations necessary to comply with new regulations. Furthermore, they must collect sufficient utility revenues to fund direct costs and debt service requirements. Generally, wastewater utilities also do not have the ability to reduce or shift resources from other activities to offset cost impacts to customers because their ongoing activities, operations, and capital projects are necessary for NPDES permit compliance. Therefore, the costs must be passed on to the customers and developers in the form of rate increases in user fees and SDCs. In this way, increased user fees can potentially impact communities and the public.

Large businesses - businesses with more than 50 employees

Direct impacts

It is difficult to state how much the proposed rules may affect large businesses because the changes proposed by this rule are relatively modest. According to Portland General Electric, there will be minimal to no fiscal impact to the utility's hydroelectric facilities on the Deschutes, Clackamas and Willamette rivers. Three of the NPDES permitted facilities that may be impacted are large businesses including: Diamond Fruit -Parkdale, Diamond Fruit - Odell, and Duckwall-Pooley Fruit - Odell. These businesses could be impacted if the use changes lead to more stringent permit limits.

Indirect impacts

DEQ does not expect indirect impacts to large businesses from the proposed rules.

Small businesses – businesses with 50 or fewer employees

Direct impacts

It is not possible to quantify direct fiscal impacts on small businesses from the proposed rules, whether positive or negative, based on available information. The proposed rules at the very least should maintain the current economic benefits to the commercial and recreational fishing businesses that support many communities along the Oregon coast as well as far inland.

According to the Pacific Coast Federation of Fishermen's Associations, commercial salmon fishing generates thousands of jobs in smaller coastal Pacific Northwest communities. ODFW estimates that Oregon's coastal commercial salmon fisheries generated an annual average of 396,728 landed pounds of salmon from 2010-2017 in its multiple coastal ports, an average ex vessel (i.e., wholesale) value of approximately $2,073,481 at landing. Furthermore, this was estimated to have created more than $5,000,000 in net economic impacts to Oregon's coastal communities through the chain of commerce.[2] Based on available data, it is unknown at this time what the quantified fiscal effect to large fisheries-dependent businesses may be. DEQ expects the effect of the rule amendments may be small but positive because the proposed rules support healthy fish habitats.

[2] https://www.dfw.state.or.us/MRP/docs/Backgrounder_Comm_Fishing.pdf

Hoover Treated Wood, a small business, is a NPDES permitted facility that may be impacted if use changes lead to more stringent permit limits.

Indirect impacts

DEQ does not expect the proposed rules will have an indirect impact on small businesses. It is not possible to quantify indirect fiscal impacts, whether positive or negative, based on available information.

ORS 183.336 - Cost of Compliance for Small Businesses

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

One small business, Hoover Treated Wood, on the South Umpqua River.

b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

No additional activities are required to comply with the proposed rules.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.
No additional resources are required for compliance with the proposed rules.

d. Describe how DEQ involved small businesses in developing this proposed rule.

DEQ solicited feedback and information from the Rulemaking Advisory Committee regarding potential fiscal impacts to small businesses. The committee included a member from Oregon Business and Industry to represent small and large businesses. The committee also included representatives from commercial and recreational fishing interests.

Documents relied on for fiscal and economic impact

Document title	Document location
Comments submitted by ACWA	DEQ Offices, available upon request
Comments and statement submitted by PCFFA;	DEQ Offices, available upon request
Comments submitted by NWPPA International Paper	DEQ Offices, available upon request
Comments submitted by Deschutes River Alliance	DEQ Offices, available upon request
Comments submitted by Trout Unlimited	DEQ Offices, available upon request
Comments submitted by ODFW	DEQ Offices, available upon request

Advisory committee fiscal review

DEQ appointed an advisory committee.

As ORS 183.333 requires, DEQ asked for the committee's recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant adverse impact on small businesses; if so, then how DEQ can comply with ORS 183.540 to reduce that impact.

The committee reviewed the draft fiscal and economic impact statement and documented its recommendations in the Fiscal Impact Statement.

DEQ received comments on the draft fiscal impact statement from the following members of the advisory committee: Trout Unlimited, Oregon Association of Clean Water Agencies, International Paper, Deschutes River Alliance, Pacific Coast Federation of Fishermen's Associations, Portland General Electric, and Portland Water Bureau. DEQ evaluated all the advisory committee comments. Some of the advisory committee comments were not incorporated in the final FIS because they were either beyond the scope of fiscal impacts or because DEQ's conclusions differed. These specific comments are addressed in the following paragraphs.

Trout Unlimited suggested the proposed rule for pH will reduce salmonid protection in the Crooked River and Trout Creek subbasins which they believe will have an indirect negative fiscal and economic impact on entities endeavoring to protect and restore populations of listed species in those areas. Trout Unlimited did not provide an estimate of this fiscal impact. Based on the data and information evaluated for this rulemaking, DEQ concluded that the proposed pH criteria will continue to protect salmonid populations and listed species, as described in the Technical Support Document for this rulemaking. Furthermore, DEQ does not expect any reduction in salmonid populations as a result of the proposed rule and does not expect that restoration efforts will be any less valuable or negatively affected from this rulemaking. The proposed rule amendments use the best scientific data available to ensure designations are accurate and protect the highest attainable aquatic life uses in waterbodies, even if the amended rules will result in less stringent criteria being applied in particular waterbodies.
Trout Unlimited commented that the pH criteria revision for the Crooked River and Trout Creek subbasins may have a positive fiscal and economic impact on agricultural, industrial, and utility interests in the watershed if there are decreased costs of compliance and/or or avoided costs under the changed pH criteria. Based on the data and information evaluated for this draft rulemaking, DEQ disagrees that the revised pH criteria will reduce the need for these entities to use appropriate BMPs and control pollutant loading to protect water quality. Even if waterbodies no longer exceed the new pH criteria, they are still listed for other water quality parameters (i.e., nutrients and algal growth) and DEQ still expects to develop total maximum daily loads for the basin. Total maximum daily loads are generally conducted at a basin scale and DEQ does not expect that BMPs for non-point sources will be affected by the change in pH criteria. BMPs used by agriculture to control the runoff of nutrients and sediment into the Crooked River and its tributaries should not change as a result of the small change to the pH criterion. The city of

Prineville is currently required to keep pH between 6.0 and 9.0 and has done so for the last two permit cycles. DEQ does not expect the change in pH criteria to affect the city's permit limits or result in any fiscal impacts.

The Deschutes River Alliance commented that if salmonid populations are negatively affected by the proposed rules for pH, then different entities that make up the outdoor and recreation-based economies in Oregon may be negatively impacted. Deschutes River Alliance characterized the entities as groups falling into two overarching categories – direct recreation businesses and recreation-supporting businesses. Based on the data and information evaluated for this draft rule, DEQ concluded that the proposed pH criteria would continue to protect salmon and trout and these populations are not expected to be negatively impacted by the proposed rules. DEQ will evaluate any further data or information provided though public comment on this topic to revise the proposed rule as needed.

Potential NPDES impacts to individual permittees.

NPDES individual permittees with potential for more stringent criteria due to proposed fish use map updates								
NPDES Facility	NPDES Permit File Number	Receiving Stream Name	Receiving Stream Reach Code	Water Quality Standard	Proposed Revised Fish Use			
					Year-Round Criterion	Spawning		
						New	Earlier Start	Later End
ODFW Marion Forks Hatchery	64495	Horn Cr.	17090005000611	Temperature	X			
Mt. Hood Meadows WWTP	58827	E. Fork Hood R.	17070105000131	Temperature	X	X		
Parkdale S.D.	67545	Trout Cr.	17070105000475	Temperature	X			
Odell SD	63062	Odell Cr.	17070105000440	Temperature		X		
Diamond Fruit - Parkdale	24351	Wisehart Cr.	17070105016009	Temperature	X			
Diamond Fruit - Odell	24344	(Indirect to) Odell Cr.	17070105000440	Temperature		X		
Duckwall VanHorn	100115	(Ditch to) Neal Cr.	17070105000431	Temperature	X		X	X
Terminal Ice	24356	(Ditch to) Neal Cr.	17070105000431	Temperature	X		X	X
Duckwall-Pooley Fruit - Odell	25434	(Ditch to) Lenz Cr.	17070105000987	Temperature	X		X	X
Pendleton POTW	68260	Umatilla River	17070103002208	Temperature		X		
Pacific City JWSA	66100	Nestucca River	17100203000033	Temperature		X		
Gold Beach	33864	Riley Cr.	17100312000452	Temperature		X		
Creswell	20927	Camas Swale Cr.	17090002000019	Temperature		X		
IP Springfield	96244	McKenzie River	17090004005149	Temperature		X		
City of Dallas	22546	Rickreal Cr.	17090007000079	Temperature		X		
EWEB Carmen Smith Outfall 001	28393	McKenzie River	17090004000308	Temperature		X		
EWEB Carmen Smith Outfall 002	28393	McKenzie River	17090004000307	Temperature		X		
Prineville	72252	Crooked River	17070305000034	Temperature		X		

NPDES individual permittees with potential for more stringent criteria due to proposed fish use map updates								
NPDES Facility	NPDES Permit File Number	Receiving Stream Name	Receiving Stream Reach Code	Water Quality Standard	Proposed Revised Fish Use			
					Year-Round Criterion	Spawning		
						New	Earlier Start	Later End
Walla Walla Hatchery	77440	S. Fork Walla Walla R.	17070102000100	Temperature		X		
Multnomah Falls	109329	Columbia River	17080001000228	Temperature		X		
Bonneville/Tanner Cr.	90980	Columbia River	17080001000233	Temperature		X		
Hebo	10058	Three Rivers	17100203000317	Temperature			X	
Canyonville	13745	South Umpqua R.	17100302000267	Temperature			X	
Myrtle Cr.	59643	South Umpqua R.	17100302000088	Temperature			X	
Hoover Treated Wood	105306	South Umpqua R.	17100302000019	Temperature			X	
Winston Green WWTP	98400	South Umpqua R.	17100302000019	Temperature			X	
Roseburg Urban Sanitary Authority	76771	South Umpqua R.	17100302000014	Temperature			X	
MWMC	55999	Willamette R.	17090003000354	Temperature			X	
Silverton	81395	Silver Cr.	17090003000354	Temperature			X	
MacKenzie Forest Products	32910		17090001001288	Temperature			X	
Norpac Stayton	84820	Salem Ditch	17090007005950	Temperature			X	
Westfir	94805	Middle Fk. Willamette R.	17100307000150	Temperature			X	
Oakridge	62886	Middle Fk. Willamette R.	17100307000150	Temperature			X	
Shady Cove	80535	Rogue River	17100307000150	Temperature				X
Butte Falls STP	12800	S. Fork Big Butte Cr.	17100302000093	Temperature				X

NPDES individual permittees with potential for more stringent criteria due to proposed fish use map updates								
NPDES Facility	NPDES Permit File Number	Receiving Stream Name	Receiving Stream Reach Code	Water Quality Standard	Proposed Revised Fish Use			
					Year-Round Criterion	Spawning		
						New	Earlier Start	Later End
Vernonia	92773	Nehalem R.	17070102000100	Temperature				X
Ashland (Ashland Cr.)	3780	Ashland Cr.	17100308000126	Temperature				
Riddle POTW	75227	Cow Cr.	17100302000093	Temperature	X			
City of Scio	79633	Thomas Creek	1709000607_02_103988	Dissolved Oxygen	X			
City of Sheridan	80920	S Yamhill River	1709000804_02_104034	Dissolved Oxygen	X			
City of Wallowa	93617	Wallowa River	1706010503_02_103351	Dissolved Oxygen	X			
City of Enterprise	27514	Wallowa River	1706010501_02_103346	Dissolved Oxygen	X			
City of Joseph	44329	Prairie Cr	1706010501_02_103344	Dissolved Oxygen	X			

Notes: Location of facilities was primarily based on existing facility GIS layer, which appears to include some inaccuracies related to industrial facilities and is based on facility (not outfall) locations.
Ashland's primary outfall is being moved to Bear Cr., so the change will likely have minimal impact.
New spawning use has the potential to significantly impact discharges.
New core cold water use has the potential to impact dischargers.

The proposed changes to the cool water, migration, rearing and migration and bull trout uses appear to have little or no potential negative impact on permittees.

Racial equity

ORS 183.335(2)(b)(F) requires state agencies to provide a statement identifying how adoption of this rule will affect racial equity in this state.

DEQ engaged with agricultural, forestry, fishing, business and conservation communities through the Rule Advisory Committee.

This is a statewide rulemaking. The updated use designations ensure that more accurate and appropriate criteria are applied to protect fish and aquatic life in Oregon state waters.

The proposed rules may have positive impacts to help promote racial equity, particularly in benefitting Tribal fishing interests. The proposed rules will also help maintain healthy and abundant fisheries, including subsistence salmon and trout fisheries and other species, that benefit impoverished, rural, indigenous, ethnic or Black, Indigenous, and people of color (BIPOC) communities.

Environmental justice considerations

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

ORS 182.545 requires natural resource agencies to consider the effects of their actions on environmental justice issues. DEQ considered these effects by:

- Conducting outreach to solicit input on technical development and rule development from different communities with cultural, economic, or recreational interests in health and abundance of fish and aquatic life throughout the state.

DEQ does not expect the proposed rules to disproportionately impact disadvantaged communities. DEQ received input that municipal wastewater treatment facilities could see increased costs that must be passed on to the customers and developers in the form of rate increases in user fees and system development charges if the proposed rules result in application of more stringent criteria. In this way, increased user fees can potentially impact vulnerable or disadvantaged communities. However, there are also potential environmental benefits from increased protection of healthy and abundant fisheries, including subsistence salmonid fisheries, important to rural and/or indigenous or BIPOC or ethnic communities in the state.

Where investments are necessary to meet more stringent implementation requirements, there are funding resources available that include, but are not limited to, state and federal grants (including Clean Water Act Section 319 nonpoint source implementation grants) and below-market interest rate loans (that can include principal forgiveness) through the Clean Water State Revolving Fund program.

Tribal governments were made aware of the rulemaking process and consulted on this matter. Representatives from the Confederated Tribes of the Umatilla Indian Reservation participated in a Technical Work Group that convened seven times from 2020 to 2023, and representatives from the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians participated on the Rulemaking Advisory Committee.

Federal relationship

Relationship to federal requirements.

ORS 183.332, 468A.327 and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

The proposed rules implement federal requirements found in 40 CFR 131.10. Under the federal Clean Water Act, the state is required to designate beneficial uses of the state's waters and adopt criteria to protect those uses, including fish and aquatic life and water contact recreation.

Land use

Land-use considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with statewide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
- Resources, objects, or areas identified in the statewide planning goals, or
- Present or future land uses identified in acknowledge comprehensive plans.

DEQ determined whether the proposed rules involve programs or actions that affect land use by reviewing its Statewide Agency Coordination plan. The plan describes the programs that DEQ determined significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Natural Resources, Scenic and Historic Areas, and Open Spaces
6	Air, Water and Land Resources Quality
11	Public Facilities and Services
16	Estuarine Resources
19	Ocean Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that these proposed rules do not affect land use under OAR 340-018-0030 or DEQ's State Agency Coordination Program.

The proposed rules will either have no effect or an indirect positive effect on land use if cleaner water and healthier watersheds supports land-use planning goals. Healthier and more productive watersheds may better support salmon and steelhead fisheries, recreational economies that attract tourism, and tourism-related jobs.

EQC prior involvement

The EQC was first involved in this issue in February 2022 when they received an informational item from staff about the scope and timeline for this rulemaking.

DEQ provided a status update to the EQC through a director's report at their meeting in September 2022.

The EQC received a second informational item from staff about the proposed rules and timeline for this rulemaking in May 2023.

Advisory committee

Background

DEQ convened an Aquatic Life Use Updates Rulemaking Advisory Committee, which met six times between January and December 2022. The committee's purpose was to provide input to DEQ on the policy, fiscal and economic impacts and benefits of the proposed standards revisions for the stakeholders they represent.

The committee membership, shown in the table below, included representatives from EPA, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, and representatives of Oregon tribes, fishing and sport fishing industries, forest products, agricultural, and business industries, hydropower, environmental and recreational organizations, and local governments. The Rulemaking Advisory Committee met five times. The committee web page contains meeting agendas, presentations, materials, and summaries and is located at: Fish and Aquatic Life Use Updates.

The committee members were:

Fish and Aquatic Life Use Updates Advisory Committee	
Name	**Representing**
Emily Bowes	Rogue Riverkeeper
Sarah Cloud	Deschutes River Alliance
Mary Anne Cooper	Oregon Farm Bureau
Mike Eliason	Oregon Forest & Industries Council
James Fraser	Trout Unlimited
Liz Hamilton	Northwest Sport Fishing Industry Association
Megan Hill	Portland General Electric
Steve Kucas	Portland Water Bureau
John Schaefer	Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians (CTCLUSI)
Michael Martin	League of Oregon Cities
Chris McCabe	Northwest Pulp & Paper Association
Sharla Moffett	Oregon Business & Industry
John Runyon	Cascade Environmental Group, LLC / River Restoration Northwest
Susie Smith	Oregon Association of Clean Water Agencies

Fish and Aquatic Life Use Updates Advisory Committee	
Name	**Representing**
Glen Spain	Pacific Coast Federation of Fishermen's Associations / Institute for Fisheries Resources
Government Advisors	
Greg Sieglitz	NOAA- National Marine Fisheries Service
Brian Bangs	U.S. Fish and Wildlife Service
Rebecca Anthony	Oregon Department of Fish and Wildlife
Michelle Maier	U.S. Environmental Protection Agency

Meeting notifications

To notify people about the advisory committee's activities, DEQ:

- Sent GovDelivery bulletins, a free email subscription service, to the following lists:
  - Water Quality Standards
  - DEQ Rulemaking
- Posted meeting information and materials on the web page for this rulemaking.
- Added advisory committee announcements to DEQ's calendar of public meetings at DEQ Calendar.

Committee discussions

In addition to the recommendations described under the Statement of Fiscal and Economic Impact section above, the committee was informed about the technical development process, methods, and other technical support materials that DEQ used to update the aquatic life use designations. Presentations were given on the history and background of the temperature and dissolved oxygen standards in Oregon, development of the methodology and rationale for designating fish and aquatic life uses for the temperature and dissolved oxygen standards, discussion of draft maps of the newly proposed aquatic life use designations, rationale for proposals for revising certain definitions associated with aquatic life uses, and rationale for proposals to change the pH criteria in the Crooked River and Trout Creek subbasins.

For additional information on advisory committee presentations and meeting summaries, see the advisory committee section of the rulemaking page: Fish and Aquatic Life Use Updates.

Public engagement

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearing by:

- On April 20, 2023, DEQ sent an advanced notice of the public hearing to interested parties on the following DEQ lists through GovDelivery:
    - Rulemaking
    - DEQ Public Notices
    - Water Quality Standards
- April 27, Filing a notice with the Oregon Secretary of State for publication in the May 2023 Oregon Bulletin.
- On May 3, 2023, DEQ opened the public comment by sending a notice through GovDelivery.
- Notifying the EPA by email.
- Posting the Notice, Invitation to Comment and Draft Rules on the web page for this rulemaking, located at: Fish and Aquatic Life Use Updates.
- Emailing approximately 24,580 interested parties on the following DEQ lists through GovDelivery:
    - Rulemaking
    - DEQ Public Notices
    - Water Quality Standards
- Emailing advisory committee members,
- Emailing other interested parties that observed advisory committee meetings,
- Emailing the following key legislators required under ORS 183.335:
    - Senator Jeff Golden, Chair, Senate Committee on Natural Resources
    - Senator Fred Girod, Vice-Chair, Senate Committee on Natural Resources
    - Representative Ken Helm, Chair, House Committee on Agriculture, Land Use, Natural Resources and Water
    - Representative Mark Owens, Vice-Chair, House Committee on Agriculture, Land Use, Natural Resources and Water
    - Representative Annessa Hartman, Vice-Chair, House Committee on Agriculture, Land Use, Natural Resources and Water
- Posting on the DEQ event calendar: DEQ Calendar

Public hearing

DEQ held a public hearing by online webinar on June 6, 2023, at 4 p.m. DEQ received 8 comments at the hearing. Later sections of this document include a summary of the 263 comments received during the open public comment period, DEQ's responses, and a list of the commenters. Original comments are on file with DEQ.

Presiding officers' record

Hearing #1

Date	June 6, 2023
Place	Zoom Online
Start Time	4 p.m.
End Time	5:35 p.m.
Presiding Officer	Michele Martin

Presiding Officer:

The presiding officer convened the hearing, summarized procedures for the hearing, and explained that DEQ was recording the hearing. The presiding officer asked people who wanted to present verbal comments to sign the registration list, or if attending by phone, to indicate their intent to present comments. The presiding officer advised all attending parties interested in receiving future information about the rulemaking to sign up for GovDelivery email notices.

As Oregon Administrative Rule 137-001-0030 requires, the presiding officer summarized the content of the rulemaking notice.

Forty-one people attended the hearing by zoom. Eight people commented orally, and no people submitted written comments at the hearing.

Summary of public comments and DEQ responses

Public comment period

DEQ accepted public comment on the proposed rulemaking from May 3, 2023, until 5 p.m. on June 23, 2023.

This summary of public comments addresses comments and questions DEQ received regarding the proposed Fish and Aquatic Life Use Updates and supporting documentation. The individuals and organizations shown in the List of Commenters table provided comments on the proposed rules during the Public Comment Period. All comments received during the public comment period have been reviewed by DEQ and addressed in this document. Comments which resulted in modifications to the rules or supporting documents are noted.

In total there were 48 unique comments from 263 individuals or organizations. Many commenters sent in form emails or postcards to DEQ. A list of the individuals who signed onto form letters or organizational postcards is provided in Attachment B.

DEQ modified the proposed rules to withdraw the pH criterion revision for the Crooked River and Trout Creek subbasins based on the comments received. DEQ also modified some of the proposed use changes. Finally, DEQ clarified or provided additional information to the supporting documents for the rule based on the comments received including: the Use Attainability Analysis, the Technical Support Document, and the pH Issue Paper (Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon).

For public comments received by the close of the public comment period, the following table organizes comments into categories with cross references to the commenter number. DEQ's response follows the summary. Original comments are on file with DEQ.

DEQ changed the proposed rules in response to comments as described in the response sections below.

Topic 1. General comments on the proposed rules
Topic 2. Comments on the proposed pH criterion change
Topic 3. Comments on designated uses for the Deschutes River Basin
Topic 4. Comments on end dates for applying spawning criteria for resident trout
Topic 5. Comments on temperature use designations
Topic 6. Comments on dissolved oxygen use designations
Topic 7. Comments provided by the U.S. EPA on the Use Attainability Analysis
Topic 8. Comments on the Technical Support Document

The summary includes cross references to the source of the comment in the ID # from the table of commenters below. Original comments are on file with DEQ.

List of Commenters				
ID#	**Name**		**Affiliation or Organization**	**Method of Providing Comment**
1	Stephen	Mull		Online submittal
2	Doug	McIntosh		Online submittal
3	Jeff	Hollamon		Online submittal
4	Brad	Staples		Online submittal
5	Keith	Winsor		Online submittal
6	Lynn	Bergeron		Online submittal
7	Dale	LaFollette		Online submittal
8	Jenny	O'Brien		Online submittal
9	Peter	Foster		Online submittal
10	Andrew	Cannestra		Online submittal
11	Paul	Emge		Online submittal
12	Kenneth	Morse		Online submittal
13	Clifford	Canepa		Online submittal
14	Christopher	Pond		Online submittal
15	James	Kreipe		Online submittal
16	Craig	Zarling		Online submittal
17	Rudy	Kellner		Online submittal
18	Jerry	Deppa		Online submittal
19	Adam	White		Online submittal
20	Don	Pyle		Online submittal
21	Roger	Dailey		Online submittal
22	Chana	Adar		Online submittal
23	Kim	McDonald		Oral testimony, online submittal
24	James	Fraser	Trout Unlimited	Oral testimony, online submittal
25	Paul	Myers		Online submittal
26	Steve	Mensing		Online submittal
27	Yancy	Lind		Online submittal
28	Sue	Safford		Online submittal
29	Shaun	Pigott		Online submittal
30	Sara	Cloud	Deschutes River Alliance	Oral testimony, online submittal

List of Commenters				
ID#	**Name**		**Affiliation or Organization**	**Method of Providing Comment**
31	Rick	Hafele		Online submittal
32	Sania	Radcliffe	PGE	Online submittal
33	Derek	Miller		Oral testimony, online submittal
34	Mark	Rogers		Oral testimony, online submittal
35	Printed Mailer		Deschutes River Alliance	Mail, see list of contributors in Attachment B
36	Kirk	Matteson		Online submittal
37	Jim	Cross		Online submittal
38	Michael	Sutters		Online submittal
39	Brot	Bishop		Online submittal
40	Jim	Mullaney		Online submittal
41	Lisa	Kusnierz	U.S. EPA	Online submittal
42	Skip	Greenwood		Online submittal
43	N/A	Kelley		Online submittal
44	Rebecca	Anthony	ODFW	Online submittal
45	Rod	McNeil		Online submittal
46	Garry	Cannard		Online submittal
47	Ruel	Brumitt		Online submittal
48	Sean	Pope		Online submittal
49	Steven	Pribyl		Online submittal
51	Form Letter #1			Online submittal, see list of contributors in Attachment B
52	Liz	Perkin	Native Fish Society	Oral testimony
53	Dalton	Romanowski	Deep Canyon Outfitters	Oral testimony
54	Peter	Anderson		Oral testimony
56	Brian	Bangs	USFWS	Online submittal
57	Form Letter #2			Online submittal, see list of contributors in Attachment B

General comments

Suggested change ID #1

Comment: ODFW has provided technical expertise

Commenter: 44

Description: ODFW has been a collaborative partner throughout the aquatic life use update process and has provided technical expertise for the updates, including spawn timing dates, extent of spawning habitat and species distribution.

Response: DEQ greatly appreciates the collaboration by ODFW in this project. We are dependent on ODFW expertise on fish biology, behavior and habitats and their distribution. DEQ acknowledges that this project took more ODFW staff time than originally estimated and greatly appreciate that ODFW staff were able to continue to work with us throughout completion of the project.

Suggested change ID #2

Comment: Columbia River – Request to protect cold water refugia

Commenter: 8, 28, 30,35

Description: Use this opportunity to protect cold water refugia in the Columbia River.

The US EPA identified protection of cold water refuge as a tool for reducing migratory salmon mortality in the Columbia River. The role of cold water refugia for migrating salmon and steelhead is increasingly important as global temperatures rise. DEQ must take this opportunity to enshrine cold water refugia – like that at the mouth of the lower Deschutes River – so dwindling runs of salmon and steelhead are provided critical relief when returning to their spawning areas.

Response: Thank you for the comment. DEQ used the cold water refuge data and information in EPA's Columbia River Cold Water Refuges Plan. As a result, DEQ is proposing to add protection for tributaries providing cold-water refuge to the Columbia River by designating the beneficial use of those that can attain the criterion as Core Cold Water Habitat. Based on data from the U.S. Environmental Protection Agency, Region 10 Columbia River Cold Water Refuges Plan[3], several tributaries attain the core cold-water numeric criterion (16°C) throughout the summer months and provide important thermal refuge for migrating threatened and endangered salmon and steelhead in the Columbia River. Please see the Technical Support Document Section 1.4.1.3.

Suggested change ID #3

Comment: General Comment – Request to increase frequency of Aquatic Life Use Updates

Commenter:, 8, 28, 30, 35,54

Description: Comment that DEQ should increase the frequency of updating the Aquatic Life Use updates since the last update was 20 years ago. DEQ must include mechanisms that require more frequent review

[3] EPA-910-R-21-001, January 2021 https://www.epa.gov/columbiariver/columbia-river-cold-water-refuges-plan

and revision of these water quality standard, especially as new information is collected and as rising temperatures impact fish and aquatic life use.

Response: DEQ agrees that more frequent review of fish and aquatic life use designations would be beneficial. It is likely that future use updates will be site or basin specific rather than statewide.

The Triennial Review is a public process required by the Clean Water Act. This is the process by which DEQ prioritizes the projects the water quality standards program will complete or initiate over the following three years. If use updates are needed, the public can provide input to DEQ during the Triennial Review process. The next water quality standards triennial review is scheduled for 2024.

Suggested change ID #4

Comment: Rule Updates - Update rule schedule to every few years

Commenter: 30, 44

Description: ODFW encourages ODEQ to incorporate flexibility into the rule that allows updates to the use subcategory designations without a rulemaking process (e.g., outlining clear data standards that, if met, will allow beneficial uses/maps to be updated between rulemakings). If such flexibility in rule is not feasible, then ODFW recommends that ODEQ commit to a rule update schedule to incorporate updated data (i.e., temperature data or additional, improved habitat data for resident trout spawning designations) every few years at an interval no longer than 4-5 years between updates. DEQ should either tie it's maps directly to ODFW Fish Habitat Distribution maps to ensure that the best information available is always used.

Response: DEQ acknowledges comments requesting a more frequent review of fish and aquatic life use maps and agrees that more frequent review of fish uses would be better if possible given staff resources and agency priorities. This rulemaking establishes processes and data infrastructure that will facilitate future updates. Future updates are expected to be more limited in geographic scope and therefore less resource intensive.

The aquatic life use designations are a component of water quality standards. Therefore, they must be adopted into Oregon's Administrative Rules through the rulemaking process according to Oregon's Administrative Procedures Act, and then approved by EPA as required by the Clean Water Act.

Furthermore, the use subcategories in the water quality standards are not the same as the life stage and habitat use categories in ODFW's habitat distribution database and timing tables. DEQ analyzes the data from ODFW and other sources through a decision rule methodology to determine the appropriate designation for each waterbody.

The Triennial Review is a public process required by the Clean Water Act by which DEQ sets priorities for updating its water quality standards, including beneficial use designations. The purpose of revising the standards is to incorporate new scientific information, meet federal requirements or improve clarity and program implementation. During the Triennial Review, the public and other agencies can provide input to DEQ about priority work for the water quality standards program.

Suggested change ID #5

Comment: Oregon - Statewide - General Comment

Commenter: 19, 22, 26, 37, 40, 43

Description: General comments related to the proposed changes at a statewide level. The restoration and ongoing advocacy for anadromous and resident cold water species benefits everyone and is as much a human equity issue as it is sound ecological practice and wise economic policy. These are keystone species in Oregon and the PNW and there is no relevant version of Oregon in the future that enables or promotes the conditions that kill them off. Aquatic life must have toxin free waters. Your proposed rules that lower the water quality standards (pH, dissolved oxygen, temperature) are contrary to your obligation to protect our aquatic life and the interests of all citizens.

Response: Thank you for the comment. DEQ used the most current data available to ensure that DEQ applies the correct water quality criteria to protect aquatic life in Oregon waters. In some cases, the beneficial uses that were previously designated for waterbodies were not actually present in the waterbodies, and DEQ proposes to correct the uses to make them more accurate. Some revised uses have less stringent criteria. However, DEQ is also revising designated uses that result in applying more stringent criteria to many waterbodies. The proposed rules will result in more accurate application of the criteria necessary to protect aquatic life in Oregon waters.

Suggested change ID #6

Comment: Statewide Comment - In support of proposed use changes

Commenter: 24, 44, 56

Description: Trout Unlimited generally supports the proposed changes unrelated to pH. In some places, the temperature and dissolved oxygen criteria will change to a more stringent standard to reflect updated information on when and where certain cold water fish species are distributed on the landscape.

ODFW generally supports ODEQ's updates to the existing aquatic life use subcategory designations related to Oregon's temperature standard, and its aquatic life use subcategories related to Oregon's dissolved oxygen standards.

Response: DEQ acknowledges the comments supporting the proposed use updates. DEQ appreciates the thoughtful participation of Trout Unlimited and ODFW on the Rulemaking Advisory Committee.

Suggested change ID #7

Comment: Portland General Electric appreciates the opportunity to comment on the Fish and Aquatic Life Use Updates which will update and clarify the temperature and dissolved oxygen subcategories in OAR-340-041-101 to -340. PGE has reviewed the updated fish use maps for the areas where we operate these facilities. We appreciated the detailed presentations from DEQ, ODFW and USFWS regarding the methodology behind the proposed changes. Based on these presentations and the technical support document, it appears that these changes are well supported by the 2023 update to the ODFW-Fish Habitat Distribution database. Additionally, we find the proposed updates to be consistent with our data on fish use in the basins where PGE operates hydro facilities.

Commenter: 32

Description: In support of the proposed aquatic life use changes.

Response: DEQ acknowledges comments in support of the proposed rule. DEQ appreciates PGE's participation on the Rulemaking Advisory Committee and knowing the updates are consistent with your data.

Proposed pH criterion comments

Suggested change ID #8

Comment: General Comment - In support of pH change

Commenter: 27

Description: In support of pH proposed change. Commentor agrees the science supports the revision.

Response: DEQ appreciates your support and your attention to the science and rationale DEQ developed as the basis for this proposed revision.

Suggested change ID #9

Comment: Deschutes Basin – General Comment

Commenter: 6, 17, 3, 12, 16, 2, 4, 15, 46, 11, 39, 54, 45, 48, 47, 1, 13, 14, 20, 25, 38, 7, 9, 18

Description: Raising pH standards to 9.0 in the Crooked River and Trout Creek will only allow more degradation of the Deschutes River. Please make sure we have the best data for making quality decisions on the Deschutes.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River and Trout Creek subbasins prior to revising the criterion. However, DEQ disagrees that the proposed revision to the pH criteria for the Crooked River and Trout Creek will allow more degradation of the Deschutes River. Because pH is reaching 9.0 or close to 9.0 as a daily maximum at some sites in the Crooked River subbasin, the revised criterion does not mean there is additional capacity for anthropogenic nutrient loading. If reductions in nutrient loading are needed to meet standards downstream, in Lake Billy Chinook and the Deschutes River, load allocations for the Crooked River will be developed as part of that TMDL process to reduce loading from the Crooked River to Lake Billy Chinook.

Suggested change ID #10

Comment: Deschutes Basin - Crooked River and Trout Creek pH concerns

Commenter: 5, 8, 10, 12, 17, 23, 24, 28, 29, 30, 31, 33, 34, 35, 36, 42, 49, 51, 52, 53, 54

Description: Opposed to raising the pH.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River and Trout Creek subbasins prior to revising the criterion. We understand there are concerns about nutrient loading and

related water quality impairments in the Crooked River basin. However, the proposed pH criterion protects salmonids and provides an attainable pH target for the Crooked River and Trout Creek subbasins based on the available scientific information. Please see the Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon (DEQ 2023) and DEQ's responses to other comments about pH below.

Suggested change ID #11

Comment: Opposed to pH change - Anthropogenic vs natural origins

Commenter: 24

Description: The upper limit for pH criteria in the Crooked and Trout Creek subbasins is currently 8.5 pH units. That 8.5 standard has applied to the Crooked since 1947, when the Oregon State Sanitary Authority adopted pH criteria for Oregon. Today, numerous waterbody segments in the Crooked watershed are listed as impaired for pH. This rule package proposes to change the pH criteria upward to 9.0, which would remove many of these segments from the 303(d) list for pH.

Our organization is concerned that this rule proposes changing the pH criteria for streams where the pH issues very well may be anthropogenic in origin, and not natural.

The bar for changing this standard is to first determine what level of pH in the waterbody is natural, and second, ask what standards would be protective of aquatic life. Our concern is that this rulemaking focuses on the latter step only.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion. However, the primary consideration for establishing water quality criteria under the Clean Water Act is that the criteria support the designated use. If the criterion is protective, it is not required to also demonstrate that it is the natural condition. There is sufficient scientific information to conclude that a pH criterion of 6.5 - 9.0 protects the salmonid use in these basins. These same criteria are in place in many other Oregon basins with the same species of salmonids.

An upper limit 8.5 pH units was designated for some basins of the state, mainly west of the Cascades, because levels greater than 8.5 pH units would be unusual under natural conditions and could indicate anthropogenic degradation of water quality. DEQ is concerned that the current upper limit pH criteria of 8.5 is not attainable throughout the Crooked River and Trout Creek subbasins due to the range of natural pH variability and wants to establish accurate and appropriate criteria as targets for the upcoming TMDL.

While some river segments may be delisted based on the pH criteria revision, others will remain listed. The TMDL is scheduled and will consider pH as well as other water quality parameters related to algal growth and nutrient loading, such as chlorophyll-a, phosphorus and dissolved oxygen. During the TMDL development additional data will be collected, most likely including diel studies that measure the daily maximum pH value.

The TMDL must demonstrate that the pH criteria can be met within the Crooked River system. However, based on the available information, it is likely that natural pHs rise above 8.5 as a daily maximum at several sampled locations. The TMDL must also consider impacts to downstream waters that retain the 6.5-8.5 criterion. Please see the pH Issue Paper associated with this rulemaking (DEQ 2023) and DEQ's responses to comments #12, #13, #14, #16, and #17 on pH for additional detail.

Suggested change ID #12

Comment: Opposed to pH change - 1990s TAC recommendation

Commenter: 24

Description: In the 1990s, DEQ assembled a technical advisory committee and policy advisory committee to review pH criteria standards in Oregon. Those experts recommended changing pH criteria in certain eastern Oregon streams, but their recommendations did not include the Crooked or Trout Creek. Instead, their June 1995 report starts by stating: "In developing a pH standard, it is necessary to be able to separate natural from anthropogenic effects." The report also states, "there is no reliable margin for error or safety at pH 9.0." We agree on both points, and therefore disagree with DEQ's issue paper on the proposed pH change, which states: "there is a built-in margin of safety" with an upper criterion of 9.0.

We also do not think the proposed 8.7 "action level" stated in the rule is meaningful or effective because the action level requires DEQ to only study the causes of pH exceeding 8.7, but not do anything further to address those water quality conditions.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River and Trout Creek subbasins prior to revising the criterion.

When DEQ updated its pH criteria in the 1990's, we adopted a pH range of 6.5 to 8.5 for basins in western Oregon and the Cascades. Due to the hydrology and water chemistry of these basins, the Technical Advisory Committee (TAC) concluded that although 9.0 would be protective of salmonids in these basins, pH levels of 8.5 were achievable in these basins and pH levels higher than 8.5 might indicate anthropogenic impacts.

The 1995 TAC recommended a range of 6.5 to 9.0 for basins in eastern and south central Oregon. The TAC expressed a high level of certainty that a pH range of 9.0 is fully protective of beneficial uses, including native salmonids, and that in these basins a pH greater than 8.5 does not necessarily indicate anthropogenic impact (DEQ 1995b), Sections 3.4 and 4.4.3. The Deschutes Basin was included with the Cascades basins because of pH data for the mainstem Deschutes River only (DEQ 1995b), Section 2.1.1 and 2.1.3. Neither the Crooked River nor Trout Creek subbasins were specifically referred to in the issue paper. DEQ did not evaluate establishing site-specific pH criteria at the subbasin scale at that time. Since then, DEQ has received input that the Crooked River and Trout Creek subbasins, which do not drain the Cascades and are more similar in hydrology and water chemistry to Eastern Oregon, should have the same pH criteria as other Eastern Oregon basins.

The pH criterion of 9.0 applies as a daily maximum, which means that pH levels will be lower than the criterion threshold during much of the day in order to meet the criterion. Please see the Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon (DEQ, 2023) p.5 for additional information. This provides additional margin of safety because the impacts identified in the literature occur at pH of 9.2 - 9.7 when pH exposure was held constant at those high levels longer than would be allowed by the criterion (i.e. 24 to 72 hours).

DEQ concludes that the pH criteria of 6.5 to 9.0 is protective of beneficial uses and appropriate for these subbasins. See also the pH Issue Paper (DEQ 2023) and response to comment #13 and comment #14, below.

Suggested change ID #13

Comment: Opposed to pH change - ESA-Listed Salmonids

Commenter: 44

Description: ODFW has significant concerns with ODEQ's proposal to change the pH criteria in the Trout Creek and Crooked River basins. These basins contain habitat for ESA-listed salmonids, and it is imperative that water quality criteria are sufficiently protective to allow salmon, trout and char to complete their life history needs within the basins. ODFW believes there is insufficient data to demonstrate that areas in the basin have naturally high pH values and that the proposed pH criteria are sufficiently protective of ESA-listed anadromous salmonids. ODFW supports a more precautionary approach for these basins given the presence of federally threatened salmonid species in the basin and other limiting factors that are already negatively impacting these populations (i.e., lack of streamflow, land management practices, excessive nutrients, high temperatures, etc.).

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion.

DEQ agrees that water quality criteria must protect salmonids and that water quality improvements are needed in the Crooked River basin to fully protect threatened salmonids, particularly reintroduced Chinook salmon. However, the available scientific information supports that a maximum pH of 9.0 is protective of these species. The pH criteria apply as instantaneous values and therefore as a daily maximum. To meet the standard, pH must be lower than 9.0 for most of the day. Impacts do not occur until pH rises above 9.2 to 9.7 and remains at those levels for a significant amount of time (i.e., 24 to 72 hours referenced studies). Additionally, Oregon's water quality standards for ammonia, copper, and pentachlorophenol account for synergistic effects with pH for these toxic substances on aquatic life. More information is provided in the Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon (DEQ 2023) pp.2-4.

EPA, USFWS and NOAA have each approved pH criteria of 6.5-9.0 for Oregon basins with listed salmonids. DEQ applied a conservative approach for basins in the state that have higher precipitation, higher buffering capacities and generally maintain lower pH levels, such as the Coast Range and Cascade mountains. However, in eastern Oregon, given the hydrology and water chemistry, with lower buffering capacity and higher pH levels in the groundwater, pH can rise above 8.5 in response to natural levels of productivity.

DEQ will develop a TMDL for the Crooked River. It is important that the pH criterion is not only protective, but also that the criterion is not overly stringent if it is not necessary to protect the beneficial uses, especially if it is not attainable in many parts of the basin. The criterion should provide an appropriate and achievable target for the TMDL and associated load and wasteload allocations.

Suggested change ID #14

Comment: Opposed to pH change - ODFW questions scientific basis

Commenter: 44

Description: ODEQ proposes to modify the pH criteria from the existing range of 6.5 – 8.5 to 6.5 – 9.0 in the Crooked River and Trout Creek basins. ODFW is concerned about the scientific basis for this proposal. With limited data available to demonstrate that areas in the basin have naturally high pH values

(i.e., are not heavily influenced by agriculture and corresponding land use practices), ODFW questions the basis and necessity for a criteria change at this time. Without (1) stronger analyses of human-caused variation in pH levels, (2) stronger analyses of diel and spatial variability at sites above and below agricultural influence in the Crooked River basin, and (3) sufficient evidence to demonstrate that the proposed criteria are protective, ODFW does not support the proposed modification to the pH standard.

Fish Communities of the Crooked River and Trout Creek Basins: The Crooked River basin is identified as critical habitat for rearing, foraging, migration, and overwintering for ESA-listed Bull Trout. It also contains spawning and rearing habitat for an experimental population of ESA-listed Mid-Columbia summer steelhead, spawning and rearing habitat for spring-run Chinook Salmon, and spawning and rearing habitat for native Redband Trout and Mountain Whitefish, among other species. The Trout Creek basin contains spawning, rearing, foraging, migration, and overwintering habitat for ESA-listed Mid-Columbia summer steelhead. It is imperative that water quality protections are maintained and are sufficiently protective to allow salmon, trout, and char to complete their life history needs within these basins. Chronic high pH levels in freshwater streams can decrease activity levels of salmonids, induce stress responses, cause decreases or cessation of feeding, and lead to a loss of equilibrium (Murray and Ziebell 1984; Wagner et al. 1997 as cited in Carter 2008). Additionally, high temperatures can exacerbate the effects of high pH levels on salmonids (Wagner et al. 1997, as cited in Carter 2008). Given that the Crooked River has also been identified as impaired for temperature, unnaturally high pH values may exacerbate already precarious conditions for salmonid populations.

Sources of Elevated pH in the Crooked River and Trout Creek Basins: Similarities in geology and ecology between the Crooked River basin and the John Day basin form the basis for ODEQ's justification to modify the upper limit of the pH criteria range. However, the similarities between the Crooked River and Trout Creek watersheds and other central and eastern Oregon watersheds identified on EPA's ecoregion map demonstrate a natural break point at Prineville Reservoir (Figure 1). Trout Creek and the Upper Crooked River watersheds share similar attributes (i.e., ecology, landforms, soils, vegetation, climate, land use, wildlife and hydrology) with the John Day/Clarno Uplands (11a and 11b) Level IV ecoregion, while the lower Crooked River in the Deschutes River Valley (11n) region shares more similarities with the Deschutes basin, where the pH criteria are 6.5 – 8.5.

Biological Impacts of Elevated pH: The Crooked River Agricultural Area Plan released in February 2021 noted that "Excessive aquatic plant or algal growth can harm fish and other aquatic life by creating extremes in water pH and low levels of dissolved oxygen.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion.

DEQ appreciates ODFW's concern that the pH criteria be based on sound science and DEQ shares that objective. The scientific basis and rationale for the proposed revision are summarized in the Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek subbasins, Deschutes Basin, Oregon (DEQ, 2023). DEQ has reviewed and revised the issue paper to ensure that we considered the information you provided. However, after reviewing the information, DEQ continues to find that the proposed criterion (9.0 as a maximum) protects salmonids and is based on sound science regarding pH effects on aquatic life as well as expected background pH levels in the basin.

Excessive algal growth, nutrients, pH and dissolved oxygen are related water quality parameters. DEQ is not suggesting that the current pH levels and algal growth are natural. However, based on the available information it is reasonable to expect that natural background pH levels rise above 8.5 as a daily maximum in portions of the basin due to high groundwater pH (up to 8.2) combined with lower

precipitation, lower buffering capacity and an expected natural level of productivity. There are currently locations that reach a pH of 9.0 and it is likely that when more diel studies are done, more sites will be found to exceed 9.0 as a daily maximum. Data also show exceedances of related water quality parameters, including dissolved oxygen and chlorophyll-a. Therefore, DEQ plans to develop a TMDL for the Crooked River. During TMDL development, additional data will be collected, and in-depth analysis will be conducted to determine the causes of and contributions to the water quality impairments and to set appropriate targets for nutrient loading in the basin.

Please see the updated Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon (DEQ, 2023) pp.2-4 for additional information. Below are responses to some of your specific points.

All data collected by DEQ or provided by other parties are evaluated during the assessment to determine whether pH levels exceed the criteria. Analyses of diel fluctuations in pH and the causes and contributors to high pH occur during TMDL development. During TMDL development, additional data is collected, including diel studies to determine the daily maximum pH levels, as well as other water quality parameters related to excessive algal growth, such as dissolved oxygen, chlorophyll-a, and nutrients. The TMDL must demonstrate that the pH criteria and related water quality criteria can be met after achieving the pollutant reductions through load and wasteload allocations to nonpoint sources and point sources, respectively. Therefore, it is important that the criteria provide a protective, accurate and appropriate objective for the TMDL.

The proposed upper criterion limit of 9.0 applies as a daily maximum, which means that most of the day pH levels will be lower than 9. According to the available literature, a pH range of 6.5 to 9 protects salmonids. Murray and Ziebell (1984) and Wagner et al. (1997) were studies about release of hatchery trout acclimated to lower pH levels into waters with higher pH levels. Murrey and Ziebell found that after acclimation, the hatchery trout could be released into water with a pH of 9.3 with only a temporary loss of appetite. In the Wagner study, the hatchery fish were transported in a truck for 90 minutes prior to the experiments to test how they were able to handle this stress. Neither of these studies indicate that a daily maximum pH of 9.0 will impair fish acclimated to the pH of the river system.

ODFW notes that portions of the Deschutes River mainstem and lower Crooked River are in the same ecoregion. This is true for a small portion of the Deschutes River and a relatively small reach of the lower Crooked River as they flow through the valley just above the confluence of the two rivers at Lake Billy Chinook. However, most of the contributing areas of the basins are located in different ecoregions. The character of the upstream reaches influences the water chemistry of the lower reaches. Similarly, flow patterns are established by the precipitation and hydrology of the whole basin. That said, there is a large amount of groundwater inflow which greatly increases the flow volume in a canyon in the very lower reach of the Crooked River just upstream of the confluence with the Deschutes River. USGS is planning a study of the origin and chemical properties of this groundwater.

ODFW provides mean and median pH values from the upper Crooked River. However, the upper criterion (9.0) applies to the daily maximum pH value. In the issue paper, DEQ provides a graph (Figure 5) of the pH data in our database. Many sites in the upper basin exceed 8.5 and a few exceed 9.0 (See Figure 5). DEQ does not suggest that all the pH levels in the Crooked basin are natural. Nor do we suggest that nutrient loading and algal growth are not impacting the river. Rather, we propose the criteria revision based on scientific information that pH does not impair aquatic life in the range of 8.5 to 9.0 as a daily maximum. pH levels that rise above 9.0 as a daily maximum indicate water quality concerns associated with nutrient loading and excessive algal growth. pH levels above 8.7 indicate that there may be anthropogenic impacts that should be addressed to prevent pH levels from rising above 9.0.

ODFW questions why the 1995 Technical Advisory Committee did not recommend the 6.5 – 9.0 pH range for the Crooked River. The 1995 TAC made recommendations for whole basins only and retained the 6.5 – 8.5 criterion for the Deschutes basin. The TAC did not review information or make recommendations at the sub-basin level at that time. The TAC had only a small amount of available pH data that was limited to the mainstem Deschutes River. They used that data to extrapolate for the entire basin. The Deschutes Basin is somewhat unique that the character of the eastern and western portions of this large basin are quite distinct. DEQ has received input to change the criteria for these eastern subbasins of the Deschutes basin.

The loading of nutrients to Lake Billy Chinook is an analysis to be done during a TMDL for the reservoir. DEQ expects to conduct a TMDL for the lake and will likely give nutrient allocations to each river that enters the reservoir, including the Crooked River. Generally, the reduction of anthropogenic nutrient loading is a good practice and loading to downstream waters must be considered when permitting discharges. However, the pH criterion for the Crooked River is based on protecting the beneficial uses in the river.

ODFW notes that pH standards in Washington and California include a maximum diel fluctuation in pH due to human causes. This is something DEQ could consider the next time we revise the pH standard statewide. The proposed rule simply makes the criteria for the Crooked River and Trout Creek subbasins consistent with the current criteria for other Eastern and South-central Oregon basins.

The phosphorus and DO data ODFW describe indicate concerns about anthropogenic nutrient loading, excessive algal growth and impacts to dissolved oxygen. DEQ is not suggesting that there is no nutrient/algal growth water quality concern in the Crooked River. We only suggest that pH up to 9 as a daily maximum does not in itself impair fish and aquatic life. Daily maximum pHs over 9.0 are a concern, as are exceedances of the dissolved oxygen criteria. Completing a TMDL is the appropriate tool to address these concerns.

DEQ agrees that we should identify waters that exceed a pH of 8.7 at least 25% of the time to identify where there may be anthropogenic impacts. DEQ will add this analysis to the water quality assessment methods. Further analysis will be done during TMDL development to characterize the water quality problems, including excursions above 8.7 pH units, identify the causes and contributors, and quantify the reductions needed to meet water quality standards.

Suggested change ID #15

Comment: Opposed to pH criteria change - Retain current criteria until a TMDL is completed

Commenter: 30

Description: Both the Crooked River and Trout Creek are 303(d) listed, with the Crooked River listed specifically for pH exceedances. Further downstream, Lake Billy Chinook and the lower Deschutes River are also 303(d) listed for pH. As such, these waters need a total maximum daily load (TMDL) plan to bring them back into compliance – with some waters having waited over 20 years to have the process started. Absent the development of a Deschutes Basin TMDL to specify restoration efforts to correct ongoing pH exceedance, a conservative approach is required, not a relaxation of existing standards. Allowing for higher concentrations of pH upstream will make the restoration process significantly more difficult.

The Crooked River has been listed as impaired for pH since 2004 and even longer for other parameters. DEQ has no track record of completing TMDLs in a timely fashion. Until an adequate sampling program can be implemented, the pH data exists to determine the causes of poor water quality, and a TMDL is completed, the pH standard should remain at the current 8.5 upper threshold if water quality is to ever support the beneficial uses in Lake Billy Chinook and the Crooked, Trout, and lower Deschutes basins.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion.

Revising the pH criterion will not negate the need for the TMDL. There are clearly water quality concerns in the basin and a TMDL is needed. However, a revised pH criterion will provide a credible and appropriate target for the TMDL and related water quality management plans to achieve. Therefore, DEQ intends to revise the pH criterion for the basin before the TMDL is completed if additional data and analysis confirms the current pH criteria upper limit of 8.5 pH units is not attainable in the basin, to establish an appropriate and achievable target for the TMDL. DEQ would prefer to begin these TMDLs sooner, but the TMDL program has limited resources and a court ordered schedule to redo many temperature TMDLs.

Suggested change ID #16

Comment: Opposed to pH change - Consider downstream impacts and withdraw proposed relaxation of the pH standards

Commenter: 30

Description: Relaxing pH standards will further contribute to downstream standards violations and continue to disrupt aquatic ecosystems. To ensure aquatic habitat in Lake Billy Chinook and the lower Deschutes River is not further impaired, DEQ cannot allow the maximum pH levels in the Crooked River and Trout Creek to be relaxed. We call on the DEQ to withdraw its proposed relaxation of the pH standards in the Crooked River and Trout Creek and instead work to improve water quality in these two streams.

DEQ does not seem to consider the full range of impacts that will stem from this change given the analysis merely looks at how compliance with water quality standard would be affected – and only in the Crooked River and Trout Creek. This is insufficient consideration of the impacts from this rule change. DEQ must also consider the negative downstream impacts that are likely to come from these changes. Nowhere in its proposals and discussion documents does DEQ address these issues.

The waters that would be impacted by this rule – not just the Crooked River and Trout Creek, but also Lake Billy Chinook and the lower Deschutes River – are already impaired for pH-related measures. In DEQ's most recent Integrated Report, all of these waters are listed as "impaired" and in need of clean-up plans. Worse, many of these waters are listed as Category 5 waters – denoting the highest need for corrective action. Nowhere in its proposals and discussion documents does DEQ address these issues.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion.

However, DEQ does not agree that revising the upper end of the pH range from 8.5 to 9.0 will further increase downstream criteria exceedances. The revision is not intended to allow increased pollution.

Rather, the revised pH criterion establishes a protective and appropriate target for the TMDL. The Crooked River is currently close to or exceeding a pH of 9.0 in several locations and additional diel studies are likely to find additional sites exceed 9.0 as a daily maximum. Therefore, there is not capacity for additional nutrient loading even with the pH criteria revision. On the contrary, DEQ expects that the TMDL will show that there is a need to reduce nutrient loading to meet algal growth, pH and dissolved oxygen criteria in the Crooked River. Other water quality parameters, such as chlorophyll-a and dissolved oxygen and the narrative algal growth criteria are also used to evaluate impacts and establish water quality goals in addition to pH.

The pH criterion for Lake Billy Chinook and the Deschutes River will remain 6.5 - 8.5. Permitted discharges to the Crooked River must be analyzed to ensure they do not cause or contribute to an exceedance of the pH criteria in these downstream waters. When the TMDL for Lake Billy Chinook and the lower Deschutes River is completed, it will likely assign nutrient load allocations for each river entering Lake Billy Chinook, which may require further reductions in the Crooked River.

Suggested change ID #17

Comment: Opposed to pH change - pH levels of 9.0 or above are likely to harm salmonids

Commenter: 30

Description: pH levels of 9.0 or above are likely to harm salmonids and anything above 9.5 will be lethal with prolonged exposure. DEQ's current ambient monitoring program is very limited and only collects a grab sample once. Therefore, raising the upper threshold reduces any likely protection from anthropogenic nutrient enrichment, would cause unnecessary harm to aquatic life, and is counterproductive to enhancing the current conditions in the lower Deschutes the Crooked rivers and Trout Creek basins.

DEQ makes the argument that looking at pH alone, a level of 9.0 SU protects aquatic life, namely salmonids, citing a review paper looking at the effect pH has on fish and EPA's CADDIS. However, DEQ is correct in pointing out that pH levels higher than 8.5 SU increase the toxicity of other pollutants such as ammonia and heavy metals. It is counterproductive to the health of the watershed to enable conditions that would increase toxicity of other pollutants. Furthermore, from a larger management perspective in the Deschutes Basin, the notion that the 9.0 SU maximum pH standard would protect aquatic life is simply not true.

Response: DEQ will withdraw the pH criterion revision from this rulemaking in order to consider additional data and analysis on natural background pH levels for the Crooked River prior to revising the criterion.

However, DEQ disagrees that the criteria revision will cause harm to aquatic life. Please see the pH Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon pp. 2-4 for a summary of the scientific literature regarding the impacts of pH on salmonids. Also, please note that the pH upper criterion of 9.0 applies as a daily maximum. While grab samples are certainly more common, some diel studies have been done and DEQ expects more will be done when we begin the TMDL development. The available data show that pH in several Crooked River locations reaches over 8.7 and 9.0. Therefore, DEQ is scheduled to develop a TMDL for the basin to address pH and other parameters related to excessive algal growth and nutrient loading.

Designated Uses for the Deschutes River Basin

Suggested change ID #18

Comment: Deschutes Basin - General Pelton Dam Comment

Commenter: 4, 6, 11, 12, 17, 18, 21, 25, 30,31, 38, 40, 46, 45, 48, 49

Description: Pelton Dam related comments. Generally, in opposition to the Pelton Dam, including comments mentioning the water quality of the lower Deschutes River declining significantly since Portland General Electric (PGE) has changed the operation of their Hydro Project. Suggests it is in the best interest that DEQ alter selective withdrawal (SWW) tower operations in Lake Billy Chinook (LBC) by requiring maximum bottom draw earlier in the year.

Response: Dam operations at Pelton Round Butte are not within the scope of this rulemaking. Dam operations are regulated by FERC and DEQ's water quality certification under the Clean Water Act Section 401.

Suggested change ID #19

Comment: Deschutes Basin - designate entire lower Deschutes River as Core Cold-Water Habitat

Commenter: 30, 31, 35, 41, 49

Description: Requests that DEQ extend the Core Cold Water Habitat designation to the entire lower Deschutes as "Core Cold-Water Habitat" for the year-round temperature fish use designation and as "Cold-Water Aquatic Life" for the year-round dissolved oxygen aquatic life use designation. No scientific or biological justification for using the mouth of the Warm Spring River as a geographic boundary for different water quality protection standards in the lower Deschutes.

This designation is meant to protect salmonid-dominated communities, and/or bull trout migration, foraging, and sub-adult rearing during the summer. Therefore, the change to the less protective "Salmon and Trout Rearing & Migration" year-round temperature use designation and "Cool-Water Aquatic Life" dissolved oxygen designation downstream of the Warm Springs River in the Lower Deschutes River does not make biological sense.

Suggests that DEQ is missing habitat for Bull Trout and Summer Steelhead in the lower Deschutes River and that this should be reflected and updated in the beneficial use maps. Asserts the Warm Springs River is one of the two (the second being Shitike Creek) primary spawning and rearing streams for ESA-listed Deschutes bull trout, which are known to show a fluvial life history pattern where juveniles migrate from the Warm Springs River to the Deschutes to rear and grow prior to returning as adults to spawn.

Response: The current use designation for the lower Deschutes River below the Warm Springs River, which is 'Salmon and Trout Rearing and Migration,' continues to be the correct designated use. The data continues to support the current designation for these waters according to DEQ's methodology. Please see Technical Support Document Sections 2.3.1 and 2.3.2. The current designations were approved by EPA and validated through consultation with NOAA-Fisheries and the U.S. Fish and Wildlife Service.

The U.S. Fish and Wildlife Service designated the lower Deschutes for Bull Trout 'Foraging, Migration, and Overwintering' (FMO) habitat in their 2010 critical habitat rule. The 2003 Bull Trout Working Group determined that Bull Trout use downstream of the Warm Springs River is limited to September – May. Therefore, the reach below the Warm Springs River is not used by Bull Trout during the summer months.

Peak summer steelhead spawning in the lower Deschutes River occurs from March 1 to April 30. Therefore, the lower Deschutes River downstream of the confluence with the Warm Springs River does not meet either of DEQ's methodology requirements for designation as 'Core Cold Water Habitat'.

In addition to the biological indicators discussed above, DEQ also designates Core Cold Water Habitat use where temperature data show the waterbody stays below 16°C throughout the summer. The basis for the current 'Core Cold Water Habitat' designation of the Deschutes River from Lake Billy Chinook to the confluence of the Warm Springs River is temperature data collected prior to 2003. It shows colder waters immediately downstream of Pelton Dam. These colder water temperatures are understood to result from discharges from the dam. Contemporary long-term temperature data from the U.S. Forest Service NorWeST model supports that conclusion. It shows that mean August temperatures in the lower Deschutes River are coldest (16 to 18°C/60.8 to 64.4°F) immediately downstream of Pelton Dam and increase to 20 to 25°C (68 to 77°F) downstream of Shitike Creek. Therefore, the confluence of the Warm Springs River is a reasonable and conservative end point for the influence of cold water from the dam and for the 'Core Cold Water Habitat' designation. Therefore, DEQ proposes no change to this existing use designation.

Suggested change ID #20

Comment: Deschutes Basin - Re-designate lower portion of Deschutes River for cold water refuge

Commenter: 30, 31

Description: Commentor requests DEQ re-designate a portion of the lower Deschutes River as "Core Cold- Water Habitat" instead of the current "Salmon and Trout Rearing & Migration" designation because of its role as cold water refuge to the Columbia River. EPA has identified this as a critical need for salmon and steelhead migrating upstream in the Columbia, and therefore it is critical to maintain water temperatures in the lower Deschutes as low as possible.

Response: Providing cold water refuge is not the same as qualifying as Core Cold Water Habitat. EPA's definition of cold-water refuge are tributaries or other water sources that provide at least a 2°C (3.6°F) reduction in temperature relative to the main water body. According to the EPA's Columbia River Cold Water Refuges Plan, the lower Deschutes River is 2°C cooler than the Columbia River, but the mean august temperature at the mouth is 19.2°C (66.5°F). Therefore, the Deschutes does not attain the 'Core Cold Water Habitat' criterion of 16°C at the mouth and does not meet any of the other qualifications for Cold-Water Habitat' according to DEQ's methodology for designating uses. Please see Technical Support Document Sections 2.3.1 and 2.3.2.

DEQ is proposing to designate other tributaries along the Columbia River as Core Cold Water Habitat use based on data from the U.S. Environmental Protection Agency, Region 10 Columbia River Cold Water Refuges Plan (EPA-910-R-21-001, January 2021 (https://www.epa.gov/columbiariver/columbia-river-cold-water-refuges-plan) showing that water temperatures attain the core cold-water numeric criterion (16°C) throughout the summer months. Please see the Technical Support Document Section 1.4.1.3.

Resident trout spawning criteria end dates

Suggested change ID #21

Comment: Resident Trout Spawning – Asserts over-simplification of spawning timing dates

Commenter: 30, 35, 42, 49

Description: Concerns over the end dates being too general for resident trout spawning. To more fully protect spawning and incubating resident trout, the proposed end dates must be adjustable, like the start dates, and must rely on ODFW's timing tables. Request that DEQ use ODFWs current spawning use tables for development of start and end dates for resident trout spawning.

Response: DEQ uses the information in ODFW's timing tables to derive the dates the spawning criteria are applied to protect the salmon, steelhead, and resident trout populations in each watershed or subbasin. This methodology was explained in Section 2.6 and Section 3.5 of the draft Technical Support Document included in the public notice. Please also see the discussion in response to comment #23, below.

Suggested change ID #22

Comment: Resident Trout Spawning - Disagree with current end dates approach assuming May 15 or June 15

Commenter: 31

Description: After an in-depth review of the aquatic life use designations being proposed I must disagree with the approach being used to set hard end dates for resident trout spawning of May 15 or June 15. This is completely at odds with what is known about resident trout spawning in many of Oregon's rivers. Here are just a few examples of end dates of trout spawning I pulled from ODFW's own fish use tables: Coast Fork Willamette: August 15 McKenzie below Leaburg Dam: August 15 Donner & Blitzen: August 1st NF Malheur (above Beulah Res): August 1st South Coast (Flora/New River): August 1st.

I believe saying only peak use matters is an unjustifiable approach to water quality management in Oregon. At a minimum the DO standard for trout spawning should be applied until the complete end of egg & fry incubation as defined in ODFW's fish use tables for streams around the state.

I'm particularly concerned about the Lower Deschutes River where it has been well documented that resident trout spawning through egg & fry incubation continues until at least August 15th if not September 1st. DEQ's own 401 certification for PGE's operation of the selective water withdrawal tower cites salmonid spawning as occurring year-round in the lower Deschutes River. Setting June 15 from Reregulation Dam to mouth of Warm Springs River and May 15 as end date below mouth of Warm Springs River has no biological basis and does not protect resident trout spawning in the lower Deschutes River. An end date of September 1st would fully protect resident trout spawning through egg & fry incubation and should be applied throughout the lower Deschutes River.

Response:

DEQ's methodology for setting the applicable salmonid spawning dates for the dissolved oxygen standard protects resident trout reproduction. Oregon's DO spawning criterion of 11 mg/L is conservative, allowing for a 3 mg/L decrease in DO from the water column to the gravels. The DO salmonid spawning criterion is biologically necessary to meet the requirements for egg incubation, which predominantly occurs in winter and spring. Applying the spawning criteria until May 15 or June 15 also meets the policy goal of the standard to protect the natural dissolved oxygen regime from anthropogenic impacts. Available information does not show that the spawning criteria are attainable throughout the summer even under natural conditions. In the coldest waters, where a portion of the trout population may spawn later in

the season, egg development may continue beyond May or June 15. However, high DO levels will persist after these dates if the criteria are met for that timeframe. Additionally, the year-round cold-water aquatic life dissolved oxygen criterion applies in the majority of reaches with spawning habitat and is within the optimal range for early life stages after hatching.

DEQ does not agree that it is necessary to apply the Salmonid Spawning criteria for dissolved oxygen to the full date range of "Egg incubation through Fry Emergence" shown on ODFW's timing tables in order to protect resident trout populations in the lower Deschutes River for the reasons summarized here and provided in Section 3.5 of the Technical Support Document attached to this rulemaking.

First, the ODFW timing tables combine the timing for the developmental life stages of Egg incubation and Fry Emergence. The biological endpoint for the salmonid spawning criteria is 'egg incubation' and the criteria values are clearly identified as the concentration needed to protect 'egg incubation' in DEQ's 1995 DO issue paper (DEQ 1995a) and in EPA's national criteria (EPA 1986) upon which the criteria are based. The salmonid spawning criterion of 11 mg/L DO is not necessary to protect early salmonid life stages after hatching. The criterion is also highly conservative and is expected to be unattainable, even under natural conditions, in many of the state's waters during the summer months.

The embryonic life stage (egg incubation) and the larval alevin/fry life stages of salmon and trout have different dissolve oxygen requirements. The requirements for Rainbow Trout (*Oncorhynchus mykiss*) alevins and fry drop significantly after hatch to a range between 4 and 8 mg/L. Incubation also speeds up as waters warm above 12°C (53.6 F) and salmonid eggs are expected to hatch in less than 20-30 days (Silver et al. 1963, Shumway et al. 1964, Eddy 1971, McMahon 1983, Rombough 1988). This review of the scientific literature is in Section 3.5 of the draft Technical Support Document included in the public notice for this rulemaking.

Second, peak spawning activity on ODFW's timing tables represents the period within which the 90th percentile of the population spawns. Resident trout exhibit highly adaptable spawning behavior. Extended low intensity spawning activity by small numbers of individuals is common in these species, but represents a small portion of the total spawning population and therefore this reproduction does not sustain the population as a whole. In addition, spawning does not occur uniformly across all waters in the timing units or for the entire duration shown on the timing table. ODFW's timing units cover relatively large sub-basins that include both warmer tributaries and colder headwater streams. Earlier spawning starts and ends in the warmer waters before later spawning starts and ends in the colder waters within the timing units.

Third, dissolved oxygen levels will likely support egg incubation during a transitionary period after the spawning end date. Waterbodies that attain the salmonid spawning criterion until May 15 or June 15 would be expected to maintain high DO concentrations that continue to support incubation and then fry and juvenile development that occurs past those dates. The dissolved oxygen concentration changes gradually, it will not suddenly degrade from 11.0 mg/L or 95% saturation to 8.0 mg/L or 90% saturation in these waters after June 15. In addition, the cold water aquatic life criterion of 8.0 mg/L, which applies year round, protects early salmonid life stages after hatch. Furthermore, peak adult spawning ends in April or May in all cases. The examples provided are particularly cold habitats designated for year-round dissolved oxygen criteria of 'Cold Water Aquatic Life' (8.0 mg/L), which protects the dissolved oxygen requirements for early life stages after hatching. Please see also Section 3.5 of the final Technical Support Document (DEQ, 2023) for this rulemaking.

In the lower Deschutes River, ODFW's timing tables indicate peak spawning for Redband Trout starts February 1 and ends by May 15. Ninety-three percent of the peak spawning activity in the Deschutes concludes by April 30, with only a small proportion spawning into May. The later spawning activity

likely occurs in the colder waters designated for year-round temperature use of 'Core Cold-Water Habitat', where the spawning criteria apply until June 15, which again allows adequate time for this late-spawning portion of the population to hatch. The year-round dissolved oxygen criteria for the cold water reach below the dam, where late spawning most likely occurs, is 8 mg/L 'Cold Water Aquatic Life.' Late-spawning fish are a small proportion of the overall population in the lower Deschutes and this approach provides assurance that juvenile development after hatch for that portion of the Redband Trout population is fully supported The portion of the population spawning in warmer portions of the river downstream of the Core Cold-Water Habitat would have adequate time to hatch when applying the spawning criterion of 11 mg/l until May 15. DEQ's 401 certification makes no claim that salmonid spawning use occurs year-round in the Deschutes River[4].

Please see the revised discussion of the technical merits of the proposed resident trout spawning timing methodology in DEQ's final Technical Support Document, Section 3.5. DEQ has also added graphics from its analysis of the distribution of resident trout spawning dates in Oregon waters and explanation of how DEQ derives the salmonid spawning use dates using information from ODFW's timing tables.

Suggested change ID #23

Comment: Resident Trout Spawning - Revise salmonid spawning (dissolved oxygen) dates to be more flexible based on ODFW's timing tables

Commenter: 30

Description: Make proposed salmonid spawning (dissolved oxygen) end dates adjustable like the start dates based on timing in ODFW's timing use tables. The largest overall issue with DEQ's proposed approach to resident trout spawning is to attempt to apply them statewide. DEQ must revise this portion of its proposed approach in order to fully protect spawning and incubation resident trout. ODFW's timing use tables show trout spawning end dates in many basins that extends beyond the proposed end dates of May 15 or June 15. DEQ must revise this portion of its proposed approach in order to fully protect spawning and incubation resident trout and must rely on the ODFW expertise when designating resident trout spawning and incubation periods in order to fully protect those most vulnerable life cycle stages.

Response: DEQ has consistently implemented the dissolved oxygen criteria since 1996 with methods documented in letters to EPA in 1998 and 2004. Procedures using May 15 or June 15 as end dates for applying 'Salmonid Spawning' criteria for dissolved oxygen did not raise concern from ODFW, USFWS, or NOAA-Fisheries during ESA consultation and EPA approval of the 1996 standards and the 2003 IGDO criteria, nor during the technical development of these proposed rules.

DEQ is proposing to use the same methods to derive start and end dates for applying the spawning criteria for salmon, steelhead, and resident trout as used for the temperature spawning criteria for salmon and steelhead. It is not appropriate to identify spawning end dates directly using the range ODFW's "Egg Incubation through Fry Emergence" life stage use category. This is because DEQ's analysis of ODFW's timing information and review of the scientific literature indicates the current approach is not only protective, but also highly conservative in many waters. Please see response in comment #22, above and Section 3.5 of DEQ's final Technical Support Document.

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[4] Clean Water Act § 401 Certification Conditions for the Pelton Round Butte Hydroelectric Project (FERC No. 2030) Jefferson County, Oregon Deschutes River Basin
https://www.oregon.gov/deq/FilterDocs/PRB2030conditions.pdf

Please see additional discussion in response to comment #22 above, and also revised discussion of the supporting information in DEQ's final Technical Support Document Section 3.5.

Suggested change ID #24

Comment: Resident Trout Spawning - 2004 guidance letter not "established" and should bear no weight on the newly proposed subcategories.

Commenter: 55

Description: DEQ refers to a 2004 letter it sent to the US EPA during its last water quality standard updates. That letter, occurring outside of the formal standards revision process, merely explains how DEQ was planning to apply the DO standard. However, the EPA stated in its approval of the revised standards that it had not considered those changes to the DO standard in its approval. Likewise, there is no evidence that EPA ever responded, let alone approved, of DEQ's proposed approach in its 2004 letter. DEQ seems to be fabricating an unnecessary restriction on itself considering that these "established…procedures" have never been formally considered and approved by either the Environmental Quality Commission or the EPA. In essence, these are also wholly new standards. The "established implementation procedures" that DEQ refers to in that 2004 letter are anything but "established" and should bear no weight on the newly proposed subcategories. Rather, these are actually newly proposed procedures and should be treated as such – put under the same scrutiny as the rest of the proposed rule changes in this rulemaking.

Response: Oregon's water quality standards for dissolved oxygen include criteria for salmonid spawning and were adopted in 1996. When and where salmonid uses occur was not designated in that rule at that time. Since these uses were not designated at the time, EPA requested clarification from DEQ on the implementation procedures for the dissolved oxygen standard which DEQ provided in an official letter to EPA in 1998 (https://www.oregon.gov/deq/FilterDocs/standardsclar.pdf). EPA had this memo and considered the implementation procedures as it completed ESA consultation and approved Oregon's 1996 DO standards. DEQ has consistently implemented the dissolved oxygen criteria based on the guidance it provided to EPA in 1998 and also in 2004 to protect resident trout species. However, EPA has reviewed numerous permits in which DEQ used the implementation procedures and approved 303(d) lists based on assessment using the salmonid spawning criteria for D.O. implemented as described in the 1998 and 2004 letters.

DEQ is unsure what approval letter the commenter is referring to. In EPA's *Support Document for EPA's Action Reviewing New or Revised Water Quality Standards for the State of Oregon* (March 2, 2004), EPA approved revisions to Oregon's inter-gravel dissolved oxygen criteria (IGDO). That was the only revision to the dissolved oxygen standards made at that time.

Because DEQ is designating 'Salmonid Spawning' uses and the time periods when the criteria are applied as part of this rulemaking, they were evaluated in the Technical Support Document. DEQ did not receive any comments from the Technical Workgroup expressing concerns about the suitability of this approach. The proposed rules are the same as the current implementation procedures for applying dissolved oxygen spawning criteria, as described in DEQ's 1998 and 2004 guidance to EPA.

For more information about evaluation of spawning uses and dates, please see additional analysis in the final Technical Support Document Section 3.2-3.5 and see DEQ's response to comment #23, above.

Temperature use designations

Suggested change ID #25

Comment: Salmon and Steelhead Migration Corridors - ODFW

Commenter: 44

Description: OAR 340-041-0028(4)(d) defines migration corridors as "The seven-day-average maximum temperature of a stream identified as having a migration corridor use … may not exceed 20.0 degrees Celsius (68.0 degrees Fahrenheit). In addition, these water bodies must have cold water refugia that are sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher water temperatures elsewhere in the water body…". ODEQ did not provide information as to whether all current existing migration corridors (i.e., John Day River, Coos River, Catching Slough etc.), or those proposed (Multnomah Channel) have sufficient distribution of cold-water refuge along the migration corridor. ODFW is aware of cold-water refuge plans for the mainstem Willamette River and the Columbia River and encourages ODEQ to prioritize identification of cold-water refuge areas along all existing and proposed migration corridors. Where cold water refuge has not been identified, ODFW urges ODEQ to complete its statutory obligation to prioritize and map cold water refuge to protect salmon and steelhead migration without sustained adverse effects in these migration corridors.

Response: DEQ acknowledges ODFW's comment that we implement the cold water refuge narrative criterion to additional waters designated for migration corridor use. However, that work is beyond the scope of this rulemaking, which only revises the use designations. The Triennial Review is a public process where DEQ sets priorities to review and revise water quality standards. ODFW could recommend this as a priority during the next Triennial Review, which will take place in 2024.

Suggested change ID #26

Comment: Santiam River - Willamette River Basin

Commenter: 44

Description: ODEQ has proposed a migration corridor use for the mainstem Santiam River from the Willamette River to near Jefferson, Oregon (RM 0 – 10). According to ODEQ's decision rules, ODEQ designates Salmon and Trout Rearing and Migration for waters where any of the following conditions are met: (1) Salmon or steelhead rearing, migration, or presence occurs in July or August; (2) Rainbow Trout, Coastal Cutthroat Trout, Westslope Cutthroat Trout, or Mountain Whitefish rearing or presence occurs in July or August; (3) Waters upstream of waters designated for "Salmon & Trout Rearing and Migration, except those designated for the Bull Trout Spawning & Juvenile rearing or Core Cold-Water use subcategories. ODEQ's Use Attainability Analysis (UAA) suggests that these waters do not support salmon rearing during the summer. However, according to the most recent timing tables, juvenile rearing by both Winter Steelhead and Spring Chinook is uniformly distributed throughout the year. The Santiam River is also located upstream of the mainstem Willamette River, which is designated for Salmon & Trout Rearing and Migration (Decision Rule 3). ODEQ also suggests that the presence of cool water species in these waters is an indicator that these waters do not fully support the Salmon and Trout Rearing and Migration use. However, the cool water species present (Prickly Sculpin, Paiute Sculpin, Reticulate Sculpin, Mountain Sucker, Largescale Sucker, and Torrent Sculpin) are also present in the downstream reach on the mainstem Willamette River, which has a Salmon and Trout Rearing and Migration designated use.

ODEQ supports the downgrade of the existing use with excerpts from the 2006 Willamette River temperature TMDL. Simulations for "natural thermal potential" were based only on observational data from 2001 and 2002. Temperature and flows in the Santiam were set to flow rates observed in 2002. Additional studies since the original 2002 simulation have been completed to develop environmental flow requirements for the Santiam River. July through November streamflows have increased under regulated streamflow conditions. According to Risley et al., the mainstem Santiam River below RM 7 has secondary channel features and sloughs that provide high flow refugia and rearing habitat for native fish, including spring Chinook salmon and winter steelhead. Therefore, ODFW supports maintaining the existing Salmon and Trout Rearing and Migration use designation.

Response:

A primary reason DEQ is changing the aquatic life use designation for the lower mainstem Santiam River, below the City of Jefferson, is because according to the best available data and information this reach cannot attain the Salmon and Trout Rearing and Migration Use. Modeling conducted for the 2006 Willamette River TMDL indicates that this reach cannot attain 18°C as a 7-day average daily maximum temperature throughout the summer. While DEQ's TMDL model did not account for temperatures with dam removal, the USGS has modeled the impact of dam removal. Their study indicates that peak summer water temperatures without the dam may be warmer, likely due to decreased summer flow without the dam releases. Their modeling also indicates that with improved dam management, 18°C is not an attainable temperature in this lower reach of the Santiam River (Sullivan and Rounds 2004, Rounds 2010). DEQ is doing additional modeling for the temperature TMDL replacement based on restored vegetation and the 2015 flows. Given the other information and modeling, we do not expect this will show that the lower river can attain 18°C. There is a large segment of core cold water habitat designated in the North and South Forks of the Santiam River, below the dams, with a temperature criterion of 16°C. This criterion provides an incentive for dam managers to keep stream temperatures cool.

In addition, DEQ consistently applied its use designation decision rules to evaluate the appropriate use for lower Santiam River. This reach is identified as providing primarily migration habitat for Coho salmon and summer steelhead; and primarily rearing habitat for Spring Chinook salmon and winter steelhead in ODFW's FHD database. However, the timing table shows there is no peak or lesser rearing or migration for any species in July or August. Spring Chinook and Winter Steelhead are present and their rearing use is evenly distributed throughout the year. This means that the proportion of the population that may use this reach in July and August is expected to be low. The "Migration Corridor" use subcategory can include some rearing use, but the reach is not prime or optimal rearing habitat during the summer. It is a seasonal cold water use. See Section 3.6.1 of the final Technical Support Document for the Rulemaking for detailed explanation of the screening analysis and data supporting this proposed designation and our Use Attainability Analysis for this reach.

Because DEQ proposes to change the use designation to one with a less stringent criterion, the U.S. EPA must consult with the federal fisheries services on the change before EPA can approve the revised criteria.

Compliance with DEQ's water quality criteria is determined in the well mixed flowing portion of rivers and streams. The ability to meet higher flow velocity or cooler temperatures in secondary channel features and sloughs that may provide cold water refuge does not necessarily mean the cooler temperatures can be met in the well mixed portion of the river. Risely et al. stated "*the Santiam River along Reach 7*[5] *is mainly confined to a single channel with several sections where flow is split by mid-channel bars. Although Reach 7 flows through a broad flood plain that ranges up to 3 mi wide, revetment currently flanks much of the channel, restricting bank erosion, channel complexity, and bar growth*." The reaches with high

[5] Reach 7 in the report spans approximately RM 0-10 of the Santiam River.

channel complexity cited in the report is further upstream from the reach we are proposing to designation as "Migration Corridor" and designated as "Core Cold Water Habitat." Regardless, the migration corridor criterion includes a provision to protect cold water refuge in these warmer reaches, so any cooler channel features that are present can be protected to provide refuge for rearing and migrating fish.

Please see additional detail on DEQ's justification for the use change in the Use Attainability Analysis for Aquatic Life Use Designations Section 6.1.

Suggested change ID #27

Comment: Grande Ronde Basin - Catherine Creek Migration Corridor

Commenter: 44

Description: ODEQ has proposed a migration corridor use for Catherine and Little Creeks in the Grande Ronde basin. This designation has been in place since the original aquatic life use rulemaking in 2003, but ODFW believes a "Salmon & Trout Rearing and Migration" designation is more appropriate. According to ODEQ's decision rules, ODEQ designates Salmon and Trout Rearing and Migration for waters where any of the following conditions are met:

(1) Salmon or steelhead rearing, migration, or presence occurs in July or August;
(2) Rainbow Trout, Coastal Cutthroat Trout, Westslope Cutthroat Trout, or Mountain Whitefish rearing or presence occurs in July or August;
(3) Waters upstream of waters designated for "Salmon & Trout Rearing and Migration, except those designated for the Bull Trout Spawning & Juvenile rearing or Core Cold-Water use subcategories.

According to the most recent timing tables, the period of peak use for Spring Chinook salmon spawning commences in August. Peak use for juvenile rearing by summer steelhead begins in August, and Spring Chinook salmon rear throughout the entire summer period. Catherine Creek is also located upstream of the Grande Ronde River, which is designated for Salmon & Trout Rearing and Migration. Therefore, ODFW recommends a Salmon and Trout Rearing and Migration use designation for Catherine and Little Creeks.

Response:

The 'Salmon and Steelhead Migration Corridor' use was adopted in 2003 and is the currently effective designation for Catherine Creek and Little Creek in the Grande Ronde basin. At the time, neither ODFW nor the Services expected Catherine Creek downstream of Union and lower Little Creek to support juvenile rearing in the summer. In addition, the fisheries agencies, EPA and DEQ agreed that the flow and temperature conditions needed to support Salmon and Trout Rearing and Migration in this reach were not expected to be attainable in July or August. DEQ's 2003 Technical Advisory Group concluded that the reach of Catherine Creek in that area was too warm and flows too low by the end of summer to see significant salmonid use downstream of the City of Union and that juvenile steelhead did not stay in lower Catherine Creek during the summer months. Therefore, it was designated for the "Migration Corridor" use given: 1) the reach is used primarily for migration by steelhead; 2) ODFW's life-stage activity timing tables indicated no peak salmonid rearing use by Chinook salmon in July or August; and 3) evidence indicated that the reach naturally exceeds 18°C as a 7-day average daily maximum temperature. The designation was approved by the U.S. EPA and NOAA-Fisheries.

According to ODFW's current FHD and life stage timing tables, there is juvenile summer steelhead rearing habitat in Little Creek and Catherine Creek with peak use from August to February. The timing table covers reaches of Catherine Cr. above and below Union as well as all of the upland tributaries in Little Creek, Ladd Creek, Mill Creek.

A TMDL for the Upper Grande Ronde Basin, including Catherine Creek, was approved by the U.S. EPA on May 3, 2000[6]. It did not include modeling of the natural thermal potential for Catherine Creek and Little Creek. Both creeks currently exceed the Salmon and Steelhead Migration Corridor criterion with maximum weekly maximum temperatures of >25°C according to data and modeling in the U.S. Forest Service's NorWeST stream temperature model. Natural thermal potential for the Grande Ronde River at the confluence with Catherine Creek (approx. RM 117) was modeled during the 2000 TMDL. The model showed a temperature reduction of ~4°C, from maximum August temperatures of ~25°C to ~21°C is possible. If a ~4°C reduction is also possible in Catherine Creek and Little Creek, there may be potential for Little Creek to attain the Salmon and Trout Rearing and Migration criterion within the canyon upstream of the City of Union. However, it is unlikely that Little Creek or Catherine Creek downstream of Union could achieve a maximum weekly max of 18°Cwith restoration. The current criterion of 20°C is closer to the natural thermal potential for the maximum 7-day average of daily maximum temperatures in August and represents the highest attainable condition for this reach.

The TMDL has allocated reductions to both point sources and nonpoint sources in the upper Grande Ronde basin. Catherine Creek and Little Creek downstream of the City of Union have not yet attained the 20°C "Migration Corridor" criterion. Given that a TMDL approved by the U.S. EPA and consulted on by the NMFS is in place, the reach has not yet attained the current criterion, and it is unlikely that 18°C is attainable, DEQ cannot justify a change to the current designated use below Union at this time. In addition, there is limited benefit to water quality by lowering the criterion until the TMDL allocations and the current criterion are achieved.

Since it appears a portion of Little Creek upstream of the City of Union may achieve 18°C given temperature reduction from restoration according to this evaluation, DEQ will change the designation from the current 'Salmon & Steelhead Migration Corridor' use to the more stringent 'Salmon and Trout Rearing and Migration' use for the upper portion of Little Creek where data shows a more stringent criterion is attainable.

Dissolved oxygen use designations

Suggested change ID #28

Comment: TSD Comment - Cold vs. Cool water use designations for dissolved oxygen.

Commenter: 31

Description: I am very concerned with how these new use designations are or will be applied. The definitions of the two use categories are very subjective and can easily be used as justification for applying lower DO standards in NPDES permits or other management decisions. Because these are new use categories, no Use Attainability Analysis has been required for where or when the lower cool water use is being applied. The lower Deschutes River is a good example, as there is no change in the biotic

[6] DEQ 2000, Upper Grande Ronde River Sub-Basin Total Maximum Daily Load (TMDL). https://www.oregon.gov/deq/FilterDocs/ugrtmdl.pdf

community below the Warm Springs River to warrant a change from cold water to cool water DO standards.

Response: The proposed aquatic life use designations for dissolved oxygen in the lower Deschutes River are the same as those DEQ has implemented in water quality programs since 1996.

For the proposed rules, DEQ used the most current data available to designate aquatic life uses associated with Oregon's dissolved oxygen standards and to ensure that DEQ applies the correct water quality criteria to protect aquatic life in Oregon waters.

The dissolved oxygen use designations are determined based on the ecological context of the basin, the makeup of the aquatic community, and the presence of sensitive species and life stages during certain times of year. DEQ follows a consistent and data-driven methodology to designate waters for the 'Cold-Water Aquatic Life' or 'Cool-Water Aquatic Life' uses for dissolved oxygen. Please see the final Technical Support Document Section 2.3, 2.5, and 3.1 for a description and supporting analysis of the procedures DEQ follows.

The appropriate designation for the lower Deschutes is 'Cool-Water Aquatic Life'. The designation of 'Cold-Water Aquatic Life' in the section of the Deschutes River downstream of Pelton Dam to the Warm Springs River is an exception due to the release of cold water from the dam. Please see more discussion about the designation of these waters in our response to comment #19, above.

Suggested change ID #30

Comment: In Support - Resident Trout Spawning Inventory

Commenter: 44

Description: ODFW supports ODEQ's proposal for the designation of resident trout spawning in stream reaches that have been identified in the Oregon Fish Habitat Distribution database as 'Primarily Spawning', in high priority likely spawning areas, and areas upstream of anadromous salmonid spawning. ODFW will continue to support ODEQ's ongoing efforts to fill data gaps in eastern Oregon and the Willamette Valley. ODFW supports ODEQ's ongoing documentation of ODFW determined additional resident trout spawning areas and the maintenance of a publicly available Inventory of Resident Trout Spawning Habitat to document additional site-specific determinations identifying "active spawning areas used by resident trout". Application of the salmonid spawning criteria for DO in these areas will provide the necessary protection and address data gaps where the spawning use is not yet designated in rule.

Response: DEQ acknowledges comments in support of the proposed rule and appreciates the interagency collaboration and support from ODFW as DEQ continues its ongoing efforts to fill data gaps for resident trout spawning. As DEQ develops and maintains the Inventory of Resident Trout Spawning Habitat to document "active spawning areas used by resident trout" collaboration with ODFW biologists will be essential.

Suggested change ID #31

Comment: Dissolved Oxygen -DEQ must correct the current Oregon Administrative Rules for dissolved oxygen

Commenter: 30

Description: Commenter states the current dissolved oxygen rule for cool water aquatic life OAR 340-041-0016(3) conflicts with OAR 340-041-0016 TABLE 21 and discrepancies in DEQ's proposed rulemaking technical support document and asserts that DEQ must correct the current Oregon Administrative Rules.

Comment cites the technical support document and states that "DEQ's cool water aquatic life criterion allows 6.5 mg/L as an average and 5.0 mg/L as an absolute minimum" and is consistent with the current dissolved oxygen rule for cool water aquatic life OAR 340-041-0016(3), but is in conflict with TABLE 21, which designates the cool water aquatic life criterion at 5.0 mg/L 7-day mean of the daily minimum and 4.0 as an absolute minimum.

Response:

There is a typographical error in DEQ's Technical Support Document that misquoted the criteria for Cool Water Species as 6.5 mg/L as an average and 5.0 mg/L as an absolute minimum. This has been corrected to read that the 6.5 mg/L is a 30-day average mean, the 5.0 mg/L is a 7-day average of the daily minimum, and 4.0 mg/L is an absolute minimum.

DEQ is not amending the dissolved oxygen criteria (OAR-340-041-0016) during this rulemaking. If commenter believes a revision to the dissolved oxygen standard in OAR-340-041-0016 is necessary, they can request this during the triennial review process. The Triennial Review is a public process where DEQ sets priorities to review and revise water quality standards. DEQ's next triennial review will take place in 2024.

Use Attainability Analysis comments

Suggested change ID #32

Comment: UAA/Use of FHD and Historical Habitat

Commenter: 41

Description: In addition to the multiple lines of evidence provided in the UAA to document existing uses (as defined per 40 CFR 131.3(e)), EPA recommends available details be included, such as how the historical habitat information in the Oregon Department of Fish and Wildlife (ODFW) Fish Habitat Distribution (FHD) database and other sources have been incorporated into the evaluation of existing and attainable uses. The UAA speaks to 'suitable and accessible' habitat, but it is unclear if this relates to only currently available habitat or habitat that was historically present. Available historical information provides important insights into the presence of an existing use and when evaluating if a use is attainable.

In Section 2.1.2, it is unclear if any of the data used in the 2003 FHD were reclassified as historical and how the current and historical information was integrated into use designations.

Response: DEQ revised the UAA document to more clearly describe the multiple lines of evidence evaluated to determine existing and attainable uses. One line of evidence used to evaluate whether Bull Trout Spawning and Rearing Use and Core Cold Water Habitat are existing uses, is whether they are characterized as historical habitat for Bull Trout in the ODFW FHD database. If bull trout is not identified as either a current nor a historic use, that supports the conclusion that bull trout is not an existing use. No habitat for Bull Trout was reclassified from an occupied designation to historic since the 2003 ODFW FHD.

Suggested change ID #33

Comment: UAA/Rationale for 40 CFR 131.10(g) Factors

Commenter: 41

Description: For uses that are precluded by Factor 131.10(g)(1) (i.e., naturally occurring pollutant concentrations) or Factor 131.10(g)(5) (i.e., physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality), EPA recommends the State evaluate the weight of evidence and provide additional supporting rationale or analysis to demonstrate that the conditions (e.g., natural temperature or natural habitat features) identified are in fact natural or that there is an evidentiary basis to consider them natural. When general statements are presented in the UAA that speak to why the use is not attainable per one of the six factors cited in 131.10(g), the statements should include references to the supporting documentation or citations where the information was obtained. Where additional data has been analyzed, the data and analysis procedure should be referenced and made available for review.

Response: DEQ revised the UAA document to include the multiple lines of evidence evaluated to determine that natural conditions prevent use attainment. In each chapter, DEQ provides information on the types of physical and natural conditions that support each use. Within each section, DEQ presents available evidence indicating why the use is not an existing or attainable use, with available references and data indicating that these conditions are natural. In some cases, DEQ has determined that the weight of evidence indicates that the use is attainable or may be attainable in certain waters. In those cases, DEQ has retained the current use subcategory as originally designated in 2003 and therefore UAAs are not needed for those waters since the current uses are retained.

Suggested change ID #34

Comment: UAA/Downstream Protection

Commenter: 41

Description: Currently, the UAA does not address how downstream waters will be protected when upstream uses are removed or changed to a use with less stringent criteria. Per 40 CFR 131.10(b), in designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters. EPA requests that the UAA address how use revisions will ensure protection of downstream waters in compliance with 131.10(b).

Response: DEQ added a section on protection of downstream waters in Chapter 2 of the document, as well as discussion in sections where uses are being removed because they were only designated to protect downstream waters and the downstream use is changing.

Suggested change ID #35

Comment: UAA/References to Bull Trout Working Group

Commenter: 41

Description: In Section 3, where determinations were made by interagency biologists or working groups, please include references to the decision rationale or processes, if available.

Response: DEQ added information from interagency biologists regarding why the Bull Trout Spawning and Juvenile Rearing Use is unattainable, where such information is relevant. DEQ also has, after consulting with members of the Bull Trout Working Groups, retained the Bull Trout Spawning and Juvenile Rearing Use in certain waters, such as Long Creek in the Klamath Basin, because this additional information suggests that the use may be attainable.

Suggested change ID #36

Comment: UAA/Upstream spawning extent

Commenter: 41

Description: In Section 4, for headwaters where the Salmon and Steelhead Spawning use is proposed to be removed, please provide additional details (e.g., survey or following the ODFW protocol) on how the upstream extent of spawning was identified in waters where a natural passage barrier is not present.

Response: In Section 4.1, DEQ added relevant information from the Data Standard for the Fish Habitat Distribution Database regarding how upper extent of spawning use is incorporated. However, ODFW has not fully populated the database on the upper extent of spawning for salmon species occur. As a result, DEQ is only adjusting the upper extent of spawning use upstream of natural fish passage barriers, such as waterfalls, that ODFW has identified in its fish passage barrier database.

Suggested change ID #37

Comment: UAA/Section 4/estuarine waters

Commenter: 41

Description: For non-saline tidally influenced rivers, please describe how microhabitats were evaluated and the basis for removing the Salmon and Steelhead Spawning use for some areas and retaining it for others.

Response: DEQ revised Section 4.2 to provide greater clarity on why DEQ is revising spawning use in estuarine waters and the extent to which ODFW has surveyed spawning in coastal rivers. We also added an explanation of why we are retaining the use in microhabitats where spawning is known to occur. According to ODFW, such microhabitats are very limited and there is little to no spawning habitat that has not already been identified (personal communication, Jon Bowers, ODFW, August 22, 2023).

Suggested change ID #38

Comment: UAA/Revisions to Salmon and Steelhead Timing

Commenter: 41

Description: For waters where ODEQ is proposing to narrow the timing of the application of the Salmon and Steelhead Spawning use, please provide additional information as to why the timing windows are natural, and not the result of impairment or other anthropogenic changes to temperature or timing of flow.

Response: DEQ has added information in Section 4.3 regarding why spawning timing windows in the FHD are determined by physical conditions related to the natural features of the waterbody including a literature review related to shifts in spawning timing over the last several decades.

Suggested change ID #39

Comment: UAA/Redband Trout

Commenter: 41

Description: In Section 7, for waters where the Redband Trout use is revised to the less-stringent cool water species use and criteria, please provide additional information regarding how the cool water species use is protective of the Redband trout that may be present in these waters outside of the summer months.

Response: DEQ added the requested information to Chapter 7.

Suggested change ID #40

Comment: UAA/BPJ and survey data

Commenter: 41

Description: Additionally, when best professional judgment was replaced by survey information or different best professional judgement, please clarify if the classification change was a result of a change to the habitat itself or due to the refined survey data or information that evaluated the natural condition.

Response: DEQ has provided information in each section connecting the unattainability of the use to natural occurring temperatures or physical habitat conditions related to the natural features of the waterbody. Thus, even if DEQ considered the use change based on updated survey information or best professional judgment, the changes must be supported using available UAA factors listed in 40 CFR 131.10(g).

Suggested change ID #41

Comment: UAA/CMECS

Commenter: 41

Description: Please describe how the Coastal and Marine Ecological Classification Standard (CMECS) was used to inform your evaluation of existing and attainable spawning uses, and the data that was incorporated into CMECS.

Response: DEQ used CMECS to identify the extent of waters that are estuarine or tidally influenced. The conclusions as to whether spawning does or does not occur in estuarine waters and tidally influenced freshwaters is based on distribution information provided in the ODFW's Fish Habitat Distribution Database. DEQ provides justification as to why estuarine and tidally influenced waters do not have the physical conditions that support spawning use in Section 4.2, which is supported by ODFW (personal communication, Jon Bowers, ODFW, August 22, 2023).

Suggested change ID #42

Comment: UAA/NoRWeST

Commenter: 41

Description: For conclusions made from NorWeST, EPA recommends providing the mean and ranges from the database (i.e., data upon which the model is based) for the reaches of interest, for the full time period available including the spawning period, in addition to the modeled results. Throughout the UAA, when using NorWeST as supportive information, please identify whether modeled interpolations or actual data are being used, and if the model is used, identify the accuracy/error associated with modeled results, as well as any relevant summary statistics of actual data used (mean, range, median, standard deviation, etc.).

Response: For waters where DEQ is using or extrapolating data from the Northwest Stream Temperature (NoRWeST) database, DEQ has added the information, including an estimation of uncertainty of NoRWeST modeling results specific to the waters being evaluated. DEQ has also incorporated this estimation of uncertainty into DEQ's conclusions regarding attainability of the specific use.

Suggested change ID #43

Comment: UAA/Climate Shield

Commenter: 41

Description: The Climate Shield model results are framed as representative of 1980 conditions in ODEQ's draft UAA. However, Climate Shield '1980s' scenario is reflective of recent conditions (1970s – 1999) and not modeled natural or 1980 conditions. The UAA should acknowledge this, rather than assert that these are modeled conditions representative of 1980. In addition, there should be discussion and rationale for why the baseline Climate Shield scenario should be considered representative of natural and attainable conditions.

Response: DEQ revised its framing of the Climate Shield to be consistent with this comment. DEQ is not using Climate Shield information as the basis of whether the Bull Trout Spawning and Juvenile Rearing Use is attainable or representative of natural conditions, rather as one additional line of evidence indicating whether or not Bull Trout Spawning and Juvenile Rearing Use is an existing use (i.e., has been attained in the waterbody since 1975). Based on this information, DEQ has retained the bull trout spawning use in a number of waterbodies, unless the weight of other lines of evidence indicate that the Bull Trout Spawning and Juvenile Rearing Use is not existing or attainable.

Technical Support Document

Suggested change ID #44

Comment: TSD Comment - Technical Support Document, Water Quality Standards Revisions Aquatic Life Use Updates (May 2023)

Commenter: 41

Description: EPA supports the State's plan to designate in rule when and where the OAR 340-041-0016(1) dissolved oxygen criteria for "any active spawning area used by resident trout species…during the time trout spawning through fry emergence occurs" will apply. EPA understands that due to the lack

of statewide basin-specific data, the State has not fully determined the extent of resident trout spawning areas and the initial designation of resident trout spawning use in the proposed rulemaking will be based on known and likely resident trout spawning areas. As EPA understands it, the proposed designations will protect resident trout spawning in areas that co-occur and that are upstream of anadromous salmonid spawning, in the entire known distribution of Lahontan cutthroat trout, in areas that have a high probability of spawning within the Redband trout distribution, and in areas that are known or likely spawning areas for resident trout that have been identified in state and federal Oregon fish databases and publications (i.e., from United States Geological Survey, ODFW, and Oregon State University) but that data gaps still remain. We encourage ODEQ to look carefully at areas of existing or designated resident trout populations to ensure that there are sufficient spawning designations in those areas to support reproduction of those populations. In addition to the most comprehensive designation possible, EPA requests that more information be provided on how the narrative resident trout spawning dissolved oxygen criteria will be applied in areas that are not included in the proposed designations, including a description of the process and data that the State will use to conduct their review of resident trout spawning status in listing and assessment, Total Maximum Daily Loads, and permitting.

Response: DEQ's NPDES permitting program currently consults with ODFW district biologists to confirm whether discharge permits under development could impact any local resident trout spawning activity. As stated in the Technical Support Document, DEQ plans to develop implementation guidance that will further identify procedures for implementing the narrative resident trout spawning dissolved oxygen criteria, especially with respect to the resident trout spawning inventory. DEQ will collaborate with ODFW and the federal fisheries services to prioritize waters to evaluate for resident trout spawning habitat. An early priority will be to identify water bodies with permitted discharges where the status of trout spawning is unknown and to gather that information prior to the next permit renewal.

A project to develop these implementation procedures will be included for consideration as a priority in the next Triennial Review of Water Quality Standards to take place in 2024.

Suggested change ID #29

Comment: Dissolved Oxygen - Technical Support Document Correction from ODFW

Commenter: 44

Description: Paragraph five on page 18 of the Technical Support Document states that ODEQ's cool water aquatic life dissolved oxygen criteria allows 6.5 mg/L dissolved oxygen as an average and 5.0 mg/L as an absolute minimum. Table 3 on page 19 identifies ODEQ's cool water aquatic life criteria as 6.5 mg/L as a 30-day mean concentration, 5.0 mg/L as a 7-day minimum concentration, and 4.0 mg/L as an absolute minimum. Please clarify which criteria are correct.

Response: DEQ misquoted the text of OAR-340-041-0016(3) and Table 21. The rule text reads "*5.0 mg/L as a weekly average minimum*" in reference to the 5.0 mg/l constant exposure endpoint from the national criteria. DEQ will correct this error in the Technical Support Document to read that the 6.5 mg/L is a 30-day average mean, the 5.0 mg/L is a 7-day average of the daily minimum, and 4.0 mg/L is an absolute minimum.

Implementation

Notification

The proposed rules become effective upon approval by the U.S. EPA. DEQ will notify affected parties by:

- Posting on DEQ's website.
- Email interested parties on the following DEQ lists through GovDelivery:
  - Water Quality Standards
  - Rulemaking
  - DEQ public notices
  - Water Quality Permits
- Posting notices on Facebook and Twitter
- Email all DEQ water quality program staff

Compliance and enforcement

Affected parties- The proposed rule could affect the ability of some NPDES permittees to meet new permit limits. This rulemaking revises the aquatic life use designations with the most up-to-date information. In most cases the uses will not change. However, either less stringent or more stringent water quality criteria will apply in some waterbodies. Therefore, some NPDES permit holders, including some POTWs, and some 401 certifications will be subject to more stringent temperature or dissolved oxygen criteria. The permittee remains responsible for meeting their current permit limits and any applicable criteria revisions will be incorporated upon permit renewal.

DEQ staff- In general, the proposed rule will not impact DEQ staff.

Measuring, sampling, monitoring and reporting

The proposed rule amendments do not generate additional measuring, sampling, monitoring and reporting requirements.

Systems

The proposed rule amendments do not require changes to DEQ systems.

Training

The proposed rule amendments do not require additional training for DEQ or affected parties.

Five year review

Requirement

Oregon law requires DEQ to review new rules within five years after EQC adopts them. The law also exempts some rules from review. DEQ determined whether the rules described in this report are subject to the five-year review. DEQ based its analysis on the law in effect when EQC adopted these rules.

Exemption from five-year rule review

The Administrative Procedures Act exempts all the proposed rules from the five-year review because the proposed rules would:

- Amend or repeal an existing rule. ORS 183.405(4).

Supporting documents

Attachment C: Aquatic Life Use Updates Technical Support Document

Attachment D: Issue Paper: Aquatic Life Use Definitions Clarification

Attachment E: Issue Paper: Proposed pH Criteria Revisions for the Crooked River and Trout Creek Subbasins, Deschutes Basin, Oregon

Attachment F: Draft Use Attainability Analysis for Aquatic Life Use Designations

Additional supporting information is available at:
https://www.oregon.gov/deq/rulemaking/Pages/aquaticlife2022.aspx

Cited references:

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