

Aug. 14, 2023

Response to Comments on the Draft Assessment Methodology for Oregon's 2024 Integrated Report

For Development of the Water Quality Status Report and List of Impaired Waters



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Executive Summary

The Federal Clean Water Act requires Oregon to report on the quality of its surface waters every two years. Oregon surface waters are assessed to determine if they contain pollutants at levels that exceed water quality standards meant to protect beneficial uses, such as fish and wildlife, drinking water and recreation. The result of these analyses and conclusions is called the "Integrated Report" because it combines the requirements of Clean Water Act section 305(b) to develop a status report and the section 303(d) requirement to develop a list of waterways impaired by pollution.



U.S. Environmental Protection Agency regulations require states to describe the methodology, data and information used to identify and list segments of water bodies that are considered "water quality limited" -- or impaired -- and require cleanup plans known as Total Maximum Daily Loads, or TMDLs. A TMDL is a numerical value that represents the highest amount of a pollutant a surface water body can receive and still meet the standards. This Assessment Methodology contains the "decision rules" DEQ will use to compare data and information to existing water quality standards for the development of Oregon's 2024 Integrated Report.

To meet the submission deadline identified in the Clean Water Act and comply with statutory requirements under ORS 468B.039, DEQ posted the Draft Assessment Methodology for inland and estuarine waters for Oregon's 2024 Integrated Report for public comment Jan. 5, 2023, and accepted comments on the methodologies through Feb. 21, 2023. The draft 2024 Ocean Acidification and Hypoxia Assessment Methodologies were posted separately on May 31, 2023, and comments accepted through July 7, 2023. This document provides DEQ's response to comments received for the full draft Assessment Methodology of inland, estuarine and marine waters.



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Introduction

This document addresses comments and questions received regarding the Draft Assessment Methodology for Oregon’s 2024 Integrated Report. The methodology updates for this assessment cycle include: an updated format and structure for the document; specific methodology to delist for temperature related impairments; revisions to bacteria-based water contact recreation assessments; and new Ocean Acidification and Hypoxia methodologies for marine waters. Due to complexity of the Ocean Acidification and Hypoxia methodologies, DEQ held two separate public processes for the development phase of the 2024 draft Assessment Methodology for the Integrated Report. DEQ posted the inland and estuarine draft Assessment Methodology for Oregon’s 2024 Integrated Report for public comment on Jan. 5, 2023, and accepted comments on the methodologies through Feb. 21, 2023. The draft 2024 Ocean Acidification and Hypoxia Assessment Methodologies were posted separately on May 31, 2023, and comments accepted through July 7, 2023. All comments received during the public comment periods have been reviewed by DEQ and addressed in this document. Comments that required modifications to the report are noted. DEQ received a total of 19 unique comments from five entities. DEQ will make clarifications to the 2024 draft Assessment Methodology and reporting based on the comments received.

Table 1. Commentors on the draft Assessment Methodology for Oregon's 2024 Integrated Report

Commenter #	Commenter	Acronym
1	Oregon Forest Industries Council and Oregon Farm Bureau	OFIC & OFB
2	Clean Water Services	CWS
3	U.S. Environmental Protection Agency	UEPA
4	Cat Koehn	CK
5	Deschutes Redbands Chapter – Trout Unlimited	DRC–TU

Comments from: Oregon Forest Industries Council and Oregon Farm Bureau

OFIC & OFB #1: Suggested Change ID #12

Description: Bacteria- Freshwater Streams Directly to Ocean

Comment: How does DEQ define “freshwater streams that flow over beaches directly into the ocean”? Are there temporal or spatial conditions that define these types of streams? Is there an average summer flow or depth threshold?

Comment: The proposal to use enterococcus as a bacterial indicator for water contact recreation bacterial impairments only applies to “freshwater streams that flow over beaches directly into the ocean.” DEQ should define this more clearly, including the upstream extent of this proposed change, and indicate whether this would apply to larger rivers that flow into the ocean.

Response: DEQ will provide additional information for this methodology update. This will include an example of freshwater streams that flow over beaches directly into the ocean and an appendix table with applicable assessments units.

The extent of freshwater streams that cross beaches to flow directly into the ocean is defined by the mouth of the stream (ocean waters) to the upstream end of National Hydrography Dataset Reach Code (Figure 1).

This update will not affect the assessment of large rivers that flow into the ocean as these waterbodies are covered by estuary assessments units that have already been split by applicable bacteria indicator.



Figure 1. Example of freshwater streams that cross the beaches and the extent of applicability of this update shown in yellow.

OFIC & OFB #2: Suggested Change ID #13

Description: Watershed Assessment Units - Reporting on Status of Individual Streams

Comment: Within the Temperature delisting comment - DEQ pulled out watershed assessment unit specific questions.

The IR Methodology describes the process of assessing individual monitoring locations within an AU before making a determining for the full AU. However, it is not clear how this applies to the process of delisting. We believe DEQ should explain more clearly how the analysis of individual locations within an AU affects delisting procedures. Additionally, DEQ needs to clarify what the outcome would be if new data for certain streams within a watershed AU indicated that

some streams were meeting the temperature criteria of the applicable beneficial use(s) while others were not. Specifically, on Page 21, the draft methodology states that “DEQ assesses watershed units by monitoring station and makes parameter categorical determinations of impairment or attainment at each individual monitoring station. This determination is rolled up to an individual stream within the unit and then finally to a single assessment unit conclusion”. DEQ should explain how incorporation of new data will proceed at the station and the stream level in addition to the use of these new data to delist an entire watershed AU. Would DEQ consider splitting an AU if new data supports separate listings for certain streams or reaches within the AU.

Response: DEQ recognizes the evaluation of streams within Watershed Assessment Units is complex. The process for delisting streams in these units is consistent with the listing process. For example, if new data is available for a monitoring location on an impaired stream within a Watershed AU, DEQ will determine an assessment conclusion based on the parameter specific methodology. If the particular monitoring location is now attaining the applicable water quality standard for the parameter, DEQ will evaluate the status of other monitoring locations on the individual stream (as defined by the NHDH GNIS Name¹). If all locations are attaining (Category 2) for the particular parameter for the individual stream, DEQ will display that stream as attaining on the web map application. If all assessed streams within the Watershed AU are now attaining for the parameter, the entire AU will be delisted for that parameter based on new data.

DEQ will add additional clarity to the *Delisting - New data or information shows water quality standards are attained* section of the methodology document to state that all monitoring locations and individual streams within a Watershed AU must be attaining for the entire AU to be delisted.

At this time, DEQ has no plans to split Watershed Assessment Units.

OFIC & OFB #3: Suggested Change ID #14

Description: Data Quality and Accessibility

Comment: Within the temperature delisting comment, DEQ pulled out questions specific to data quality and accessibility.

Within each Integrated Report cycle, DEQ accepts data from the public to be used in the analyses that support the generation of the Report. DEQ should state what happens to these

¹ <https://www.usgs.gov/national-hydrography/hydrography-and-geographic-names>

data after the generation of the report, and if these data can then be used for future analyses, such as the development of a Total Maximum Daily Load (TMDL).

DEQ's data quality requirements, including the QA/QC requirements and parameter-specific data requirements, use vague terms such as "sufficient to demonstrate attainment of the criteria" and "use widely accepted sampling and analysis methods." DEQ should explicitly state what it means for data to be sufficient, and what specific elements and monitoring methods must be included in project Quality Assurance Project Plans (QAPPs).

DEQ should also consider publishing an example QAPP that could be used as a template in the development of a monitoring plan.

Response: All data submitted for use in the Integrated Report is retained in DEQ's Water Quality Monitoring online database, AWQMS². These data are publicly available and can be used in future analyses regardless if the data contribute to an assessment unit being delisted for temperature impairment. The numeric data used in an Integrated Report is also available to download in the online assessment database. As this data is retained in AWQMS, the data can be used for future analysis, including TMDL development.

To assist the development of Quality Assurance Project Plans, DEQ uses an EPA document to guide efforts and provide recommendations³. The draft 2024 Assessment Methodology document describes the metadata needs for data to be included in the Integrated Report assessment. The EPA document includes guidance on monitoring methods, sampling design, etc. to ensure high-quality sample collection. There are no specific required elements for a QAPP. DEQ provides examples of QAPPs and sampling and analysis plans on the Volunteer Monitoring Resources⁴ webpage.

OFIC & OFB #5: Suggested Change ID #16

Description: Assessment Unit Category Data use

Comment: To get an AU delisted, data of sufficient quality and quantity must be submitted to DEQ. If the AU is determined to still be Category 5, can the same data be used in the development of a TMDL?

² <https://www.oregon.gov/deq/wq/pages/wqdata.aspx>

³ <https://www.epa.gov/sites/default/files/2015-06/documents/g5-final.pdf>

⁴ <https://www.oregon.gov/deq/wq/Pages/WQ-Monitoring-Resources.aspx>

Response: TMDLs are typically developed at a larger scale than the assessment unit scale (HUC, basin, etc.). During the TMDL development process, existing available data will be considered in combination with new data collected for development of the plan.

OFIC & OFB #7: Suggested Change ID #18

Description: Temperature Delisting Methodology

Comment: 1. Can DEQ justify the statement that delisting data requirements should be more stringent than listing requirements? 2. How do these data requirements differ, for both year-round and spawning? 3. How might the dataset used (large rivers) to make the determination for min. requirements bias the results of the analysis? 4. What exactly does it mean to collect data that represent 80% of the critical period? 5. Will the introduction of a critical period for spawning make it more difficult to get an AU delisted?

Response:

1. The 2002 Consolidated Assessment and Listing Methodology (CALM)⁵, states “EPA does not recommend making decisions based on small data sets of water column chemistry for attainment” because “larger data sets have a greater probability of detecting less frequent exceedances. If a small data set detects an exceedance, the waterbody is likely experiencing a higher frequency of exceedances. However, if a small data set does not detect an exceedance, it is difficult to say with statistical confidence that the water is attaining Water Quality Standard. Larger data sets are more powerful in terms of supporting decisions that a water is attaining WQS.”

In addition, DEQ seeks to avoid an assessment unit alternating being listed and delisted based on limited data. As a principle, if an assessment unit is to be delisted, there should be sufficient evidence and statistical confidence to justify that conclusion.

2. The data requirements for spawning and year round delisting can be found on page 7 of the Temperature Delisting White Paper⁶. For a year round delisting, there must be 80% coverage of the Critical Period (July 1st through Sept 30) for three years in the data window. For Spawning listing, there must be 80% coverage of the critical spawning period (April through November).
3. DEQ has not done an analysis of how large rivers vs small rivers would bias the dataset, but believes the analysis should be applicable to all waterbodies. The larger rivers used in

⁵ <https://www.epa.gov/waterdata/consolidated-assessment-and-listing-methodology-calm>

⁶ <https://www.oregon.gov/deq/wq/Documents/wqaTempDelisting.pdf>

the analysis tend to have a higher temperature stability than smaller rivers. Since we expect smaller rivers to have much “flashier” temperature profiles, DEQ considers the larger river analysis to be a more conservative approach. Since the temperature assessment is done with exclusively continuous data sets, having 80% of the critical period coverage means 80% of the critical period days have corresponding 7DADM values. To qualify for a delisting, 20% of the values in the critical period can be missing (logger malfunction, deployment delay, QC failures, etc.)

4. Introduction of a spawning period is intended to protect the spawning beneficial use by focusing on the “shoulder seasons” when the majority of spawning excursions occur. It may provide clarity on the time period in which data submitters should deploy temperature loggers.

Comments from: Clean Water Services

CWS#1: Suggested Change ID #5

Description: NPDES Data Submittal

Comment: DEQ is increasingly requiring NPDES permittees to submit data in electronic formats. The recent NPDES permit issued to CWS requires the submittal of copper biotic ligand model, aluminum criteria, and effluent toxics data quarterly and MS4 ambient data annually. This requirement makes tracking which data DEQ has received electronically in the past five years a manual task. As a result, it is difficult to determine which data have been submitted and which are yet to be submitted for the WQ Assessment. It does appear that more modern data sharing structures could facilitate data submittal and help limit potential transition errors. For example, if data are submitted multiple times, how does DEQ avoid double-counting samples? Ideally, CWS would prefer not to use the Excel format for Electronic Data Delivery. The Excel format restricts CWS’ functionality in automating report writing, which CWS highly prefers to decrease introducing human error. The Excel format also requires CWS to calculate some of the fields instead of providing the raw data and allowing DEQ to calculate the fields. Instead, would DEQ provide an API such as USEPA’s Water Quality Exchange so CWS could directly transfer data? Additionally, with a two-way API, CWS could also track data receipt and corrections. These steps would decrease inadvertent multiple data entries to the WQ Assessment process.

Response: DEQ agrees that ensuring the data submission is efficient for everyone is important. The Electronic Data Delivery templates have worked well for the past three iterations of the Integrated Report and have expanded to other programs, which indicates their utility. DEQ is working to implement Your DEQ Online (YDO) as a way to submit data, payments, etc. across

the agency. The move to YDO is being strategically rolled out and may be available for use in future IR data solicitations . This move would help alleviate some of the inconsistencies with the current process.

To answer the question about avoiding double counting data, the IR assessment team reviews the submitted datasets for completeness and runs R scripts to identify potential duplicate data within AWQMS before conducting the assessment. The ability to identify duplicate data currently depends on consistent reporting by the submitting agency, AWQMS business rules, and the IR assessment team. The IR assessment team constantly strives to ensure that a high-quality dataset free of duplicates is used in its assessment of Oregon’s water resources.

CWS#2: Suggested Change ID #6

Description: Online Database Search

Comment: CWS appreciates the Integrated Report searchable databases and the Interactive Web Map that DEQ provides to find Assessment listings. However, CWS has found inconsistent results from the databases and found it difficult to verify information, especially during the filtering process. When selecting Assessment Units, each Assessment Unit must be selected individually. In the Tualatin Basin (HUC 17090010), there are 43 Assessment Units. Could DEQ create an option to select all Assessment Units that contain a certain HUC number? Ideally, CWS would like an option to filter for a string of characters such as an 8-digit HUC, instead of an “Admin Basin”.

Response: Thank you for this feedback. DEQ will add the capability to filter the online database by HUC8s, in addition to the Admin Basin filters when the draft IR 2024 Integrated Report is released.

CWS#3: Suggested Change ID #7

Description: Assessment listings in Excel File or PDF

Comment: In addition to the filtering options, CWS would appreciate a final list with all Assessment listings available for download in an Excel file or PDF. When reviewing the draft 2022 Integrated Report and the 2022 Integrated Report that was sent to EPA for approval, CWS queried the online database tool using wide search parameters but did not receive all the Assessment listings in the Tualatin Basin. To avoid this mishap in the future, CWS requests that all the listings are available in a single document.

Response: Thank you for this feedback. DEQ will make an Excel spreadsheet with all the assessment categories available when the 2024 Integrated Report draft is released.

CWS#4: Suggested Change ID #8

Description: Bioavailable Aluminum lab method

Comment: CWS is committed to studying analytical methods that best measure the potential toxicity of aluminum. An important aspect of efforts to understand the potential for aluminum toxicity is the analysis of the bioavailable aluminum fraction of total aluminum in streams. CWS' Water Quality Laboratory has studied the bioavailable aluminum analysis method (Rodriguez et al. 2019⁷) since 2019 and has consistently found that a low fraction of the total aluminum is bioavailable to aquatic life in the Tualatin River (Figure 2). CWS also analyzed samples split with DEQ from around the state and found bioavailable fractions of total aluminum were generally less than 35%. CWS continues to validate the bioavailable aluminum analysis method, and an interlaboratory study to work toward approval as an ASTM method is currently planned this year.

Response: This statement is consistent with analysis done on the portion of bioavailable to total recoverable aluminum from results generated from the DEQ laboratory. DEQ appreciates the partnership with CWS to work toward approval as an ASTM analytical method.

CWS#5: Suggested Change ID #9

Description: Bioavailable Aluminum Assessment Methodology

Comment: The aluminum water quality standard rule allows the state to use the bioavailable aluminum method in the Assessment Methodology and determine toxicity in receiving water. Eventually, CWS would like to see this method approved in 40 CFR 136.

CWS agrees with how the draft 2024 Assessment Methodology handles aluminum. CWS considers the bioavailable aluminum fraction to accurately describe the fraction of aluminum that is potentially toxic to aquatic life and would object to total aluminum concentrations being used to find streams categorized as water quality impaired (Category 5). At most, streams with only total aluminum data should be placed in Category 3 (Insufficient Data) or Category 3B

⁷ Rodriguez et al. (2019). Determination of bioavailable aluminum in natural waters in the presence of suspended solids. *Environmental Toxicology and Chemistry*, 38(8), 1668-1681.

(Insufficient Data – Potential Concern), because total aluminum concentrations capture aluminum that is bound in suspended particles, clays, and aluminosilicate minerals, in addition to the toxic fraction. CWS agrees with the draft 2024 Assessment Methodology that when there is sufficient bioavailable aluminum data to provide an assessment, they should be used, and the total aluminum data should not be used. Bioavailable aluminum data should be used to determine attainment of the water quality standard (Category 2).

Response: The promulgated federal rule allows DEQ to evaluate the aluminum criteria against bioavailable aluminum to assess ambient waters when it is scientifically justifiable. DEQ agrees that using the bioavailable fraction of aluminum for assessing ambient waters is scientifically justifiable and more accurate and appropriate than assessing waters based on total recoverable data.

CWS#6: Suggested Change ID #10

Description: Dissolved Oxygen Standard Update

Comment: CWS continues to support the accurate application of criteria. The associated beneficial uses are critical to generating an Integrated Report that can be effectively used to describe water quality issues and priorities. When implementing the dissolved oxygen water quality standard, CWS encourages DEQ to provide an evaluation, maps, and a description of habitat characteristics of resident trout spawning distribution and life cycle timing. This could help local agencies understand potential spatial distribution and when resident trout spawning through fry emergence occurs. CWS also encourages DEQ to undergo a public process, such as rulemaking to update Aquatic Life Uses, so that public comments can be provided to help guide listings or refinements of the maps used to describe spawning distributions and timing.

Response: The assignment of beneficial uses (including fish species based subcategory uses) in Oregon is done through water quality standards rulemaking processes. DEQ is conducting rulemaking to designate where and when spawning criteria are applied to protect resident trout spawning into state rules. For the assessment, DEQ includes the geo-referenced water quality standards layer in the Integrated Report web map application.

CWS#7: Suggested Change ID #11

Description: Use of Default Values in Assessments

Comment: The draft 2024 Assessment Methodology discusses using default values in the aluminum criteria model (page 91) and copper BLM (page 95). CWS agrees with DEQ that

measured data sets with complete sets of supporting information to calculate the instantaneous water quality criteria are superior to using georegional defaults and preference should be given to complete data sets with the supporting parameters. Similar to how DEQ handles total aluminum data, CWS proposes that only complete data sets with sufficient sample sizes should be used to determine Category 2 or Category 5, but that data sets requiring use of georegional defaults should be placed in Category 3 or Category 3B. The CWS review of the last Integrated Report found listings for copper that did not use available complete sets and should not have been listed as Category 5 (Water Quality Impaired). As noted above, CWS believes the Integrated Report is valuable for helping to identify priorities. Accurate analysis and listing determinations are important to be able to effectively prioritize activities.

Response: DEQ rule language specifies that georegional defaults can be used to calculate, and apply for Clean Water Act purposes, the instantaneous water quality criteria for copper using the BLM model⁸. Default values are to be used for situations when no data is available, not as a substitute for collecting the information required to determine compliance with the standard. Where a sample of the pollutant (e.g. aluminum or copper) has been collected DEQ must evaluate it's compliance with water quality standards whether complete ancillary data to calculate instantaneous water quality criteria is available or not. In the absence of ancillary data the more conservative default values are used because there is less certainty whether pollutant levels constitute an impairment.

DEQ appreciates the thorough review of the 2022 IR conclusions. Based on comments received from CWS, DEQ discovered a database related issue where paired data was missing for the calculation of the instantaneous water quality criteria for copper. Prior to submittal to EPA, DEQ corrected the database and reassessed all copper data.

CWS#8: Suggested Change ID #19

Description: Ocean Acidification and Hypoxia

Comment: CWS appreciates the thoroughness in developing new methodologies for assessing marine ocean acidification and marine hypoxia. CWS notices that there are no benchmarks or criteria to assess the water body as "Category 2: attaining "the water quality standard". This means there is no benchmark or criteria established to evaluate what conditions are protective of water quality and can support beneficial uses. This makes gathering data and modeling efforts a daunting task. For permitted sources that discharge to a water body listed as Category

⁸ <https://www.oregon.gov/deq/FilterDocs/copperBLMimp.pdf>

5, permit limits may more likely be imposed. The burden of obtaining evidence that limits are not needed or that restoration work is effective will be on the permittee, with no regulatory certainty of the target. CWS is concerned in general about the approach whereby water bodies that are assessed as “Category 5: impaired,” but there is no regulatory certainty that the water body could be delisted. This is confirmed by the statement on pages 14 and 20 of the document titled “Draft Assessment Methodology for Oregon’s 2024 Integrated Report: Updates for Marine Waters” that “Without a pathway to attainment DEQ will evaluate potential delisting on a case-by-case basis.” Greater clarification of how such an ad-hoc decision will be made would be beneficial for sources as well as the DEQ permit writers.

Response: DEQ’s primary objective in the development of new methodologies for assessing ocean acidification and hypoxia in Oregon’s marine waters was to identify what constitutes sufficient evidence to determine impairment based on the best available science. This objective was mainly based on compelling comments DEQ received during the 2022 IR comment period, which urges the agency to act in identifying biological impacts related to OAH stress in Oregon’s waters. If a designated use is not fully supported, EPA guidance recommends listing water bodies as impaired (Category 5), even if the specific pollutant is not known⁹. For assessments using narrative biocriteria WQS, such as the OA methodology, a separate process may be needed to identify pollutant causes of the impairment through a stressor identification evaluation. Stressor identification should factor in natural conditions, and point and non-point source contributions to impaired conditions. If marine waters are identified as impaired for OA DEQ will work with affected permittees. The marine dissolved oxygen narrative criterion that provides no additional risks is “no change from background” which should be accounted for in permits¹⁰.

Evaluating attainment on a case-by-case basis allows flexibility in determining the best approach to address site specific objectives, rather than relying on regional background condition estimates to set targets. Similarly, but in terms of attainment decisions for removing waterbodies from the 303(d) list, DEQ recognizes that additional work is needed to better characterize the relative contribution of natural processes, global emissions, and localized inputs to OAH conditions in nearshore marine waters. To that end, broadly applicable attainment benchmarks will not be adopted until those contributions are better understood in Oregon’s waters.

OAH impacts in coastal waters is an emerging area of concern, and as such, DEQ recognizes the evolving nature of this topic. From page 46 of the OAH technical support document¹¹: “DEQ

⁹ <https://www.epa.gov/sites/default/files/2015-10/documents/2006irg-report.pdf>

¹⁰ <https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=256028>

¹¹ <https://www.oregon.gov/deq/wq/Documents/ir2024oahTechPaper.pdf>

expects this assessment methodology will be revised to reflect evolving science used to determine policy decisions. It is important to note that given the improvements to the biocriteria and marine DO methodologies that DEQ is undertaking, biological and chemical benchmarks outlined in this document are subject to change in future assessment methodology cycles.”

Comments from: U.S. Environmental Protection Agency

UEPA#1: Suggested Change ID #3

Description: Bacteria Method

Comment: Comments regarding the following paragraph: “For freshwater streams that flow over beaches directly into the ocean, enterococcus can be used as a bacterial indicator to assess the support of the freshwater contact recreation use when there is insufficient E. coli data in an assessment unit. If both indicators have sufficient data in an assessment unit, E. coli will be used for evaluating freshwater contact recreation use and enterococcus data will not be included in the assessment.”

1. Please clarify the waters to which the following phrase would apply, “freshwater streams that flow over beaches directly into the ocean...” It would be helpful for ODEQ to provide a list of AUs applicable to these waters.
2. Please clarify the application of the criteria, including the magnitude, duration, and frequency of the indicator. For all Oregon waters, the state has established criteria to protect primary contact recreation uses across the state, both freshwater primary contact recreation use (E. coli criteria with associated magnitude, duration, and frequency) and coastal contact recreation (enterococci criteria with associated magnitude, duration, and frequency).

It appears from our read of the methodology revisions that the state would like to apply enterococci as an “indicator” where E. coli data are not available for certain freshwaters. Please clarify that the state intends to apply the appropriate magnitude, duration, and frequency for the enterococci criteria, when/where enterococci is applied as an indicator.

Response: DEQ will provide additional information for this methodology update. This will include an example of freshwater streams that flow over beaches directly into the ocean and an

appendix table with applicable assessments units. The 2024 assessment methodology document will also be updated to include the following additional detail in italics.

For freshwater streams that flow over beaches directly into the ocean, enterococcus can be used as a bacterial indicator to assess the support of the freshwater contact recreation use when there is insufficient E. coli data in an assessment unit. When enterococcus is used as the indicator for freshwater contact recreation, assignment of assessment categories will follow the coastal contact recreation method. Magnitude, duration and frequency are evaluated through a 90-day geometric mean greater than 35 Enterococci organisms per 100 mL or more than 10% of all samples within the IR data window exceed 130 enterococci organisms per 100 mL according to the exact binomial test. If both indicators have sufficient data in an assessment unit, E. coli will be used for evaluating freshwater contact recreation use and enterococcus data will not be included in the assessment.

UEPA#2: Suggested Change ID #4

Description: Aluminum Method

Comment: On April 19, 2021, EPA finalized the federal rule promulgating freshwater aluminum criteria for Oregon waters in accordance with CWA sections 303(c)(3) and (c)(4). The final rule included multiple footnotes to provide clarification on the criteria’s intended application. These footnotes state that Oregon may utilize total recoverable analytical methods to implement the criteria and it may also utilize, as scientifically appropriate and as allowable, analytical methods that measure the bioavailable fraction of aluminum. Oregon shall use measurement of total recoverable aluminum where required by federal regulations (86 FR 14834).

The state has developed a Standard Operating Procedure for alternative analytical methods to assess ambient waters for aluminum for listing purposes, and the results provided by the state appear to indicate that there is not a large exceedance in the data from the total recoverable method when compared with the bioavailable method results. While the current data available are from the Willamette Valley, EPA understands that the state is collecting additional bioavailable and total recoverable data statewide through the ODEQ monitoring program and the call for data for 2024 Integrated Report. EPA looks forward to working with ODEQ as data becomes available for future assessment activities.

As of this date, the Rodriguez et al. (2019) study provides the only available information regarding an analytical method that quantifies the “bioavailable” fraction of aluminum to

invertebrates¹². EPA notes that although invertebrates and vertebrates respond similarly to total recoverable aluminum, there are differences in the multiple linear regression equations that describe the influence of water chemistry on the concentration of the fraction of aluminum that is toxic to these groups. See USEPA (2018) and DeForest et al. (2018, 2020). Until data are available on the effects of bioavailable fractions of aluminum to vertebrates, there remains some uncertainty when applying the Rodriguez et al. (2019) method to bull trout critical habitat.

The Biological Opinion from the U.S. Fish and Wildlife Service for the federal aluminum criteria rule promulgation for Oregon, dated February 13, 2000, includes the following reasonable and prudent measure (RPM): "The USEPA will provide to the Service a data summary report, sourced from ODEQ's Integrated Report that includes a brief summary of waters not meeting water quality standards for aluminum, as well as an electronic data deliverable containing sampling locations and surface water quality data (aluminum concentrations, pH, dissolved organic carbon, and hardness in surface water). This report will allow us to evaluate if the listed species are experiencing criteria concentrations within their range." In further follow up letter from the USFWS, dated October 9, 2020, it was clarified that "the Service will continue to evaluate effects to listed species using data based on total recoverable aluminum until methods using weaker digestion or filtration can be validated and shown to represent exposure conditions applicable to listed species." To ensure compliance with the RPM, EPA requests that ODEQ include total recoverable aluminum data for bull trout critical habitat waters as part of the Integrated Report, as available.

As a reminder, per 40 CFR 130.7(b)(5), when developing 303(d) lists, states are required to assemble and evaluate all existing and readily available water quality-related data and information. Additionally, the regulations at 40 CFR 130.7(b)(6) require states to include, as part of the list submittal to EPA, documentation to support the decisions on whether or not to rely on particular data and information, as well as the decisions on whether or not to list waters. Such documentation must include, at a minimum, the following information: (1) a description of the methodology used to develop the 303(d) list (i.e. the 'listing methodology'); (2) a description of the data and information used to identify waters; (3) a rationale for any decision not to use existing and readily available data and information; and (4) any other reasonable information requested by EPA.

Response: The promulgated federal rule allows DEQ to evaluate the aluminum criteria against bioavailable aluminum to assess ambient waters when it is scientifically justifiable. DEQ

¹² Rodriguez et al. (2019). Determination of bioavailable aluminum in natural waters in the presence of suspended solids. *Environmental Toxicology and Chemistry*, 38(8), 1668-1681.

concludes that using the bioavailable aluminum for assessing ambient waters is scientifically justifiable and more accurate and appropriate than assessing waters based on total recoverable data. The DEQ laboratory is committed to regular bioavailable aluminum sampling by adding analysis of the bioavailable fraction using the analytical method outlined in Rodriguez et al. (2019) to its routine monitoring program¹³.

DEQ will continue to work with EPA and others to ensure that quantifying the bioavailable fraction of aluminum in ambient waters using Rodriguez et al. (2019) method is protective of the most sensitive species. Where both sample fractions are available DEQ will continue to provide paired results when reporting assessment conclusions to EPA.

DEQ will provide to USEPA the aluminum and ancillary data, including the total recoverable fraction, gathered while preparing the Integrated Report.

Comments from: Cat Koehn

CK#1: Suggested Change ID #2

Description: Inclusion of Willamette Project Report

Comment: My name is Catherine Koehn, I was part of the Salem office "Willamette Project" under the supervision of Don Yon in the Salem DEQ office; we compiled the states 303d list for 1998. It was over 70 pages of EXCEEDANCES of the existing safe levels, there were 12-15 exceedances on each of those pages. It covered all the existing data that cities, state and the federal listings that were available.

Over a dozen people worked on the list for many months; during that time we sent a couple draft lists to headquarters but for some reason...the main office never handed over that extensive list to the EPA - which was very frustrating since it was completely composed of documented pollution levels that all EXCEEDED pollution limits.

I would like for DEQ staff to please find that 70+page report in their files, and make sure that each of those original pollutant levels is this time included in you compilation - including our statics on CHLORPYRIFOS in the river.

Response: It is challenging to trace back what happened back in 1998 due to the length of time has passed. DEQ reviewed available documentation related to the 1998 303(d). The 1998 Listing

¹³ Rodriguez et al. (2019). Determination of bioavailable aluminum in natural waters in the presence of suspended solids. *Environmental Toxicology and Chemistry*, 38(8), 1668-1681.

Criteria documents how waterbodies were added to the 303(d) list for toxics during that assessment cycle¹⁴. Note 1 of the Toxics chapter (beginning on page 22)¹⁵ outlines the two listing methods used to identify impaired waterbodies for the final submittal to EPA.

Numerous water quality standards have been revised since then, including many of the water quality criteria for toxics pollutants. In addition, the Assessment Methodology has significantly changed since then. DEQ's current 2022 Integrated Report incorporates assessments of all readily available data contained in DEQ's AWQMS database and all impaired waterbodies identified in past assessment cycles.

The 2022 IR includes over 750 parameter assessments for toxics in the Willamette River and over 7,600 parameter assessments of toxics in the basin. In 2022, the five Willamette River assessment units with chlorpyrifos data were all classified as Category 2; Attaining with 0 exceedances of the numeric criteria for aquatic life use.

¹⁴ <https://www.oregon.gov/deg/FilterDocs/1998ListCriteriaF.pdf>

¹⁵ Toxics Chapter Note 1: In the draft listing criteria document, several examples of sediment and fish tissue evaluation methods were found in the toxics listing criteria. However, most sediment and fish tissue data was not evaluated based on the methods outlined below because these methods are very complex and expensive to carry out. In order to clarify how toxics data was evaluated for 1998 listing purposes, those example evaluation methods have been taken out of the listing criteria and are discussed specifically below: The following methods have been separated from the above Water Quality Limited Criteria to better clarify that these methods are not routinely used for evaluations for listing purposes, but are only considered when the method is applied during the course of a special study. DEQ may use the following two methods to determine whether a beneficial use impairment is occurring if an investigation and study has been completed which allows for the determination of one of the following:

- DEQ may use a partitioning method to determine whether chemicals found in sediments can be expected, via partitioning, to violate water column water quality standards listed in Table 20 (see OAR 340-41). Because of the complexity and intensive resource use this method has not been used to evaluate sediments for the 1998 303(d) list.
- The chemical has been detected in more than 10% of available fish tissue samples, and the mean of the detects exceeds a screening value derived from Table 20. The screening value is developed as follows:

Fish Tissue Screening Value = Table 20 Criteria for Protection of Human Health (ug/l) *
BCF (l/kg) * (mg/1000 ug)
where BCF = Bioconcentration Factor. BCFs were obtained from the EPA Region VIII
Criteria Chart (July 1993)... (July 1993).

This method has been used once in the Columbia Slough to list several toxic parameters, but has not been used elsewhere for listing purposes because it is very resource intensive."

Given the various changes that have occurred in water quality standards and DEQ's approach to assessments, as well as the efforts that have been taken to consider robust data sets in the last seven years, DEQ is focused on evaluating current data against current water quality standards using updated assessment methodologies. Further, given the age of data and the level of effort to evaluate the quality and relevance of the information based on today's standards and assessment, DEQ does not have sufficient resources to conduct this type of investigation and evaluation.

Comments from: Deschutes Redbands Chapter – Trout Unlimited

DRC-TU#1: Suggested Change ID #1

Description: Upper Deschutes and Little Deschutes TMDL Priority

Comment: We recognize the importance of TMDL priority setting as a vital component of the Integrated Report process. The 2022 Integrated Report assigned a "medium" TMDL priority for the Upper Deschutes and Little Deschutes Subbasins, with a corresponding schedule to have a TMDL submitted to EPA by April 2030. Our Chapter supports re-assigning the Upper Deschutes and Little Deschutes Subbasins to a "TMDL priority in the 2024 Integrated Report Submittal with a corresponding tentative schedule to have a TMDL submitted earlier than 2030. This is based on the following assessment of relevant factors in the Oregon Administrative Rules.

Response: DEQ appreciates the comments from the Deschutes Chapter of Trout Unlimited regarding changing the priority of the Upper Deschutes and Little Deschutes Subbasins TMDLs to high, so that the TMDLs would be completed sooner. The Clean Water Act and the federal implementing regulations require DEQ to report TMDL priority rankings to EPA biennially with the Integrated Report. During preparation of the 2024 Integrated Report, DEQ will consider the comments provided by the Deschutes Chapter of Trout Unlimited in determining priorities for submission to EPA.