DEQ Environmental Solutions

# Response to Comments on Oregon's Draft 2012 Integrated Report

State of Oregon Department of Environmental Quality

**Submitted to: U.S. EPA Region 10**

**By: DEQ Environmental Solutions**

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By: Karla Urbanowicz
DEQ ES WQSAS

This document prepared by:

Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204
1-800-452-4011
www.oregon.gov/deq

Contact:
Karla Urbanowicz
(503) 229-6099

# Contents

# A: **Introduction**

The federal Clean Water Act (CWA) requires that the Oregon Department of Environmental Quality (DEQ) periodically assess Oregon's water quality and report to the Environmental Protection Agency (EPA). CWA Section 305(b) requires DEQ to report on the overall status of waters in the state. CWA Section 303(d) requires DEQ prepare a list of water bodies that do not meet water quality standards and where Total Maximum Daily Loads (TMDLs) will be developed. EPA recommends combining these reports into an Integrated Report that assigns each water body to an assessment category based on the evaluation of available data.

DEQ began the assessment process for the 2012 Integrated Report with a call for data.[1] Stakeholders including local, state and federal agencies; tribal nations; local interest groups; watershed councils; and other interested members of the public were invited to submit water quality data to DEQ for the assessment. The call for data opened December 16, 2011 and set a cut-off date of midnight, January 31, 2012 for submittals. The data call included information about DEQ's focus areas for the 2012 Integrated Report and specified the minimum data quality assurance and quality control (QA/QC) requirements, provided templates and forms for data submittal, and listed key information needed with the submittal. DEQ provided an assessment methodology describing the protocols and methods DEQ uses to evaluate data and information for the Integrated Report.

DEQ reviewed the submitted data for quality and completeness, and then evaluated readily available data and information. The protocols and methods DEQ used to make conclusions about the condition of Oregon's water quality are contained in the **Methodology for Oregon's 2012 Integrated Report and List of Water Quality Limited Waters** (2012 Methodology).[2] Assessed waters were assigned a status from the list of categories defined in EPA guidance for integrated reporting:

**Category 1:** All designated uses are supported. (Oregon does not use this category.)

**Category 2:** Available data and information indicate that some designated uses are supported and the water quality standard is attained.

**Category 3:** Insufficient data to determine whether a designated use is supported. Oregon further sub-classifies waters if warranted as:

**3B:** Insufficient data to determine use support but some data indicate non-attainment of a criterion and a **potential concern**.

**Category 4:** Data indicate that at least one designated use is not supported but a TMDL is not needed because:

**4A:** TMDLs that will result in attainment of water quality standards have been approved.

**4B:** Other pollution control requirements are expected to address pollutants and will result in attainment of water quality standards.

[1] See Oregon's 2012 Integrated Report – Call for Data
http://www.oregon.gov/deq/WQ/Pages/Assessment/CallforData2012.aspx

[2] Methodology for Oregon's 2012 Integrated Report and List of Water Quality Limited Waters, DEQ, October 2014 http://www.oregon.gov/deq/WQ/Pages/Assessment/2012report.aspx

**4C:** Impairment is not caused by a pollutant (e.g., flow or lack of flow is not considered a pollutant).

**Category 5:** Data indicate a designated use is not supported or a water quality standard is not attained and a TMDL is needed. This category constitutes the Section 303(d) list.

The combination of water bodies in Categories 4 and 5 constitute the water quality limited waters identified under OAR 340-041-0046.

DEQ completed an evaluation of data and information and prepared a draft 2012 Integrated Report. DEQ provided an opportunity for the public to review and comment on Oregon's draft 2012 list of water quality limited waters (Categories 4 and 5) from January 2, 2014 through 5:00 PM February 24, 2014.[3] DEQ held one public hearing to provide information and receive public comments on January 14, 2014. No comments were received at the hearing. An additional public Web-based information session was held on January 29, 2014. By the close of the public comment period, comments had been received from 23 entities. After the close of the comment period, comments were received from 3 additional entities. (See D: List of Commenters.)

After the public comment period closed, DEQ reviewed the comments and found two major issues identified by several commenters. Key issues were (1) the scope of DEQ's draft 2012 Integrated Report, and (2) the methods used to evaluate toxic pollutant data. To address these comments, DEQ initiated an expanded data retrieval to assemble toxic substance data available from three data sources (LASAR, STORET, and USGS) from monitoring locations throughout the state, and began to re-evaluate the data using the toxic substance criteria effective in April 2014. However, staff resource limitations prevented DEQ from completing an assessment using these data and criteria and incorporating the results into the final 2012 Integrated Report.

DEQ reviewed all other comments and made changes to the draft list of water quality limited waters and 303(d) list and other assessments where warranted, and prepared a final 2012 Integrated Report. This document contains a summary of public comments and DEQ's response to those comments.

The response to comments is organized on the following pages to address:

Comments on Scope of Draft 2012 Integrated Report
Comments on Draft 2012 Integrated Report
List of Commenters

DEQ provided DEQ's assessment methodology to the public during the public call for data in December 2011 through January 2012. The 2012 Methodology was provided during the public review and comment period on Oregon's draft 2012 list of water quality limited waters in January and February, 2014. DEQ provided the methodology to assist the public in understanding how DEQ reviews data and information and reaches decisions leading to identification of water quality limited or impaired waters. Although DEQ was not soliciting

[3] Oregon's 2012 Integrated Report http://www.oregon.gov/deq/WQ/Pages/Assessment/2012report.aspx

comments on the methodology, some comments pertaining to the 2012 Methodology were received during the public comment period on the draft list of water quality limited waters. In the following sections, DEQ summarizes and discusses comments on the methodology when necessary to clarify or explain DEQ's determinations relevant to Oregon's 2012 303(d) list and list of water quality limited waters.

# B: Comments on Scope of Draft 2012 Integrated Report

## I. Geographic Area

1. *Commenter (3) indicated DEQ's plan and schedule for a "rotating basin" approach to assessments was not acceptable, and did not include a plan and schedule to assess all basins in the state by focusing monitoring and information gathering. Commenter (16) similarly criticized DEQ's rotating basin approach as inconsistent with EPA guidance.*

   With the 2012 Integrated Report, DEQ piloted a rotating basin approach to align agency work. DEQ acknowledges the geographic scope of the Integrated Report focused on the Willamette and Umatilla basins. DEQ's intent was to update the Integrated Report in these basins for dissolved oxygen and toxic pollutants, consistent with DEQ's concurrent efforts to develop Basin Reports in those areas. In addition, EPA was in the process of taking final action on Oregon's 2010 303(d) when DEW began the 2012 assessment process.

   DEQ acknowledges that it has not developed a plan and schedule for monitoring and assessing all basins in the state. DEQ acknowledges that further consideration of EPA's guidance on how to implement a rotating basin approach, including how it affects agency monitoring work, is needed in order to pursue this approach with the Integrated Report.

## II. Parameters and Data

2. *Commenters (3, 16) asserted there were gaps in the available data that DEQ reviewed and in the new assessments DEQ provided with the 2012 Integrated Report. Commenter (3) cited data in STORET and other sources such as the EPA Superfund program that potentially could be used to identify impaired waters. Commenter (16) asserted that other data from monitoring programs such as volunteer monitoring or permit compliance monitoring were available to DEQ and therefore should be evaluated.*
   The data referenced by the Commenters were not readily available to DEQ or in a useable form. DEQ uses its Laboratory Analytical Storage and Retrieval (LASAR) system as the primary data system to store data assembled for the Integrated Report after reviewing data for quality and assigning a data quality grade. DEQ identifies the data time period of interest for each Integrated Report which is typically ten years. DEQ retrieves data for that time period from LASAR and evaluates that data set for each cycle of the Integrated Report. Data not in DEQ's LASAR database are not available to retrieve, process, and evaluate for the Integrated Report. DEQ was limited by resources and time in the initial data retrieval for the 2012 Integrated Report and retrieved a focused set of data, discussed in Comment (4) below. DEQ

has not developed the data systems to smoothly retrieve data from other data storage systems such as STORET.

DEQ attempted to re-do the data retrieval step to include toxic substance data available in LASAR, STORET, and the USGS database in order to finalize the 2012 Integrated Report. The process of retrieving data from other data systems is both complicated and unreliable. The accuracy, precision, and completeness of data in large data storage systems and the inconsistencies and comparability of the pollutant naming conventions in those systems makes data preparation and processing complex and time consuming. DEQ's attempt could not be completed with the staff resources and time available to finalize the 2012 Integrated Report. DEQ is looking forward to assistance from EPA at a national level to facilitate future efforts to retrieve data through the Water Quality Portal in order to expand the data available for Oregon's water quality assessments.

3. *Commenter (16) asserted DEQ limits submissions of data or information and public comments on the Oregon's 303(d) list. Commenter (3) further questioned DEQ's metadata and data QA/QC requirements for data submittals.*
DEQ's process for soliciting data and comments from the public for Oregon's 2012 303(d) list is summarized in the introduction to this document. Details of the process and DEQ's rationale are provided in the 2012 Methodology. DEQ's call for data is consistent with EPA regulations and guidance. DEQ set a reasonable window (December 16, through January 31, 2012) for the public to submit data and information for the 2012 Integrated Report. DEQ solicited data collected in an eleven year time period preceding the call for data, which is more than past cycles for Oregon's Integrated Report and is adequate to meet the federal requirements to provide a representative data set for the assessment. Data collected outside the eleven year time period or after the call for data were not available or considered for the 2012 Integrated Report.

   DEQ uses only data of Level A or B quality to make determinations for 303(d) listings, and that data must be associated with accurate location information in order to correctly identify and assess the water body. DEQ provided explicit directions and tools for data submitters with the call for data.[4] Data that does not pass DEQ's QA/QC review are not used for assessment purposes, though it may fulfill other uses for the data provider or for programs outside of DEQ's 303(d)/305(b) assessment program.

   DEQ reviewed all data and information that were submitted from the public in the call for data, determined if data and information were complete and usable, and if satisfactory, used data to make determinations about water quality and identify impaired waters needing TMDLs.

   DEQ provided a reasonable time period (January 2, 2014 through February 24, 2014) for the public review and comment on Oregon's draft 2012 303(d) list and provided documentation during that time period to support the draft conclusions. DEQ's rationale for its determinations is provided in the 2012 Methodology which describes the type of data and information DEQ evaluates and how Oregon's water quality standards are applied to make

[4] http://www.oregon.gov/deq/WQ/Pages/Assessment/CallforData2012.aspx

assessment conclusions. DEQ's methodology was provided to the public both during the call for data and the public review period on the draft 2012 303(d) list. To further explain DEQ's determinations, each assessment record includes a summary of the data that were evaluated including the data time span, number of results, and number of results not meeting the applicable criteria. These summaries were available for all new assessments for the 2012 Integrated Report, new additions to the 303(d) list, and delistings proposed with the 2012 Integrated Report. Assessments carried forward from previous Integrated Reports with no updates include data evaluation summaries from previous assessments.

After considering comments received during the public review, DEQ is now finalizing Oregon's 2012 303(d) list based on the data and information that were evaluated.

4. *Commenters (3, 16) questioned the scope of parameters that were reviewed to produce new assessments for the 2012 Integrated Report and 303(d) list.*
DEQ's data assembly is described in detail in the 2012 Methodology and summarized here. New assessments for the 2012 Integrated Report were completed for these parameters.

DEQ evaluated data for sampling results retrieved from two sources:

DEQ's LASAR database -

Retrieved October 18, 2012 – Monitoring results at stations throughout the state when available for 12 toxic substances (arsenic, beryllium, cadmium, chromium, copper, iron, lead, manganese, nickel selenium, silver, and zinc when available) from samples collected for the period January 1, 2000 through December 31, 2011.

Retrieved April 17, 2013 – Fish tissue sampling results for skinless fillets only from throughout the state for mercury analyses.

Retrieved March 26, 2013 – Monitoring results for dissolved oxygen from continuous sampling and grab sampling for the period January 1, 2000 through December 31, 2011 from sampling locations in the Willamette Basin and the Umatilla subbasin (Hydrologic Unit Code 17070103).

USGS Oregon Water Sciences Center –

Retrieved April 23, 2012 – Monitoring results from stations in the Willamette Basin when available for 37 toxic pollutants from samples collected for the period January 1, 2000 through December 31, 2011. No data were available in this time period in the Umatilla Basin.

Retrieved April 23, 2012 – Monitoring results for dissolved oxygen for the period January 1, 2000 through December 31, 2011 from locations in the Willamette Basin and the Umatilla subbasin (Hydrologic Unit Code 17070103).

In addition, DEQ reviewed all data and information submitted by the public in the call for data, determined if data and information were complete and usable, and, if satisfactory, used the data and information to make determinations about water quality.

DEQ also reviewed fish consumption advisories issued through June 2014 and updated the 2012 Integrated Report as needed. On the basis of a recent fish consumption advisory issued for Applegate Reservoir for mercury in fish, a listing was added to the final Category 5: 303(d) list (Record 26030).

DEQ retrieved pH, temperature, and other data only when needed to process and evaluate dissolved oxygen and metals data. Due to resource limitations, DEQ was not able to evaluate continuous monitoring data for these parameters throughout the state, or evaluate continuous data submitted by one agency (City of Salem). In response to comments received on the Draft 2012 Integrated Report, DEQ conducted a limited review of pH data in marine and estuarine locations and in the Columbia River. The results of those data reviews are discussed in Section D of this document.

Data in Oregon for toxic substances, bacteria, chlorophyll a, pH, sedimentation, and temperature were recently reviewed by EPA and used to propose additions to Oregon's 2010 303(d) list. EPA's additions were not finalized until December 2012. Due to the overlap in timing of EPA's final action on Oregon's 2010 303(d) list and initiation of DEQ's 2012 Integrated Report process (January 2012), DEQ did not include assessments for those parameters. EPA's action did not include de-listing actions. DEQ was interested in reviewing data for the 2012 303(d) list for toxic substance criteria that had been withdrawn in order to delist those waters.

5. *Commenter (16) stated DEQ did not consider information sources previously cited in comments on the draft 2010 303(d) list. Commenter (16) requested DEQ review materials on an extensive list of research reports and studies from throughout Oregon included with comments on the draft 2012 303(d) list.*
   During the call for data open in December 2011 and January 2012, DEQ provided an opportunity for the public to submit data and information to be considered for the 2012 Integrated Report. DEQ indicated the types of data and information that DEQ would evaluate and provided instructions with submittal procedures, forms, templates, and formats and information required with the submittal. DEQ also indicated the methods that would be used to evaluate the data and information in the Methodology that accompanied that call for data and how DEQ would determine the quality and relevance of submitted materials.

   DEQ prepared the draft 2012 Integrated Report based on the data and information received during the call for data and other data and information subsequently assembled and retrieved by DEQ. Data and information submitted from the public outside of the solicitation period or as comments on the draft 2012 conclusions were not readily available for DEQ to incorporate into the evaluation and assessment process for the 2012 Integrated Report. Data collected outside the eleven year time period preceding the call for data were not relevant to the data set considered for the 2012 Integrated Report. Reports cited or information submitted as comments on previous 303(d) lists, but not submitted during the 2012 call for data, were also not available for the 2012 Integrated Report.

   Information from public and university research in Oregon such as the Commenter requested DEQ consider may provide important information to refine and guide further research or

natural resource management decisions, but does not necessarily provide relevant information to inform the Integrated Report assessment process and DEQ's 303(d) listing decisions. DEQ recommends the Commenter provide this information during the next Integrated Report public call for data. This is the appropriate time for information to be brought to DEQ's attention for the Integrated Report. When information is submitted during the call for data, DEQ will be able determine the relevance of the information and usability to the Integrated Report process. Research and reports may contain information that cannot be evaluated directly with the methods and protocols DEQ has developed for past assessments. If submitted during the public call for data, DEQ will be able to consider the relevance and applicability of Oregon water quality standards, and may be able to incorporate that information into the assessment.

# C: **Comments on Draft 2012 Integrated Report**

## III. General Comments

6. *Commenter (16) stated DEQ did not list waters that have been listed as threatened.*
DEQ used data and information identifying waters that do not meet water quality standards to develop Oregon's 303(d) list. DEQ is not aware of a list of Oregon waters identified as "threatened". DEQ does not list waters on the basis of Environmental Species Act threatened and endangered species status.

7. *Commenter (24) asserted when listing criteria are revised that the entire 303(d) list should be open for public review and comment including listings based on previous criteria.*
DEQ assumes the Commenter was referring to the numeric or narrative criteria adopted by the Environmental Quality Commission and approved by EPA as Oregon's water quality standards. DEQ complies with federal requirements to periodically update the 303(d) list and use the water quality standards that are in effect and approved by EPA for Clean Water Act purposes. When DEQ evaluates data and information as part of the 303(d) process, past assessment determinations are updated based on new data, new information, and effective criteria. Except where criteria are withdrawn, older assessments and 303(d) listings that are not updated are carried forward and retained. DEQ does not review older 303(d) listing determinations until new data or information are available, and then incorporates revised criteria into the evaluation. The public subsequently has the opportunity to review and comment on those new 303(d) listings or delistings.

8. *Several Commenters (example, 26) requested DEQ review all previous 303(d) listings, particularly 303(d) listings added by EPA to Oregon's 2010 303(d) list.*
Where new data or information were available and evaluated by DEQ, previous 303(d) listings were reviewed and updated. EPA previously responded to comments on 303(d) listings added to Oregon's 2010 list, and unless DEQ had additional relevant information, those listings remain in place.

9. *Commenter (16) asserted DEQ does not consider designated use support in preparing the 303(d) list.*

Oregon's water quality standards are developed to protect a variety of beneficial uses. Standards for specific pollutants or water conditions may protect both aquatic life and human uses of waters. DEQ's approach is to evaluate water quality when data are available by applying criteria for pollutants or parameters independent of each other, and report on whether or not those criteria are met. DEQ's Integrated Report is not organized by the beneficial uses designated in a water body, but by pollutant or parameters that are assessed in that water. One or more pollutants or parameters may contribute to beneficial use impairments, and each is considered independently. If any one of the multitude of pollutant or parameter criteria are not met, then the beneficial uses protected by the criterion are considered impaired. For instance, most waters in Oregon are designated for domestic water supply. DEQ's assessment considers data or information on aquatic weeds and algae, chlorophyll a, toxic substances, and turbidity as pollutants or conditions that potentially impair the use of water for drinking water beneficial use. This approach is consistent with EPA guidance on using the "independent applicability" of state's water quality standards to assess water for 303(d)/305(b) reporting.

10. *Commenter (16) asserted DEQ should list waters on the basis of violations of Oregon's antidegradation policy.*
Oregon's antidegradation policy is established in OAR 340-041 and approved by EPA as part of Oregon's water quality standards. Oregon's antidegradation policy is implemented through DEQ's actions that preserve and protect good and high quality waters. DEQ applies the antidegradation policy primarily when issuing wastewater discharge permits or water quality certifications. DEQ's Integrated Report classifies waters where data show standards are currently being met as Category 2: Attaining and this information is available to inform DEQ decisions to preserve and protect that water quality.

    In contrast, DEQ's actions to identify impaired waters for addition to the 303(d) list are aimed at identifying waters that do not have good or high quality waters and require further actions to restore those waters. DEQ identifies waters that currently do not meet water quality standards and need TMDLs to control discharges to prevent further degradation and restore impaired water. DEQ is open to considering additional ways to implement antidegradation in the 303(d) listing process if EPA develops guidance on how to align the antidegradation policy with the listing process where the focus is to identify waters that are degraded and impaired.

11. *Commenter (16) asserted DEQ does not use narrative criteria to develop Oregon's 303(d) list. Commenter asserted narrative criteria could be used to list waters based on information or observations of aquatic weed or algae growth such as reed canary grass, observations of invasive plant and animal species, absence of endangered species, sedimentation, fish consumption advisories, and toxic substances in aquatic species, wildlife, and sediment.*
DEQ does in fact use narrative criteria to inform its 303(d) listing determinations. Narrative criteria in Oregon's water quality standards protect general conditions in Oregon waters, but do not explicitly state how to measure or evaluate those conditions as numeric criteria do. DEQ must develop protocols to implement the narrative criteria and to date has done so for a limited number of narrative criteria. DEQ has developed several assessment protocols that apply narrative criteria in conjunction with available numeric criteria for related pollutants

that are protective of beneficial uses or that TMDLs will target. See 2012 Methodology protocols for biocriteria, harmful algae blooms, use of beach advisories due to bacteria levels, turbidity impacts to drinking water, and use of fish consumption advisories due to toxic substance levels in fish. These protocols make use of robust scientific methods and information from other regulatory agencies such as the Oregon Health Authority that issues several types of health advisories. Since Oregon has not adopted numeric biocriteria in standards, DEQ has developed an assessment protocol to apply the narrative biocriteria using a benchmark developed from years of available research and sampling data that inform DEQ's understanding of healthy macroinvertebrate communities in Oregon's waters. The information that the Commenter cites may report isolated observations about conditions in water, but does not relate directly to application of specific narrative criteria that warrants a 303(d) listing to address pollutants with TMDLs or provide a scientific method for DEQ to reach such a conclusion. As resources allow and scientific methods support, DEQ will continue to review data and information to develop additional benchmarks to implement the narrative criteria.

12. *Commenters (8, 24) asserted DEQ should adopt the Assessment Methodology into Oregon rules using a public process according to Oregon administrative procedures for rulemaking. Commenter (16) asserted DEQ does not allow or respond to comments on the methodology.*
The 2012 Methodology documents for the public and EPA the methods, data, and protocols DEQ used to conduct the assessment and prepare the 2012 303(d) list of impaired waters needing TMDLs. The 2012 Methodology contains documentation required by federal regulations to support DEQ's listing and delisting determinations and is submitted to EPA along with DEQ's final updates to Oregon's 303(d) list. The 2012 Methodology describes how DEQ applies Oregon's water quality standards which are adopted in rule in OAR 340-041. The 2012 Methodology does not constitute a "rule", but describes how DEQ uses Oregon rules, i.e., water quality standards, to identify impaired waters. Prior to making a final decision on Oregon's 303(d) list, DEQ provides the public an opportunity to review and comment on DEQ's conclusions about where water quality standards are not met and which waters are water quality limited (Categories 4 and 5).

    DEQ provided the assessment methodology as information to the public during the call for data to prepare the 303(d) list, and during the public notice and review period of the draft 303(d) list. While DEQ does not solicit comments on the methodology, DEQ does review those comments to determine if DEQ's decision process needs to be clarified or if DEQ made errors in reaching 303(d) assessment conclusions. DEQ's response to comments addresses comments that are relevant or clarify DEQ's final decisions on Oregon's 2012 303(d) list. Comments received on the assessment methodology may lead DEQ to consider changes to protocols in future assessment methodologies, but are not addressed at this stage in DEQ's 2012 Integrated Report assessment process.

13. *Commenter (18) provided a number of observations about the environment. In regard to the Integrated Report, Commenter expressed concern that the report conclusions were not adequate to identify nonpoint sources of pollution.*
DEQ assesses the conditions of Oregon waters by applying Oregon water quality standards established for pollutants and conditions that protect beneficial uses of the water. Water

quality standards apply to the water body regardless of the sources of pollutants which may include both point and non-point sources. The Integrated Report identifies where the standards are not met, but does not identify the source of pollutants. Once impaired waters are identified, the sources of pollutants for specific waters are identified during the TMDL development process.

14. *Commenter (3) stated that assessing pollutants for "time periods of interest" was inappropriate where the uses are year-round. Further, that if a water body is not attaining in a particular season, it does not mean it should only be considered in nonattainment for that season unless designated uses pertain only for a season/time period. An opposing opinion was expressed by Commenters (5, 8, 19) who asserted assessments, particularly for toxic substances, should not be done on a year round basis since issues are seasonal.*
For the 2012 Integrated Report, DEQ focused primarily on toxic substances and dissolved oxygen. Toxic substances criteria are applied year-round and are not evaluated for particular seasons or time periods since the beneficial uses are present year round. Dissolved oxygen criteria apply to specific designated uses, and are applied in the time periods when the designated use is present and in the segment that is designated for that use. The dissolved oxygen spawning criteria are applied in the waters and in the time periods when salmon, steelhead, bull trout, or resident trout spawning uses are present. The dissolved oxygen criteria applicable to other designated fish uses are applied year-round. Further study of the seasonal and geographic extent of waters not attaining these criteria as well as the causes of impairment would be conducted during the TMDL development process.

    DEQ has previously used seasons or time periods of interest to evaluate data for other pollutants and criteria. EPA also considered pollutants in seasons for additions to the 2010 303(d) list. Modifying assessment protocols would be a significant deviation from past assessments that have been approved by EPA in previous Integrated Reports. DEQ will consider these comments at such time as DEQ revises its assessment protocols for those parameters.

15. *Commenter (3) questioned what assigning "Category 3b, Insufficient data, potential concern" triggered, and stated that not meeting minimum data requirements should not exclude placing waters on the 303(d) list where impairment is recognized. On the other hand, Commenter (5) asserted waters should be listed only when confirming data are available and otherwise should be placed in Category 3 Insufficient data until such data are obtained, especially data specifically matching the form of the criteria (example: hexavalent chromium criteria vs. total chromium data). Commenters (5, 9) also asserted that DEQ should not assess any pollutants for which criteria may be revised.*
DEQ developed protocols with minimum data requirements for 303(d) listing to make reasonable determinations about water quality for statewide assessment purposes based on the pollutant criteria and the data sets typically available. For toxic pollutants where monitoring is limited and infrequent, DEQ uses a minimum of 2 exceedances to identify waters as impaired for 303(d) listing and make conservative yet reasonable decisions consistent with the standards. For dissolved oxygen, monitoring result data sets are typically larger, but results can be more variable depending on other water conditions. DEQ developed the protocol to evaluate dissolved oxygen data using the "10% rule" or minimum of 2

exceedances recommended in EPA guidance for 303(d) listings. For determining attaining status, DEQ's protocols are stricter for both toxic substance and dissolved oxygen, with at least 5 samples required to demonstrate attainment. When data results do not demonstrate these conditions, DEQ does not have reasonable basis to determine that water is impaired or attaining. When more data are available, a determination about impairment or attainment can be made.

The status of Category 3b: Insufficient data, potential concern is applied to evaluate data for toxic substances where data sets are typically small. This status is intended to provide information to users of the assessment report to indicate that there is not enough information about the water conditions, but at least 1 result in the data set does not meet criteria. When additional data are available for assessment purposes, the status of Category 5: 303(d) or Category 2: Attaining will be assigned as appropriate.

DEQ applies the current and approved water quality criteria for assessment purposes. Criteria that are revised will be applied when EPA has approved those revisions to replace the current and effective criteria. In cases where the data do not match the exact form specified in the water quality standards, DEQ applies reasonable assumptions about the likely equivalence of the monitoring results and the proportion of toxic forms present in the environment to the form specified in the criteria. DEQ takes a conservative and proactive approach to using available data to assess and list waters rather than waiting until analytical methods are developed (examples, methyl mercury in fish tissue, or hexavalent chromium) or robust and comprehensive monitoring programs have been implemented to collect more data (example, inorganic arsenic).

16. *Commenter (16) asserted DEQ should not place waters into "Category 4C: Water quality limited, but a TMDL is not needed; impairment is not caused by a pollutant" because Oregon does not have a natural conditions provision in the water quality standards.*
This category is an assessment category specified in EPA guidance to be used for waters where impaired conditions are related to pollution but are not due to a pollutant as defined in the Clean Water Act.

    DEQ's approach to using Category 4c is consistent with EPA guidance. EPA has described the meaning and use of Category 4c in several versions of guidance for Integrated Reporting including 2006, 2004, and 2002.

17. *Commenters (8, 19, 24, 26) asserted water bodies should not be listed as impaired unless data show impairment throughout the segment and segments should be limited to only where data show standards are not met and not extrapolated upstream of monitoring locations. Commenters suggested other factors to use to limit the extent of the listings.*
The general principles and decision hierarchy DEQ follows to determine assessment units and assign a status to the assessed water are described in detail in Section D. 3 in the 2012 Methodology. DEQ uses the general approach that data showing impaired conditions represents the entire water body unless other information at another location upstream or downstream shows attainment. DEQ uses the available data for the identification of the impaired water, but further delineation of the extent of the impairment may be done during TMDL development. Where water quality criteria are applicable to specific designated

beneficial uses, such as temperature or dissolved oxygen criteria, the assessment unit correlates to the contiguous section of a water body designated in water quality standards for that beneficial uses. DEQ assesses that section as one assessment unit in order to protect that beneficial use.

DEQ does not define or limit assessment units based on land uses, land ownership, geographic or administrative boundaries, or assumed pollutant sources since these factors are not relevant or are unknown when assessing water conditions relative to water quality standards. Further study and analysis of these factors is part of the TMDL development process once impaired waters are identified. Delineation of the upstream or downstream extent of impaired waters and the causes and sources of the pollutants is done during TMDL development, but is not necessary for the initial identification of impaired water for the 303(d) listing.

18. *Commenters (8, 19) stated samples taken at the same location and time should not be counted as two results, but should be treated as a single sample equal to the average of the sample results.*
Where sample results included duplicate sample results collected for QA/QC purposes and identified as sample primary and sample duplicate, DEQ evaluated the maximum (or minimum for dissolved oxygen) result which counted as one result. DEQ has reviewed data and corrected any errors for specific assessment records where sample primary and duplicate were inadvertently counted as two results.

19. *Commenter (2) noted issues with assessments not distinguishing between rivers and lakes.*
For the Integrated Report, DEQ uses geospatial information to identify the waters being assessed. Rivers and linear water features are georeferenced as line segments; lakes, ponds, and reservoirs are georeferenced as polygon features. Some lakes and reservoirs can also be identified by a segment of a linear through-going stream feature. If water quality standards or designated beneficial uses apply only to specific water body types, DEQ will limit the assessment to only that water body. However, many of the beneficial uses, such as human consumption of fish, apply to all water types and are not restricted to only lakes or only streams. Some information about impaired waters are specific to single water bodies or segments of a water body, such as advisories on fish consumption or harmful algae blooms. In those cases DEQ limits the assessment unit to the appropriate water body or segment of a water body. The example cited by the Commenter (Record 9284) is based on fish consumptions advisories in the Columbia River from Bonneville Dam RM 142 up to McNary Dam RM 287.1 due to polychlorinated biphenyls in fish and is consistent with the way the advisory identifies the geographic limits of the advisory.

### Stream Names

20. *Commenter (26) noted that the name for North Fork Squaw Creek, (Record 23601) has been updated and changed to North Fork Whychus Creek.*
DEQ has updated records for the stream LLID 1216740441658 with the corrected stream name.

DEQ also updated records for the following streams with updated names obtained from the Geographic Names Information System (GNIS):

| Stream Name | LLID Stream | HUC 4th Name | County | Former Name | Record | Segment |
|---|---|---|---|---|---|---|
| North Fork Whychus Creek | 1216740441658 | Upper Deschutes | Deschutes | North Fork Squaw Creek | 23601<br>9001 | 2989 |
| Isqúulktpe Creek | 1184010457003 | Umatilla | Umatilla | Squaw Creek | 9430<br>9431<br>9432<br>9433<br>14026<br>14027 | 427<br>3213<br>3214 |
| Latiwi Creek | 1222191443735 | South Santiam | Linn | Squaw Creek | 5933<br>6315<br>6653 | 1329 |
| Dunawi Creek | 1232793445528 | Upper Willamette | Benton | Squaw Creek | 24090<br>25493<br>25494 | 31228 |
| Mulak Creek | 1234357459530 | Nehalem | Clatsop | Squaw Creek | 9510<br>9511 | 3250 |

## IV. Assessments for Dissolved Oxygen

21. *Commenters (5, 9, 12, 22) asserted DEQ had incorrectly counted the number of sample results and sample exceedances used to make the Category 5: 303(d) determinations for Tryon Creek (Record ID 25764) and the Willamette River (Record 20941) for dissolved oxygen in the spawning time period by counting sample duplicates, data unpaired with temperature data, or using data outside the spawning time period.*
DEQ thoroughly reviewed the data used for these assessments. The Commenters may not have included Quality Level B data in their review. As per the Methodology, DEQ used all Quality Level A+, A and B level data in the assessment, and the data were sufficient to support the determination. A thorough review of the data also confirmed that only results within the spawning time period were evaluated using the spawning criteria.

22. *Commenters (5, 12, 22) asserted that segments for assessments of dissolved oxygen were inappropriately long, using the Willamette River (Records 12065 and 20941) as examples.*
DEQ acknowledges concerns about the size of some assessment units. As described in the 2012 Methodology, DEQ assessed waters in segments with similar beneficial use designations using numeric criteria that protect those uses. Criteria for temperature and dissolved oxygen were applied at the locations on a water body where spawning occurs, or where cold, cool, or warm water aquatic life uses are designated.

    For the Willamette River, salmon and steelhead spawning is the designated use from RM 54.8 to 186.5, salmon and steelhead migration corridors are designated uses from RM 0 to

50.6, and salmon and trout rearing and migration are designated uses from RM 54.8 to 186.5. DEQ applied dissolved oxygen criteria in those segments to protect those designated uses.

23. *Commenter (1) asserted that data were not sufficient to determine water quality limitations (Category 5: 303(d)) for Tryon Creek (Record ID 25764) and Oswego Creek (Record ID 25167) using the dissolved oxygen spawning criteria in OAR 340-041 Table 21 based on a 7-day mean minimum.*
DEQ applied OAR 340-041-0016(1) dissolved oxygen criteria for spawning that protects salmon, steelhead, and resident trout spawning following the protocols described in the 2012 Methodology. DEQ used a frequency of 10% of samples and at least 2 samples not meeting the criteria to determine Category 5: 303(d) status as described in the Methodology. The data in both these waters were sufficient to support the determinations. A dissolved oxygen 7-day mean minimum is not part of the criteria for spawning areas.

24. *Commenter (15) asserted the Category 5: 303(d) listings for dissolved oxygen in Kellogg Creek (Record 25753) and the Clackamas River (Record24503) were in error.*
The dissolved oxygen criteria are applicable in resident trout spawning areas. The one mile segment at the mouth of Kellogg Creek is listed to protect resident trout spawning in the contiguous segment that is designated for salmon and trout rearing and migration, but not designated for other salmon or steelhead spawning uses. The listing conforms to DEQ's assessment protocols. The listing for the Clackamas River for is based on sufficient data of acceptable quality at Station 11233 at RM 1.3 not meeting the criterion (5 of 45 (11%) samples < 11.0 mg/l and < 95% saturation).

25. *Commenters (1, 5, 9, 22) asserted that salmon and steelhead spawning is not a designated use in several waters (Oswego Creek, Multnomah Channel, Columbia Slough, Amazon Creek, Long Tom River, Spencer Creek, Unnamed Stream) and that the dissolved oxygen spawning criteria were applied in error.*
The dissolved oxygen criteria for spawning apply in salmon and steelhead spawning areas and in active spawning areas used by resident trout species. DEQ developed guidelines to assist in determining spawning locations for resident trout. The guidelines are summarized in the 2012 Methodology and were applied for the 2012 Integrated Report. Commenters are correct that several waters are not designated salmon and steelhead spawning areas, but the spawning criteria were correctly applied to protect resident trout spawning use in those waters, and the data were sufficient to support the determinations. (See Comment 30 below for detailed discussion of the Long Tom River assessments.)

26. *Commenter (3) stated that their review of dissolved oxygen data for the spawning time period in Rock Creek (Record 24501), North Fork Silver Creek (Record 24508), and Silver Creek (Record 24536) did not indicate listing errors in the 2010 303(d) list, or that data for the South Yamhill River (Record 20969) showed attainment. Commenter asserted that delisting actions were not supported by the data.*
Oregon's dissolved oxygen standard for spawning includes a minimum criterion for dissolved oxygen (11 mg/L) and a minimum level for percent saturation (95%). DEQ uses both parts of the standard to determine if conditions support the fish spawning use. In other words, if a dissolved oxygen result is less than 11 mg/L, and the percent saturation is under

95 percent, the conditions do not meet the standard. If a result is less than 11 mg/L, but the percent saturation is 95 percent or over, the conditions meet the standard. In the cases cited by the Commenter, DEQ found more than 90% of sample results at each station met one or both parts of the standard, and all the stations were found to be attaining the standard, therefore supporting delisting.

27. *Commenters (8, 19) questioned the data quality of measurements used to determine water quality limitations (Category 5: 303(d) list) for dissolved oxygen on the McKenzie River (Record ID 24571) suggesting percent saturation values greater than 100% indicated improper meter calibration or non-representative sampling locations or the presence of algae.*
DEQ verified that the data quality and monitoring site location of the sample results in question were acceptable for the assessment. The presence of supersaturated conditions (percent saturation of dissolved oxygen values above 100%) did not indicate a problem with the meter or a non-representative sample location. The station was not near falling water, as suggested by the Commenter. All data from every DEQ sampling event undergo a data quality review. Problems with the meter or measurement method for each event result in data quality being downgraded to levels that are not used in the assessment. The presence of algae does not preclude the use of the data for assessment purposes but is rather a factor that could be influencing dissolved oxygen levels and is the water condition that the monitoring is intending to capture. The data were sufficient to support the determination.

28. *Commenter (26) provided additional data for dissolved oxygen collected in 2014 on Lookout Creek and suggested the new listing (Record 25045) was not warranted.*
Data from the time period 1/2003 through 6/2011 were evaluated by DEQ and support identifying the water as impaired. The data submitted through comments on the listing are outside the temporal range of data evaluated for the 2012 Integrated Report. Data, along with QA/QC information and metadata, should be submitted in the next call for data to be considered in the next assessment.

29. *During DEQ's finalizing of the 2012 303(d) list, the question was raised about whether the 2004 listing for the Coquille River (Record 21077) from RM 0 – 35.6 for the dissolved oxygen spawning criteria based on resident trout spawning January 1 to May 15 was correct.*
DEQ staff reviewed the listing from the 2004 Integrated Report and reviewed the current fish beneficial uses for the Coquille River, but did not review any new data for the 2012 Integrated Report. The current fish use designations for the Coquille River are contained in OAR 340-041 Figure 300A and were revised in August 2005 after the 2004 listing. For the Coquille River in the estuarine portion from RM 0 to RM 3, the designated fish use is Bay Waters. From RM 3 to RM 8, the designated fish use is Salmon and Steelhead Migration Corridors, and from RM 8 to RM 35.6 the designated fish use is Salmon and Trout Rearing and Migration. There is no salmon or steelhead spawning use in the Coquille River indicated on the current Salmon and Steelhead Spawning Use Designations in Figure 300B (produced in August 2003). As per the 2012 Methodology Table 10, DEQ does not apply spawning criteria for resident trout in estuarine or bay waters or in salmon and steelhead migration

corridors. Therefore, spawning criteria for dissolved oxygen are not applicable in the Coquille River from RM 0 to RM 8.

Based on the current fish use designations, the river miles for the listed Record 21077 are no longer correct. The segment for Record 21077 will be modified in the 2012 303(d) list to cover the Coquille River from RM 8 to 35.6 for the dissolved oxygen spawning criteria in the time period January 1 - May 15.

Note that during the non-spawning time period, cold water criteria apply to the segment from RM 8 to 35.6. This segment was identified in the 2004 Integrated Report as impaired (Record 12473) but was assigned the status of Category 4A since it was covered by a TMDL approved in 1996.

30. *During DEQ's finalizing of the 2012 303(d) list, the question was raised about the validity of a new Category 5: 303(d) listing for dissolved oxygen on the Long Tom River in the section from RM 0 to 31.8. DEQ considered whether the segment should be restricted to a limited area around the station where the standard is not met, be limited to only the months when the data show the standard was not met, and whether the quality of the data was acceptable. No questions were raised about DEQ's proposed segment modification to EPA's 2010 listing for the dissolved oxygen spawning criteria.*
DEQ thoroughly reviewed the assessments for dissolved oxygen in the Long Tom River to address the questions raised. DEQ reviewed the designated beneficial uses, the applicable dissolved oxygen criteria and time periods when applied, the locations and distribution of monitoring stations, the data and data quality for monitoring results available for the 2012 evaluations, and the previous assessment conclusions and 303(d) listings for the Long Tom River including the impounded reservoir section known as Fern Ridge Reservoir. DEQ finds that some modifications to the extent of the assessment units are warranted based on the standards and designated uses, but that the data for dissolved oxygen support finding impaired conditions in the lower section of the Long Tom River below the dam forming Fern Ridge Reservoir for cool water fish use, and in a section above Fern Ridge Reservoir during the spawning time period to protect resident trout spawning. The rationale supporting these assessments is discussed below.

DEQ's protocols for applying the water quality standards are summarized in the 2012 Methodology. The designated beneficial uses on the Long Tom River include Cool Water Species (No salmonid use) from RM 0 to 24.8, and Salmon and trout rearing and migration from RM 24.8 to 57.3 (OAR Figure 340A).

The applicable dissolved oxygen criteria are determined based on Oregon standards and DEQ guidelines, as described in the 2012 Methodology. Taking into account the designated uses for each section, and the ecoregion for the section designated for salmon and trout rearing and migration, the applicable dissolved oxygen criteria for the Long Tom River are: cool water RM 0 to 24.8, cool water RM 24.8 to 38.5, cold water RM 38.5 to 57.3. These criteria are applied year round since these uses are designated year round.

The dissolved oxygen criteria protecting salmonid spawning, including resident trout spawning, are also applicable in the Long Tom River at times and places designated for that use. In the lower section from RM 0 to 24.8 salmonid use is not designated and there are no specific locations or time periods designated for salmon or steelhead spawning on the Long Tom River. Since resident trout spawning locations and time periods are not specifically designated in standards, DEQ uses guidelines to determine when and where resident trout spawning use occurs based on the general fish uses that are designated in standards. Where the Long Tom River is designated for salmon and trout rearing and migration, resident trout spawning is assumed to occur in the time period January 1 to May 15. However, DEQ has determined that trout spawning is not likely to occur in lakes and reservoirs. Information provided by Oregon Fish and Wildlife confirms that resident trout spawning is not known to occur in Fern Ridge Reservoir.[5] Therefore, the dissolved oxygen spawning criteria are only applied in the section of the Long Tom River above Fern Ridge Reservoir from RM 31.8 to 57.3 in the time period January 1 to May 15.

DEQ reviewed the data quality of monitoring results reported at stations on the Long Tom River. All the data that were evaluated were graded as data quality levels A or B, which are acceptable for assessment purposes. Data were grouped by seasonal time period to evaluate support for spawning use, which is limited to certain time periods. Other uses are designated year round, therefore cool and cold criteria are applied year round in sections of the Long Tom River with similar designated fish uses.

DEQ concludes from this review that the following assessments are correct and supported by the available data:
Long Tom River RM (Record 26020) 0 to 24.8 - **Category 5: 303(d)** for the section designated for cool water species beneficial use where the cool water dissolved oxygen criterion is applicable. The impairment is identified based on sufficient data of acceptable quality at Station 28551 at RM 1.9 not meeting the criterion.

Long Tom River (Record 26021) RM 24.8 to 38.5 - **Category 2: Attaining** for the section designated for Salmon and trout rearing and migration beneficial use and within the ecoregion where the cool water dissolved oxygen criterion is applicable based on sufficient data of acceptable quality at Station 25371 at RM 35.3 meeting the criterion.

Long Tom River (Record 26022) RM 38.5 to 57.3 - **Category 2: Attaining** for the section designated for Salmon and trout rearing and migration beneficial use and within the ecoregion where the cold water dissolved oxygen criteria are applicable based on sufficient data of acceptable quality at Station 25772 at RM 52 meeting the criteria.

Long Tom River (Record 24597) RM 31.8 to 57.3 - **Category 5: 303(d)** for the section designated for salmon and trout rearing and migration beneficial use and where resident trout spawning is assumed to occur in the time period January 1 to May 15 where the spawning dissolved oxygen criteria are applicable. The impairment is identified based on sufficient data of acceptable quality at Station 25371 at RM 35.3 and Station 25772 at RM 52 not

[5] Letter, E. Kelley, Oregon Department of Fish and Wildlife to A. Borok, ODEQ, 7/15/2014
http://www.deq.state.or.us/wq/standards/docs/2014TroutSpawningFernRidge.pdf

meeting the criteria. (Note: The segment length originally listed in 2010 (RM 0 to 57.3) is modified to reflect the corrected location for resident trout spawning excluding the lower section designated Cool water and Fern Ridge Reservoir.)

### Delistings for Dissolved Oxygen

31. *Commenter (3) stated that streams DEQ had proposed delisting for dissolved oxygen spawning in the Tualatin River area should remain listed. Commenters (11, 25) asserted that more information, including habitat information, should be collected to support decisions to list or delist streams in the Tualatin River watershed since spawning habitat might be present in some streams.*

DEQ is required to list under Section 303(d) using a defensible interpretation of Oregon's water quality standard. DEQ is not bound to view implementation memos as a formal use designation that cannot be updated without a rulemaking and approval from EPA. With the Draft 2012 Integrated Report, DEQ proposed delisting streams based on information provided by Oregon Department of Fish and Wildlife.[6] To corroborate information used to support the proposed delistings, DEQ contacted biologists at Oregon Department of Fish and Wildlife to obtain current information about resident trout spawning locations in the Tualatin River watershed.[7]

ODFW provided information that resident trout spawning may be occurring in Beaverton Creek (Record 24532), Bronson Creek (Records 24542 and 24543), Cedar Mill Creek (Record 24538), Chicken Creek (Record 24535), Dawson Creek (Record 24552, and McKay Creek (Record 20953). DEQ will retain the Category 5: 303(d) listings for these eight records.

ODFW provided information indicating resident trout spawning habitat does not exist in Dairy Creek (Record 24562), Nyberg Creek (Unnamed) (Record 24512) or the lower Tualatin River (Record 24507), and exists only in the upper section of Johnson Creek (Record 24534 incorrectly listed with RM 2 as 7.7). DEQ will delist these four records added by EPA in 2010 for exceeding the dissolved oxygen spawning criteria since resident trout spawning does not occur in the sections listed in these waters.

The upper section of Johnson Creek (LLID 1228355454932 from RM 2.1 to 4) is designated in Oregon water quality standards for salmon and steelhead spawning use. DEQ evaluated data for the spawning time period for this section using the spawning criteria, as described in the 2012 Methodology. Based on the available data, the status of this section is Category 2: Attaining (new Record 26029 RM 2.1 to 4).

## V. Assessments for Toxic Substances

### General

32. *Commenters (8, 9, 15, 19) asserted that DEQ's listing protocols for toxic substances were unreasonably stringent, and that DEQ should use a minimum of 5% frequency exceedance or*

[6] Letter, T. Alsbury, Oregon Department of Fish and Wildlife to D. Sturdevant, ODEQ, 4/10/2006 http://www.deq.state.or.us/wq/standards/docs/ResidentTroutLetter.pdf

[7] Letter, T. Murtagh, Oregon Department of Fish and Wildlife to Aron Borok, ODEQ, 8/14/2014 http://www.deq.state.or.us/wq/standards/docs/2014UrbanStreamTroutUse.pdf

*some other calculated level of confidence rather than 2 exceedances to identify impaired waters.*
DEQ has taken a reasonable approach to evaluating toxic substance data and uses protocols to list on the basis of two exceedances rather than a minimum percent frequency since the data sets for toxic sampling are usually small. Data sets are not typically comprehensive enough to apply toxic criteria based on one-hour average concentrations or 96 hour average concentrations to determine the frequency of criteria exceedances. Furthermore, many of the toxic substance criteria are developed as concentrations that may not be exceeded at any time.

For the 2012 303(d) list, DEQ followed protocols in the 2012 Methodology which do not include methods to evaluate larger data sets to determine the frequency of exceedances of one-hour average or 96 hour average criteria, or allow exceedances of 5% frequency for toxic substances. DEQ acknowledges that an assessment methodology could consider protocols to evaluate large data sets, and to apply the frequency and duration elements of the aquatic life and human health criteria.

33. *Commenters (13, 16) asserted that DEQ should apply Oregon's narrative criteria and develop listing protocols for toxic substances to evaluate toxic substance concentrations in fish tissue, other types of aquatic organisms, and sediment.*
DEQ's assessment protocols are based on both Oregon's narrative and numeric standards. Numeric standards provide well established levels for protecting human and aquatic life beneficial uses and are easily applied for DEQ's assessment purposes. Except for mercury, Oregon's toxic substance numeric criteria are based on concentrations of pollutants in the water column. The aquatic life numeric criteria for toxic substances are established to protect the most sensitive aquatic life species and apply directly to measurements of toxic substances in water. The numeric human health criteria protecting the beneficial use of human consumption is measured directly at the point of human exposure in fish tissue.

In the absence of other numeric criteria for pollutant in fish tissue, DEQ applies the toxic substance narrative criteria by using Oregon Health Authority fish consumption advisories as alternate indicators of human health risk. The OHA advisories are issued after OHA analyzes fish tissue pollutant data and human use data to determine where an advisory is warranted. OHA's process for evaluating the data and extrapolating to human use levels are well established and accepted protocols that also are useful for DEQ's assessment purposes.

Oregon does not have numeric standards for toxic substances in sediment. To date, OHA has not issued advisories for human exposure to sediment. DEQ does not have alternate indicators to apply the narrative criteria to toxic substances in sediment and has not developed a benchmark to use for assessment purposes to relate sediment levels to levels that would pose risk to aquatic life or human beneficial uses.

### Metals

34. *Commenters (5, 8, 9, 12, 15, 16, 19, 21, 22) stated Oregon's listings should use current toxic substance standards for aquatic life. Commenters asserted that since Oregon adopted revised aquatic life criteria based on the dissolved fraction rather than total fraction of metals in the water column, Oregon's 303(d) list should be developed using those criteria. Commenters*

*asserted that applying standards based on total metal fraction, citing specific assessments for zinc and lead, increased the number of listed waters.*
The revised aquatic life criteria for metals (Table 30) were approved by EPA in January 2013 to use for Clean Water Act purposes. The approval came well after DEQ had assembled data for the 2012 Integrated Report and evaluated sampling results using Table 20 aquatic life criteria based on total fraction metal concentrations that were in effect in 2012.

DEQ will apply the revised aquatic life criteria in Table 30 at the next opportunity in the Integrated Reporting cycle and will delist any water body where data show the criteria are met. It should be noted that the current criteria in Table 30 include conversion factors to relate total to dissolved metal fractions. In general, the conversion factors for freshwater range from 1.0 to 0.9. For example, conversion factors for zinc are 0.98 for freshwater. It is unlikely that using total metal results for the 2012 303(d) list has any significant effect on the number of identified exceedances, or the number of identified impaired waters. In response to comments received on the Draft 2012 303(d) list, DEQ conducted a preliminary analysis of available data using the Table 30 criteria applying total to dissolved conversion factors for stations on the streams cited as examples of concern by the Commenters. DEQ found that these stations will likely continue to be assessed as Category 5: 303(d) or Category 3B and the streams will not likely qualify to be delisted because data show the criteria are not met.

35. *Commenters (2, 4, 5, 8, 9, 11, 12, 21, 22) asserted assessments for iron in general, and specifically in the Willamette River, Coast Fork Willamette River, Fanno Creek, and Long Tom River, were incorrectly based on withdrawn criteria or listed based on only 2 or 3 exceedances.*
For the 2012 Integrated Report, DEQ evaluated available data for iron using the aquatic life criterion since the human health criterion for iron was withdrawn in 2011. The iron criterion (1000 ug/L based on total recoverable iron) is consistent with the criterion that was later approved in 2013 as part of the general updates to the aquatic life criteria. Unlike the other aquatic life criteria for metals, the iron criterion was not revised to be based on a dissolved fraction.

DEQ evaluated data using the protocols described in the 2012 Methodology. Waters that were previously listed as 303(d) for iron were delisted if sufficient data were available for the 2012 evaluation to show the aquatic life criterion was met. The protocols for demonstrating attainment require 5 valid samples. The specific waters mentioned by the Commenters did not have sufficient data to show the iron criterion was met. For metals such as iron, individual results approximate a 96 hour average concentration in an irregular and infrequent data set, and the standard specifies that concentration is not allowed to be exceeded more than once every three years. For these irregular data sets, when 2 or more exceedances occur in the time period being evaluated, that provides sufficient data to support a Category 5: 303(d) determination, and is consistent with general protocols in the 2012 Methodology.

36. *Commenter (4) questioned protocols for assessing metals, using thallium in Fanno Creek as an example (Record 25209). Commenters (4, 9) were concerned that data qualified as "estimated" had uncertainty in reported concentrations, that both filtered and unfiltered*

*results were counted as results for the same sampling event, and that the proportion of data results exceeding the criterion should be used to estimate long term exposure.*
DEQ carefully reviewed all data included in the data set evaluated for the 2012 Integrated Report for data quality. Estimated values are considered to be data quality level "B" and are acceptable for use in the assessment. In general, any detectable result above the minimum reporting limit (MRL) was considered a valid sample to compare to the most stringent criterion. If a result was detected above the MRL and flagged as estimated, the estimated value was considered a "valid" sample when the criterion was lower than the MRL. The human health criteria for metals including thallium are based on total unfiltered concentrations in water. When results were reported for both total and dissolved (filtered) fractions, only the total result was counted and considered. If only a dissolved fraction was reported, that result was considered valid to determine exceedance. Only one result from the each sampling event was counted and evaluated.

DEQ's evaluation of the data set in question at USGS Station 14206950 initially miscounted the number of samples. After review, the evaluation has been corrected to determine that at USGS Station 14206950 for 90 samples from 01/13/2000 to 12/01/2010, 2 of 89 valid samples exceed the 0.043 ug/L criterion for thallium. The human health criteria do not specify a duration and frequency for allowable exceedances. DEQ's assessment protocol considers 2 exceedances of the criterion sufficient to indicate impairment of the water body. Data evaluated for thallium for the 2012 Integrated Report from 11 other water bodies in the Willamette Basin had zero exceedances of the thallium criterion and sufficient data in 10 of those waters with data sets up to 98 results to determine the criterion was attained. These waters were assigned Category 2: Attaining status.

DEQ acknowledges that an assessment methodology could consider protocols to evaluate large data sets, and to apply the frequency and duration elements of the aquatic life and human health criteria.

37. *Commenter (9) stated that TMDLs are in place in the Tualatin River Basin for iron, manganese and arsenic showing the exceedances are due to natural conditions.*
The Tualatin Subbasin TMDLs approved by EPA in August 2001 did not include TMDLs for iron, arsenic, or manganese. The TMDL document contained a review of information and concluded that there could be natural background levels for these metals. An analysis of subbasin wide monitoring data was conducted, but no alternative natural background levels or site specific criteria were developed for the subbasin as a result of the analysis.

Since the approval of the Tualatin Subbasin TMDL, Oregon criteria for arsenic have been revised, the manganese criteria for freshwaters have been withdrawn, and the narrative criteria allowing for natural conditions to supersede criteria has been disapproved by EPA and is not effective for Clean Water Act purposes. For the 2012 Integrated Report, arsenic and iron data were evaluated using the current effective criteria. Where identified as impaired using available data, waters are added to the 2012 303(d) list. If TMDLs or site specific criteria for iron or arsenic are developed, DEQ will use that information to determine the appropriate status to assign to waters those in the Tualatin subbasin. All previous 303(d)

listings for manganese in freshwater, including two in the Tualatin subbasin, are being delisted because there are no current applicable criteria for manganese in freshwater.

38. *Commenters (8, 12, 22) asserted assessments for arsenic in the Columbia River (Records 77, 78, and 2001) and the Willamette River (Record 8898) and other streams in the Willamette Basin (Amazon Diversion Canal (A3 Drain), Amazon Creek Diversion Canal, Amazon Creek, Willow Creek) should apply the revised human health criteria based on total inorganic arsenic and result in delistings in 2012.*
When data were available for the 2012 Integrated Report data evaluation, DEQ applied the revised criteria in OAR 340-041-0033 Table 40 that are based on total inorganic arsenic as described in the 2012 Methodology.

DEQ did not have any arsenic data available to review in the Columbia River in the segments that were originally listed in 1998. Commenter (6) provided laboratory reports and a summary of data collected from one station on the Columbia River with their comments, but these data were not submitted during the call for data and were not available for the 2012 Integrated Report. The Commenter is correct that the current criteria are less stringent that the criterion applied in 1998. When DEQ has sufficient data to determine that the current criteria are met, these records can be delisted. DEQ did have arsenic data to review from a station in one listed segment on the Columbia River (Record 79 RM 98 to 142). These data are sufficient to determine the current criterion is attained, and the record will be delisted in 2012.

DEQ did not have any arsenic data available to review for several streams in the Willamette Basin and those listings will continue to be in effect. The data available for the 2012 Integrated Report for arsenic in the Willamette River were sufficient to show the current criterion is attained. DEQ is updating the status for Willamette River (Record 16408) RM 0 to 24.8 and (Record 16409) RM 24.8 to 186.6 to Category 2: Attaining. Record 16409 overlaps an outdated listing Record 8898 from RM 174.5 to 186.4 which will be delisted.

39. *Commenters (8, 9) state assessments for copper on the Willamette River (Record 7141 and Record 16434) and lead on the McKenzie River (Record 25869) incorrectly included outliers in the data set or double counted primary and duplicate samples resulting in incorrect Category 5: 303(d) determinations. Additionally, Commenters state multiple stations with data for lead on the Willamette River (Records 7662 and 16457) and McKenzie River (Record 25869) should be used to cut up assessments units into smaller segments based on data showing attainment.*
DEQ reviewed the data quality level for the station sample results used for these assessments and confirmed that the data were all of acceptable quality level (A+, A, of B) and that there was no basis to exclude the results from the data set. DEQ also reviewed the data from Record 16434 at Station 10352 at RM 131.5 and found for 21 samples from 04/07/2008 to 02/02/2010, 4 of 20 valid samples exceed the hardness dependent criteria and are sufficient to support a Category 5: 303(d) status determination. Consistent with the 2012 Methodology protocols, data for stations within the listed segments were not sufficient to show attainment and were not sufficient to justify defining smaller assessment units in previously assessed waters.

40. *Commenter (8) stated that the freshwater criteria for manganese were withdrawn, and previous listings for manganese were no longer valid, and pointed to one previous listing (Record 9281) that had been overlooked for delisting. Commenter also asserted that other water bodies in Categories 2, 3, and 3B should also be removed.*
DEQ will include the Unnamed Creek (Record 9281) in delistings for manganese in freshwater. This record had an undetermined location, but station information indicates it was for a freshwater location on the Columbia Slough. DEQ evaluated data for manganese from estuarine sites and applied the human health "Organism Only" criterion. Assessments with other status categories may be removed from the Integrated Report in the future once DEQ verifies the water bodies are freshwater.

### Other Toxic Substances

41. *Commenter (9) asserted DDE, Endosulfan, and Endrin aldehyde should be assigned Category 4b: Water quality limited, other control measures in place rather than Category 5: 303(d) list since these are legacy pesticides. Further, Commenter asserted the Willamette Badin TMDL imposes control requirements for DDT in the Willamette Basin and is sufficient to address other pesticides in streams such as Johnson Creek.*
To evaluate data for the 2012 Integrated Report, DEQ applies all water quality criteria including those for pollutants that may no longer be actively used for commercial purposes. Those pollutants have toxic effects when present in the environment. Oregon's water quality criteria are in place to protect beneficial uses from impairment caused by those pollutants.

    The Willamette Basin TMDL addressed specific pollutants and listed waters. Load allocations for DDT in Johnson Creek were developed and approved by EPA and were the basis for delisting that water with the 2010 Integrated Report. However, the TMDLs are not broadly applicable to any other pollutants or to any other waters in the Willamette Basin.

42. *Commenter (9) asserted DEQ should not list a water body as Category 5: 303(d) when the presence of a pollutant (example, tetrachloroethylene in Fanno Creek (Record 7182) could be due to a hazardous chemical spill or release.*
The detection of a pollutant in water bodies above water quality standards is sufficient to determine impairment under the 303(d) listing process. The example water has persistent detections of a pollutant above water quality standards. During the TMDL development process, the sources of pollutants will be identified and load allocations or other restoration activities will be developed. If information from site remedial investigations or spill investigations relates surface water pollutant levels to specific sources, and those sources are fully addressed by remedial actions, the listed water body could potentially be delisted as a Category 4B: Other measures in place. Once information confirms the water body attains water quality standards, the water body may be moved into Category 2: Attaining.

43. *Commenters (9, 15) stated that data collected by USGS using Semipermeable Membrane Devices (SPMDs) used in the 2002 Integrated Report to list the Willamette River and Johnson Creek for PAHs and PCBs were not appropriate to evaluate in the Integrated Report water quality assessment.*
DEQ responded to similar comments on the 2004/2006 303(d) list on the listings that were originally added in 2002. DEQ determined for the 2002 Integrated Report that the data met

the data quality requirements for assessment purposes and made determinations based on that data. DEQ does not discount high quality data that have already been reviewed and found to be acceptable and used for listing that have been approved by EPA. Oregon revised the water quality standards and adopted human health criteria for a number of individual PAH compounds. When additional data for individual PAHs are available, DEQ will be able to review the 2002 listing determinations.

**Mercury in Fish Tissue.**

44. *Commenter (20) expressed concern that using Oregon's water quality standard for mercury in fish tissue to list streams would lead to the public perception that all fish in Oregon's rivers and streams were polluted and would pose health risks. Commenter stressed that the message about health risks should be balanced and communicated along with the importance of fish in a healthy diet. Commenter was also concerned about confusion between Oregon's water quality standard (0.04 mg/kg mercury in fish) versus the level Oregon Health Authority uses (0.35 mg/kg mercury in fish) to trigger issuance of fish consumption advisories.*
The purpose of the 303(d) listings is to indicate where water quality does not meet water quality standards that protect beneficial uses of the water. DEQ does not issue advisories or guidance to the public on the safety or risk of consuming specific kinds of fish from specific streams in Oregon. As the commenter indicates, the Oregon Health Authority provides advisories to the public on when and how the public should limit consumption of fish using data and information for specific waters and fish. DEQ and OHA have developed fact sheets and websites to provide the public information on mercury in Oregon waters. See http://www.deq.state.or.us/wq/standards/docs/MercuryORwaters.pdf and http://public.health.oregon.gov/HealthyEnvironments/Recreation/FishConsumption/Pages/fishadvisories.aspx

45. *Commenters (2, 5, 8, 9, and 16) noted that an interim TMDL for mercury in the Willamette Basin was completed and approved by EPA in 2006. Several Commenters asserted that waters in the Willamette Basin (HUC 170900) with data showing exceedance of the mercury criterion for fish tissue should be classified as Category 4A: Water quality limited, TMDL approved rather than Category 5: Water quality limited, 303(d) list, TMDL needed. However, Commenter 16 noted that Oregon adopted, and EPA approved, more stringent criteria for mercury subsequent to the TDML development and new TMDLs were needed.*
DEQ reviewed information from the TMDLs developed for mercury in the Willamette Basin. The currently effective Oregon criterion (0.040 mg/kg methyl mercury in fish tissue) is more stringent than the 0.30 mg/kg fish tissue mercury value used for the Willamette TMDL target level analysis. The approved TMDLs may not be sufficient to bring the water body into attainment with the currently effective standard.

DEQ will add all waters in the Willamette Basin where available data for fish tissue mercury concentrations exceed the current human health criterion to the Category 5: Water quality limited, 303(d) list. These listings will include the 6 waters proposed for the Category 5: 303(d) list in the draft 2012 Integrated Report (Clackamas River, McKenzie River, Middle Fork Willamette River, Multnomah Channel, Santiam River, and Tualatin River) and additionally:

Coast Fork Willamette River (Record 25386) RM 0 to 38.8
Willamette River (Record 25195) RM 0 to 186.6

Yamhill River (Record 26019) RM 0 to 11.2

The Willamette River and the Coast Fork Willamette River had been had been de-listed with the 2010 Integrated Report. Application of the Oregon's mercury fish tissue criterion will place these waters back on the 303(d) list until new TMDLs are developed and will replace the previously delisted records.

In addition, the following waters that had been delisted on the basis of the Willamette Basin mercury TMDLs will be moved back on to the 303(d) list:

Coast Fork Willamette River/Cottage Grove River (Record 6773) RM 28.5 to 31.3 – Fish consumption advisory
Coast Fork Willamette River (Record 17029) RM 31.3 to 38.8 – Water column
Row River/Dorena Lake (Record 6774) RM 7.3 to 11.9 3 – Fish consumption advisory
Dennis Creek RM 0 to 1.4 (Record 17174) 0 to 1.4 - Water column

Note that the Coast Fork Willamette River (Record 17028) RM 0 to 31.3 was incorrectly listed in 2004 on the basis of water column data, and subsequently delisted in 2010. Current available data are inconclusive, and record will be modified to Category 3: Insufficient data.

46. *Commenters (7, 26) asked about fish collection events in the McKenzie River and the species of fish collected and analyzed for mercury in fish tissue. Commenters suggested the species of fish sampled (northern pikeminnow and largsescale sucker) were not appropriate to support a Category 5: 303(d) determination for the McKenzie River (Record 25408) since some fish are migratory in the Willamette and McKenzie Rivers and not generally consumed by humans.*

Mercury and the toxic organic form methyl mercury enter the food chain and accumulate in organisms. Mercury levels are magnified and bioaccumulate as larger organisms (fish) eat smaller organisms (bacteria, algae, aquatic insects). DEQ and partner agencies collect fish tissue samples from Oregon waters to monitor the levels of mercury in fish and typically target resident fish from rivers and lakes throughout the state. Non-resident fish such as anadromous salmon and steelhead spend most of their life in the ocean, with limited time feeding in Oregon rivers or lakes and are not representative of the conditions in the freshwater environments. Predator species that eat smaller fish tend to have the highest levels, and larger, older fish accumulate more mercury than smaller, younger fish. Fish such as northern pikeminnow and largescale sucker are predators or bottom-feeders living their full life in Oregon waters and are known to be efficient bioaccumulators of mercury. The northern pikeminnow may not be targeted by commercial fishermen in the Willamette Basin, but may be caught and consumed on an occasional basis by recreational or subsistence fishermen. Sample results from northern pikeminnow are representative of other fish species found in the Willamette which may be more commonly targeted for fishing and human consumption. DEQ follows standard sampling techniques to collect fish at designated sampling locations and dates and collects whatever fish are present. DEQ's studies have not attempted to estimate how much time a single fish stays at any one single location. DEQ presumes that any fish present at the sampling site represents an integrated sample from exposure to pollutants at that location, and the fish tissue concentrations are used as a reasonable approximation of pollutant in that water body.

High levels of mercury found in fish tissue likely indicate mercury is also present in water and sediment, yet water concentrations may be very low. In some circumstances, levels of mercury in the water may be so low that current analytical methods cannot detect and measure them. Measuring mercury concentrations in fish or shellfish provides a more direct link to human risk associated with consumption of fish.

47. *Commenters (7, 26) noted testing for the drinking water supply source in the McKenzie River has not detected mercury above regulatory levels, and that sampling in the water column does not indicate mercury above the water quality criteria for freshwater.*
Levels of mercury in rivers and streams may be low and still be safe for swimming or as a source of drinking water. Drinking water is considered safe if it has less than the federal Safe Drinking Water Maximum Contaminant Level of 2 parts per billion of mercury. Mercury is monitored at the point it enters the drinking water distribution system after treatment, rather than at the drinking water source. High mercury levels in fish which reside in drinking water sources have not been linked to exceedances of the drinking water Maximum Contaminant Level for mercury. Public drinking water suppliers must regularly monitor mercury levels and take action if water exceeds the Maximum Contaminant Level for mercury. No active public water suppliers in Oregon have measured mercury levels above this level, and no public water suppliers are treating raw water specifically to remove mercury.

    The data available to the City of Springfield appear to indicate that Oregon's water quality standards to protect aquatic life in the water column are attained. These data would be useful if submitted to DEQ in the call for data for the next Integrated Report so it can be included in the assessment. The available data from fish tissue does show an exceedance of the water quality standard protecting human health based on fish tissue concentrations, and those data are the basis for the new identification of impaired beneficial use in the McKenzie River.

    To assess data for mercury in the water column, DEQ applied the most stringent criterion which is the Table 20 freshwater aquatic life chronic criterion. In some cases, data from the water column in a water body may attain this criterion, while data from fish tissue show concentrations exceeding the human health criterion for consumption of fish.

48. *Commenter (7) noted sources of mercury in the McKenzie River may be due to atmospheric deposition and suggested DEQ defer listing until this source is ruled out since DEQ has little control over global sources of atmospheric mercury.*
It is likely that atmospheric deposition may be a contributing source of mercury to the McKenzie River. DEQ's water quality assessment and identification of impaired waters identifies the waters where mercury levels in fish are higher than water quality standards. When data showing exceedance of a water quality standard are available, DEQ adds the water to the 303(d) list where TMDLs are needed. During the TMDL development process, sources of mercury will be identified, and the appropriate allocations attributed to each source in order develop plans to restore the water and attain water quality standards. DEQ does have some discretion on the timing of TMDL development, but does not have discretion on delaying adding waters to the 303(d) list once standards exceedances are identified.

49. *Commenter (26) suggested excluding waters in National Forest Lands on the Rogue River for listing for mercury.*
DEQ's listing for mercury based on fish tissue sampling results from the Rogue River is based on the locations where fish samples were collected and general protocols for determining assessment units.

50. *Commenter (5) states that waters added to the 303(d) list based on fish consumptions advisories for methyl mercury should be re-categorized as Category 3 until the process of methylation is understood and a source of mercury identified.*
Where fish consumption advisories have been issued because of unacceptable levels of mercury in fish, human beneficial uses are clearly impaired and a 303(d) listing is warranted. The source of pollutants does not need to be know, and is in fact the first part of developing TMDLs to address the pollutant in the listed water bodies.

51. *Commenter (9) questioned the station data summary (Record 25228) suggesting a geometric mean was calculated based on only 1 sample.*
The summary information for Station 10550 reports the result from one individual fish tissue sample available at that station, not a geometric mean.

### Delistings for Toxic Substances

52. *Commenter (3) asked for more information to verify that the McCormick and Baxter site is the only source for Pentachlorophenol (PCP) to the Willamette River within the Portland Harbor Superfund area before delisting the site on the basis of the other control measures implemented with the McCormick and Baxter site cleanup.*
DEQ listed the area around the McCormick and Baxter site based on health advisories regarding fishing and swimming in the areas. Those health advisories have been rescinded as a result of the site remediation and control measures currently in place. DEQ has no data or information indicating water quality standards for PCP are exceeded in the vicinity of the site. If such data becomes available, then an appropriate segment of the Willamette River will be added to the 303(d) list.

53. *Commenter (3) pointed to data that show exceedance of the current criterion for iron (1000 ug/L) in the Hood River (Record 14995), which indicate it should remain on the 303(d) list.*
DEQ inadvertently missed these data in the initial compilation of data for evaluation. This water body will remain on the 303(d) list for iron.

## VI. Assessments for Ocean Acidification

54. *Commenter (14) asserted that DEQ failed to identify waters impaired by ocean acidification or ocean waters where water quality standards are not met. Commenter cited information previously submitted to DEQ as well as new references that were included with their comments on Oregon's Draft 2012 Integrated Report as purportedly providing information about ocean acidification impacts on the Oregon coast.*

DEQ has previously considered and addressed the information and comments submitted by the Commenter on Oregon's 2010 Integrated Report and 303(d) list. DEQ concluded that the

submitted information did not provide data showing Oregon's marine pH criteria were not met and therefore did not support listing Oregon's ocean waters as impaired.[8, 9]

The Commenter reminded DEQ to follow EPA's 2010 guidance on Integrated Reporting and Listing Decisions Related to Ocean Acidification.[10] DEQ has followed that guidance. In particular,

> "States will need to continue to use their current marine pH criteria as a basis for 303(d) listing until additional OA criteria are adopted"
> And
> "EPA has concluded that States should list waters not meeting water quality standards, including marine pH WQC, on their 2012 303(d) list..."

The 2012 Methodology provides information on how Oregon's water quality standards, including Oregon's pH standards and narrative standards, are applied for the 2012 Integrated Report.[11] DEQ requires that data used for the Integrated Report meet Quality Assurance/Quality Control (QA/QC) requirements. DEQ also requires that information describing site locations and methods used to measure and analyze environmental conditions be provided in order to determine if data or information are relevant and appropriate to use in the Integrated Report. Missing or incomplete site information and undocumented or poor data quality make data not usable for the Integrated Report. Data and information used to make conclusions about the quality of Oregon's water must be of high quality (data quality level A or B) and must be accurate and reliable. Further, relevant data and information must be from within the territorial waters of Oregon and pertain to the aquatic life species that are supported in these waters.

DEQ reviewed the information submitted by the Commenter during public review of the Draft 2012 Integrated Report. DEQ staff looked for new data or information in the submitted references that had not been previously reviewed and looked for any information that could be evaluated using the 2012 Methodology protocols. Data supporting a 303(d) listing must pertain to Oregon waters which include marine waters three miles out from Oregon's coast. Only these areas fall within DEQ's authority to list under the CWA 303(d) process, and are waters where Oregon's water quality standards apply.

The information submitted by the Commenter is of questionable value because the cited research reports do not provide basic information about site sampling locations or information about data quality review and validation. The submitted references and studies reviewed conditions in the Southern Ocean, Arctic Ocean, the California current 12 miles

[8] January 2011, Response to Comments on Oregon's Draft 2010 Integrated Report, Oregon DEQ Water Quality Division http://www.deq.state.or.us/wq/assessment/docs/2010ResponseToComments.pdf
[9] May 2011, Response to Comments on Final Supplement to Oregon's 2010 Integrated Report, Oregon DEQ Water Quality Division http://www.deq.state.or.us/wq/assessment/docs/2011ResponseToComments.pdf
[10] November 2012, Integrated Reporting and Listing Decisions Related to Ocean Acidification, EPA Memorandum from Denise Keehner, page 4
http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/oa_memo_nov2010.pdf
[11] Methodology for Oregon's 2012 Integrated Report and List of Water Quality Limited Waters, Oregon DEQ, October 2014 http://www.oregon.gov/deq/WQ/Pages/Assessment/2012report.aspx

offshore from the Oregon coast, ocean waters more than 20 miles off shore, Alaska waters, the Bering Sea, Puget Sound, and Australia waters. This generalized information is of questionable relevance to Oregon's 2012 303(d) list because it does not clearly relate to Oregon's waters or to aquatic life supported in Oregon's waters. The provided information cannot be relied on to make conclusions about Oregon's water quality.

The Commenter asserted that existing and available data relevant to pH and ocean conditions had not been reviewed by DEQ.

DEQ reviewed the references submitted by the Commenter for new data or information about marine pH measurements that could be directly compared to Oregon numeric water quality standards (marine waters pH 7.0 to 8.5; estuarine waters pH 6.5 to 8.5). Only a few of the studies mentioned measuring pH conditions. Those studies did not report measured pH outside the range allowed under Oregon standards, and none of the studies contained site location information that placed monitoring sites in Oregon waters. Review articles about the state of the science for monitoring ocean conditions point out the monitoring needs and gaps, and the need to develop a way to measure ocean responses using effects such as aragonite saturation. While these studies point to a general need for more monitoring and research, the study information does not identify that Oregon water quality standards are not being met in Oregon's waters.

DEQ looked at the data sources the Commenter stated contained "high resolution ocean acidification data" (page 1 comment letter). DEQ found the statement exaggerates the availability of pH data for Oregon waters from the cited sources. The vast majority of the fixed station oceanographic monitoring buoys referenced by the citations currently lack pH meters. Efforts to install pH (or pCO2) meters are underway, but with few exceptions, have not been installed in Oregon waters. DEQ noted there is one station off La Push, WA and one in Dabob Bay in Puget Sound, WA. The only Oregon site that provides any readily available data for pH is a NERRS monitoring station system in South Slough/Coos Bay.[12] A review of the 60 day history of pH observations available online from this station show readings range between 7.5 and 8.25, and are within Oregon's water quality pH criteria for marine and estuarine waters. While there may be pH data available from oceanographic cruises or other long term research initiatives active in the near shore zone in Oregon waters, the data are not readily available.

To further address the Commenter's concern that DEQ had not reviewed available data, DEQ retrieved pH data for marine and estuarine sites from a number of data sources. Data were retrieved for 231 monitoring stations at marine and estuarine sites in Oregon waters. Data were retrieved in May and June 2014 from DEQ's LASAR data system and, through the Water Quality Portal, from EPA's STORET Data Warehouse and the USGS National Water Information System (NWIS) for the time period January 2000 through December 2011.[13,14]

[12] http://nvs.nanoos.org/Explorer?action=oiw:fixed_platform:NERRS_SOSCWQ:observations:H1_pH:60d Data reviewed by DEQ 6/13/2014
[13] http://deq12.deq.state.or.us/lasar2/Oregon DEQ Laboratory Analytical Storage and Retrieval (LASAR) web application for public access
[14] http://www.waterqualitydata.us/ Water Quality Portal

DEQ evaluated over 2,250 results for pH using applicable Oregon pH standards for marine and estuarine waters. For 219 sites, including eight locations in the Pacific Ocean within Oregon's waters, no results fell outside the allowable pH range. Two monitoring sites in the estuarine portions of the Pistol River (Stations 10535 and 11493) and one on Hunter Creek (Station 25444) had results outside the acceptable pH range and had sufficient data to determine the status to be Category 5: 303(d). The excursions were consistently outside the upper (non-acidic) end of the allowable pH range. Both the Pistol River (Record 4825) and Hunter Creek (Record 20712) were previously added to Oregon's 303(d) list in 2004. Those listings will be updated with the assessment information from this review of pH data for the 2012 Integrated Report. After a comprehensive retrieval and review of available pH data, DEQ has determined that no other 303(d) listings in Oregon's marine or estuarine waters are warranted.

DEQ reviewed the references submitted by the Commenter for information on impacts from ocean acidification to beneficial uses and aquatic life in Oregon. DEQ's water quality standards include narrative standards that protect conditions in Oregon waters needed to support beneficial uses including resident biological communities. DEQ did not find any documentation of negative effects on resident aquatic life in the submitted information. One study contained experimental results indicating a potential response in naturally occurring diatoms that might lead to harmful algal blooms but did not have any information indicating that such a response has occurred in Oregon waters. Other experimental studies with a variety of marine species indicate potential negative impacts from conditions similar to those predicted to occur from ocean acidification, but have not documented the occurrence of such responses in Oregon's native species and waters. Several of the studies were experimental studies testing the potential responses of ocean organisms under lab conditions to investigate effects of changing pH or other conditions related to potential ocean acidification conditions. Other studies were review articles about observed and potential ocean conditions and food web responses, synthesizing literature about biological responses around the globe. The potential sensitivity of marine species under experimental conditions or impacts to aquatic life in other parts of the world such as the Southern Ocean or Arctic Ocean do not provide a sufficient basis to determine that water quality standards are not met in Oregon waters, or that Oregon waters are impaired. Anecdotal information and generalized observations submitted by the Commenter are also not sufficient to determine water quality standards are not met. DEQ notes that recent anecdotal observations have in fact reported that the Olympia oyster, the only oyster native to the West Coast, is making a recovery in Netarts, Yaquina, and Coos Bays in Oregon after being over harvested in the early 1900's to near extinction.[15]

After thorough review of the currently available data and information, including the Commenter's submission, DEQ concludes that there is no basis at this time to list Oregon waters as impaired due to ocean acidification or because Oregon's pH and other water quality standards are not being met.

[15] July 20, 2013, Oregon's only native oyster, the Olympia, makes a comeback after near extinction, Oregonian, reported by Katy Muldoon, http://www.oregonlive.com/environment/index.ssf/2013/07/oregons_only_native_oyster_the.html#incart_river

## VII. Assessments for pH

### Columbia River

55. *Commenters (6, 17) requested DEQ review data used for assessing pH in the Columbia River. Commenters questioned EPA's 2010 303(d) listings for the Fall Winter Spring period on RM 98 to 142 (Record 24725) and DEQ's 2004 listing for RM 121.8 to 319.3 (Record 20028), and for the summer time period on RM 142 to 188.6 (Record 24724). Commenter (17) questioned data used by EPA for listing Record 24725. Commenter (6) questioned the data results from LASAR station 23794 used for listing Record 20028 and attached a table with data collected in the Columbia River at a location upstream of the City of The Dalles outfall.*

Although DEQ did not update assessments for pH in the draft 2012 Integrated Report, DEQ reviewed previous assessments for the Columbia River in order to respond to public comments. DEQ retrieved available data for pH on the Columbia River and conducted a detailed review of the data in order to update the assessments. Data were reviewed using protocols in the 2012 Methodology.

DEQ retrieved and reviewed Columbia River pH data from DEQ's Laboratory Analytical Storage and Retrieval data system (LASAR), EPA's Storage and Retrieval Data Warehouse (STORET), USGS's National Water Information System (NWIS), and data submitted to DEQ by the City of The Dalles during the comment period on the draft 2012 Integrated Report. Data for the period assessed in the 2012 Integrated Report cycle (January 1, 2000 to Dec 31, 2011) were evaluated. Only data with data quality level A or B were retrieved from LASAR, consistent with DEQ's assessment protocols. However, no data quality information was submitted with data from City of The Dalles, and data quality levels are not provided in STORET and NWIS; therefore data quality is unknown. Although not conforming to DEQ's assessment protocols, no data were excluded for this review based on lack of data quality information.

Consistent with previous assessment methodology protocols, data were divided into two sets to represent two time periods: Summer (June 1 through September 30) and fall/winter/spring (October 1 through May 31). Sample results at each monitoring station were evaluated.

In previous assessment of pH conditions in the Columbia River, the river was divided into sections based on significant hydrologic features or where monitoring stations with pH data were located. Significant hydrologic features include: the approximate extent of the Columbia River estuary waters; locations of dams on the Columbia River (Bonneville Dam RM 142, The Dalles Dam RM 188.6); and the location of the Willamette River confluence (RM 98). These features in conjunction with monitoring station locations were used to determine the start and end points for assessment units for the 2012 review.

DEQ's review indicates that some sections of the Columbia River in both summer and fall/winter/spring are attaining pH standards while one section (RM 142 to 188.6) in the summer and one section (RM 98 to 142) in the fall/winter/spring continue to warrant 303(d) listings. The final 2012 Integrated Report will reflect the changes and updates summarized in the following paragraphs.

Summer

The Columbia River for the summer time period will be assessed in 5 river sections that reflect significant hydrologic features and the currently available data. The records are summarized in the table below. Summaries of the pH data available at monitoring stations are provided with the records in the 2012 Integrated Report. As assessed using the 2012 Methodology protocols, there is sufficient information to determine two sections in the lower Columbia River (Records 20029 and 26024) attain the pH standards in the summer, while there is insufficient information in the lower mouth and estuary of the Columbia River (Record 26023) and in the section upstream of The Dalles Dam (record 26025) to determine if pH standards are met or not. The section between Bonneville Dam and The Dalles Dam (Record 24724) has sufficient data at 8 stations to indicate the pH criteria are not met and confirm the impaired status identified in EPA's addition to the 2010 303(d) list. There are 9 excursions below the lower pH range limit and 15 excursions above the upper pH range limit. Results at monitoring stations in the center channel as well as other channel locations throughout this section do not meet the pH criteria.

| Time Period | Record | 2012 IR change | Assessment Unit RM start/end | 2012 status | Notes |
|---|---|---|---|---|---|
| Summer | 26023 | New record | 0 to 35.2 | Category 3: Insufficient data | Approximate extent of estuary |
| Summer | 20029 | Status modification | 35.2 to 98 | Category 2: Attaining some criteria/uses | Willamette River confluence at RM 98. |
| Summer | 26024 | New record | 98 to 142 | Category 2: Attaining some criteria/uses | Bonneville Dam at RM 142 |
| Summer | 24724 | No status change | 142 to 188.6 | Category 5: Water quality limited, 303(d) list, TMDL needed | Bonneville Dam at RM 142; The Dalles Dam at RM 188.6 |
| Summer | 26025 | New record | 188.6 to 303.9 | Category 3: Insufficient data | Upstream of The Dalles Dam |

Fall/ Winter Spring

The Columbia River for the summer time period will be assessed in 3 river sections that reflect significant hydrologic features and the currently available data. The records are summarized in the table below. Summaries of the pH data available at each station in the section are provided with the records in the 2012 Integrated Report.

The 303(d) listing for pH in fall/winter/spring in the Columbia River (Record 24725 for RM 98 to 142) added by EPA in 2010 partially overlaps a 2004 303(d) listing for a large section of the Columbia River (Record 20028 for RM 121.8 to 303.9). The section listed in Record 24725 extends from the Willamette River confluence up to Bonneville Dam.

Available pH data reviewed by DEQ from the Columbia River downstream of the Willamette River confluence are sufficient to determine the section in the lower Columbia River (Record 26026) attains the pH standards in the fall/winter/spring.

A review of currently available data confirms pH standards are not met in the section of the Columbia River covered by Record 24725 from the Willamette River confluence up to Bonneville Dam. Data from 4 monitoring stations (including LASAR 23794) are sufficient to indicate the pH criteria are not met and confirm the impaired status identified in EPA's addition to the 2010 303(d) list. Sample results include one excursion below the lower pH range limit and 15 excursions above the upper pH range limit.

However, data provided to DEQ by the City of The Dalles in comments on the draft 2012 Integrated Report from a monitoring station located at RM 187 upstream of the Bonneville Dam are sufficient to indicate that water quality standards are attained in the fall/winter/spring above Bonneville Dam. Based on the currently available data, the older listing Record 20028 is in error and will be de-listed. Data are sufficient to determine the section in the Columbia River above Bonneville Dam (Record 26027) attains the pH standards in the fall/winter/spring.

| Time Period | Record | 2012 IR change | Assessment Unit RM start/end | 2012 status | Notes |
|---|---|---|---|---|---|
| Fall Winter Spring | 26026 | New record | 0 to 98 | Category 2: Attaining some criteria/uses | Willamette River confluence at RM 98. |
| Fall Winter Spring | 24725 | No status change | 98 to 142 | Category 5: Water quality limited, 303(d) list, TMDL needed | Bonneville Dam at RM 142 |
| Fall Winter Spring | 20028 | De-list; listing error | 121.8 to 303.9 | Inactive | Overlaps Record. 24725 |
| Fall Winter Spring | 26027 | New Record | 142 to 303.9 | Category 2: Attaining some criteria/uses | Upstream of Bonneville Dam |

### Johnson Creek

56. *Commenter (15) questioned EPA's 2010 303(d) listing for pH in Johnson Creek for RM 0 to 23.7 for the Fall Winter Spring period (Record 6918) and EPA's summary of data for LASAR Station 3441.*
DEQ did not review any new pH data for Johnson Creek for the 2012 Integrated Report and therefore did not update EPA's 2010 303(d) listing or summary of data.

## VIII. Assessments for Biocriteria

57. *Several Commenters (3, 5, 9, 10, 16, 19, 22, 24, and 26) provided comments on assessments for biocriteria that were originally done by DEQ for the 2010 Integrated Report. Those assessments were based on protocols described in Oregon's 2010 Methodology.*
DEQ developed a protocol for the 2010 Integrated Report to evaluate macroinvertebrate data using benchmarks derived from a predictive model for biological conditions as a method to apply Oregon's narrative biocriteria (OAR 340-041-0011). In 2010, DEQ identified waters with impaired biological conditions and placed them into a new status of Category 3C: Impairing pollutant unknown. EPA disapproved DEQ's decision not to add these waters to the Category 5: Water quality limited, 303(d) list. EPA took action to modify Oregon's 2010 303(d) list and added over 300 waters with impaired biological conditions to the list.

    For the 2012 Integrated Report, DEQ did not conduct any new biocriteria assessments or evaluate new data on macroinvertebrate assemblages. The assessment methodology for biocriteria has not been reviewed or revised since the 2010 Integrated Report except to eliminate the Category 3C classification status that was disapproved by EPA. With the 2012 Integrated Report, DEQ will eliminate use of Category 3C and reclassify 26 waters impaired for biocriteria as Category 5: Water quality limited, 303(d) list.

    Several Commenters on the draft 2012 303(d) list provided substantive comments on the assessment methodology used in 2010 to apply the narrative biocriteria to data for macroinvertebrate assemblages. DEQ acknowledges that several valid issues have been raised that could lead to revisions to the assessment methodology and assessment conclusions in a future Integrated Report. DEQ's laboratory monitoring program and TMDL program are continuing efforts to improve and refine the tools and models used to interpret macroinvertebrate data as indicators of environmental conditions and biological communities. Those refinements may inform updates to the assessment methodology in the future. Several of the issues are noted below.

58. *Commenter (10) asserted DEQ's protocols for applying the narrative biocriteria should be adopted as rules or water quality standard criteria.*
DEQ developed protocols to use macroinvertebrate data to assess biological conditions as a method to implement Oregon's narrative biocriteria (OAR 340-041-0011). This rule was developed following Oregon's Administrative Procedure Act, and has been approved by EPA as a standard applicable for Clean Water Act purposes such as the 303(d) and 305(b) water quality assessment. Under the CWA, DEQ has an obligation to consider available data, such as macroinvertebrate data, and apply relevant Oregon water quality standards. The protocols initially developed for the 2010 Integrated Report describe how DEQ has meets those obligations to assess biological conditions in Oregon's waters.

59. *Commenters (5, 9, 15, 19, and 24) did not agree with assessing biocriteria and listing impaired waters when pollutants were not identified.*
EPA determined that any water identified as being biologically impaired should be listed as Category 5: 303(d) whether or not the pollutant causing the impairment or the pollutant

source are known.[16] EPA also determined that using benchmarks based on reference conditions to assess macroinvertebrate data is a valid use of available data and information to identify impaired waters. During development of TMDLs, the pollutants or stressors causing biological impairment will be identified.

60. *Commenter (3) suggested DEQ's use of different benchmark values to identify waters as Category 5: 303(d) and Category 2: Attaining was not appropriate and would leave waters with PREDATOR scores between the benchmark values in an unassigned status category. Commenter (3) was also concerned that follow-up monitoring for sites with "Category 3(b) Insufficient data, potential concern" would not be completed.*
DEQ agrees that this issue should be addressed when the methodology for assessing biocriteria is updated. DEQ may also be able to re-sample in areas where data have shown potential concerns. Re-sampling could happen as DEQ revisits areas throughout the state as biological and habitat monitoring programs are restored, or when sampling data are collected to prepare for TMDL development. Other land managers or natural resource agencies may also plan additional monitoring as part of structured sampling programs or investigations.

61. *Commenters (5, 9, 10 and 22) suggested that it was not appropriate to use the PREDATOR model to evaluate macroinvertebrate data from non-riffle waters in low gradient valley bottom streams or other waters that were not wadeable. Commenters suggested that since the PREDATOR model is based on reference sites in fast water riffles, comparing data from low gradient streams would lead to incorrect decisions about impaired biological conditions.*
DEQ will review which sites are appropriate to evaluate using the PREDATOR model when the assessment methodology is updated. DEQ will continue to refine the PREDATOR model as new reference sites and additional sampling data are built into the model and new data analyses are conducted using the model. Protocols for macroinvertebrate sampling specify sampling the fastest available habitat when riffles are not present at a site, so glide or run habitats found in valley bottom or lower gradient streams may be represented sufficiently in the model. Additional research comparing the conclusions from the riffle-based PREDATOR model versus other glide-based models may inform how DEQ applies the PREDATOR model in the future. In general, sites in valley bottoms score very poorly, and should be investigated more fully during TMDL development in order to better understand the reference conditions for low gradient sites.

62. *During DEQ's finalizing of the 2012 303(d) list, the question was raised about the quality of some macroinvertebrate sample data reviewed for the 2010 Integrated Report that had low organism counts.*
DEQ will consider this issue when refining the PREDATOR model and when updating the assessment methodology. A review by DEQ of the macroinvertebrate data set used for the 2010 Integrated Report found there may be a threshold sample organism count needed to compare Observed/Expected communities of organisms using the model. When the O/E scores are low, samples with less than 150 organisms may skew the O/E score to be far below the overall non-reference population. When samples contain at least 150 or more

[16] December, 2012 Response to Comments on the EPA's Additions to Oregon's 2010 Clean Water Act 303(d) List, EPA Region 10, http://www.epa.gov/region10/pdf/water/303d/oregon/EPA_Response_to_Comments_Final.pdf

organisms, the O/E scores do not appear to be different than the overall non-reference population. The low counts may be due to poor sample quality or could indicate poor environmental conditions. DEQ acknowledges that additional sampling should be done at these sites. Re-sampling could happen as DEQ revisits areas throughout the state as biological and habitat monitoring programs are restored, or when sampling data are collected to prepare for TMDL development. Other land managers or natural resource agencies may also plan additional monitoring as part of structured sampling programs or investigations.

DEQ will re-consider the protocols for evaluating macroinvertebrate data for future Integrated Reports as well as during TMDL data review and development. To finalize the 2012 303(d) list, DEQ reviewed the data used for the 2010 assessments and determined that samples with counts less than 150 organisms were not full valid samples and were not sufficient to determine impairment, but do indicate a potential concern.

As a result of this review, DEQ is delisting two records, Record 23386 Canyon Creek LLID 1224485443976 and Record 23430 Carpenter Creek LLID 1231131454906, and modifying the status to Category 3B: Insufficient data, potential concern.

63. *Commenter (10) enclosed a letter and a memo previously submitted to DEQ's TMDL program with comments about the general use of macroinvertebrate data to identify impaired waters and to set improvement targets in TMDLs. Commenter (26) also questioned the application of the PREDATOR model in specific streams.*
Many of the comments in the attached letter and memo critique the PREDATOR model that DEQ used as the basis for setting benchmarks for the 2010 Integrated Report assessment for biocriteria. The model is a tool developed using commonly applied statistical methods and with reference site data collected specifically in Oregon. The scientific rationale for the selected benchmark values is discussed in a technical paper published by DEQ.[17] DEQ's PREDATOR model has undergone substantial peer review and input from recognized scientific experts in the fields of biological ecology and statistical analysis of ecological data during model development. The application of the model to interpret Oregon's macroinvertebrate data for assessment purposes was also peer reviewed and accepted by EPA. As with any model, many details of the model are subject to change. Refinements of the model may be warranted to reflect new data or directions taken in response to scientific advancements or improved understanding of the environmental system that is being modeled.

DEQ is continuing to use and refine the PREDATOR model and is collaborating with other agencies such as Oregon Department of Fish and Wildlife, Washington Department of Ecology, and US Forest Service to expand data sets and information. As DEQ and partners collect more data from continued monitoring of stream biology and habitat, DEQ may be able to address some of the questions posed by the Commenters with regard to the specific details of the model and review assessments made with the 2010 Integrated Report. If warranted, DEQ may re-visit the specific benchmarks chosen for the next Integrated Report. DEQ's policy is to use the best available information to reduce errors in our decisions and

[17] Hubler, S., July 2008, PREDATOR: Development and Use of RIVPACS-type Macroinvertebrate Models to Assess the Biotic Condition of Wadeable Oregon Streams, Technical Report DEQ08-LAB-0048-TR http://www.deq.state.or.us/lab/techrpts/docs/10-lab-004.pdf

accommodate uncertainty in order to implement Oregon's standards. The use of a set of macroinvertebrate benchmarks for the statewide 305(b)/303(d) assessment does not preclude DEQ refining the benchmarks or taking a different approach in future assessments. Developing TMDLs to address biological impairment may focus on measuring factors other than those used in the assessment to identify the impaired conditions. A variety of factors can be considered during the TMDL development process in order to identify the pollutant stressors causing biological impairment, set TMDL target levels for the identified pollutants, or select targets based on information specific to the waters and watershed being addressed in the TMDL. DEQ's goal is to restore conditions in order to support healthy biological communities.

64. *Commenter (16) suggested DEQ should apply the biocriteria narrative standard to other data and information besides the macroinvertebrate data using some other means of determining biological impairment.*
Oregon's narrative water quality standard for biocriteria (OAR 340-041-0011) does not specify how to determine what characteristic(s) of water quality must be sufficient, or how to determine what indicates detrimental changes to resident biological communities, except by comparing resident biology to natural conditions at appropriate reference sites (OAR 340-041-0002(76)). DEQ has developed a robust and scientifically sound protocol to measure and assess conditions using macroinvertebrates as the biological indicator, and using the reference site approach to determine when the biological community exhibits impaired conditions. DEQ is not opposed to using other measures and indicators when the science and protocols have been sufficiently developed for Oregon, and when sufficient data and information are available to assess using those protocols.

## IX. Assessments for Turbidity

65. *A request to remove the Siletz River from the 303(d) list for turbidity was submitted by email November 15, 2013 from Jeff Light, Plum Creek Timber Company, to Gene Foster, ODEQ TMDL Program Manager.*
DEQ did not review data for turbidity for the 2012 Integrated Report and did not review or update protocols or records from previous assessments for turbidity. DEQ proposed adding the Siletz River to the 2010 303(d) list for turbidity (Record 23134) and responded to comments on the 2010 Integrated Report with DEQ's conclusion that the listing was supported by the data available at that time.[18]

The DEQ TMDL Program is currently reviewing the information submitted to them in 2013. The request and information supporting the request were not submitted during the open public comment period on DEQ's Draft 2012 Integrated Report (January. 2, 2014 through February 24, 2014) and are not part of the 2012 Integrated Report administrative record. The Mid Coast TMDL development process is currently the appropriate forum through which to resolve the concerns raised by Plum Creek. During the TMDL development process, additional information and analysis will determine either that TMDLs for turbidity are not needed for the Siletz River, or will lead to development of the necessary TMDLs that will be

[18] Response to Comments on Oregon's Draft 2010 Integrated Report, January 2011, p 5, http://www.deq.state.or.us/wq/assessment/docs/2010ResponseToComments.pdf

approved by EPA. The approved TMDL conclusions will be incorporated into the next Integrated Report. DEQ's TMDL Program will respond by letter with the conclusions of the review and will incorporate the decision into the ongoing TMDL development process.

## X. Assessments for Specific Waters

66. *Commenter (23) requested DEQ review assessments for the Deschutes River and Tumalo Creek for ammonia, chloride, chlorophyll a, dissolved oxygen, E. coli, and phosphate using data collected by local agencies and watershed councils. Commenter asserted additional data were available.*
The Commenter's letter summarized their data results. However, the referenced data were not submitted during the call for data and thus were not available for the 2012 Integrated Report. The data can be submitted for the next call for data for the Integrate Report. DEQ's Eastern Region TMDL Basin Coordinator may incorporate the data into the TMDL development process if that process precedes the Integrated Report process.

## XI. Assessments for Other Parameters

67. *Commenter (16) included comments on DEQ's methodology for applying the bacteria (E. coli, Enterococci), pH, and turbidity criteria.*
DEQ considered identical comments made on the assessment methodology for the 2010 Integrated Report and refers the Commenter to DEQ's responses provided with documentation for the 2012 Integrated Report.[19] DEQ does not find these comments relevant to Oregon's 2012 303(d) list decisions.

68. *Commenter (15) requested DEQ review chlorophyll a data used to list the Willamette River (Record 24517) for summer from RM 0 to 54.8.*
EPA added this listing to Oregon's 2010 303(d) list. The EPA data summary for the added listing indicates the criterion was exceeded at two monitoring stations. DEQ did not review any new chlorophyll a data for the 2012 Integrated Report and therefore did not update EPA's 2010 303(d) listing.

## XII. Assessments for Flow and Habitat Modification

69. *Commenter (23) requested DEQ review assessments for the Deschutes River and Tumalo Creek for flow modification and habitat modification stating these were not pollutants. These assessments had a status of "Water quality limited not needing a TMDL".*
In guidance for the 2002 Integrated Report, EPA indicated that TMDLs were not required to address water quality limitation due to flow and habitat modification since these conditions are not pollutants. With the 2002 Integrated Report, DEQ "de-listed" all 1,571 assessments for flow and habitat modification throughout the state, including assessments for the Deschutes River and Tumalo Creek. All assessments were assigned a status of "Water quality limited not needing a TMDL". However, not all the waters had been identified as "Water Quality Limited" in previous assessments such as the 1998 303(d) List. In fact, only 252 waters were included on the 1998 303(d) list because of flow or habitat modification. Many

[19] http://www.deq.state.or.us/wq/assessment/2010Report.htm

of these waters were partially or entirely on Tribal lands. This error incorrectly inflated the number of Oregon assessments classified as "Category 4: Water Quality limited, TMDL not needed".

With the final 2012 Integrated Report, DEQ corrected these errors by modifying the status for flow and modification records to reflect the correct 1998 status with the current status categories. Tumalo Creek is "Category 4C: Water quality limited, not a pollutant" for flow modification and "Category 3: Insufficient data" for habitat modification. The lower Deschutes River is "Category 3: Insufficient data" for both flow and habitat modification, and "Category 4C: Water quality limited, not a pollutant" for both in the upper sections. The counts of the correct statuses are summarized below.

**2012 Integrated Report - Flow and Habitat Modification**

| Status Category | Number Flow Modification | Number Habitat Modification | Total |
|---|---|---|---|
| Category 2: Attaining some criteria/uses | 1 | 3 | 4 |
| Category 3: Insufficient data | 658 | 605 | 1,263 |
| Category 3B: Insufficient data, potential concern | 2 | 16 | 18 |
| Category 4C: Water quality limited, not a pollutant | 56 | 202 | 258 |
| Total | | | 1,543 |

# D: **List of Commenters**

| Commenter Number | Name / Title | Date Received | Representing | Address / Phone |
|---|---|---|---|---|
| 1 | Anne MacDonald<br>Stormwater Quality Coordinator | 02/24/2014 | City Of Lake Oswego | 380 A Ave<br>PO BOX 369<br>Lake Oswego OR 97034<br>(503) 675-3999 |
| 2 | Bruce J. Duffee<br>Chief, Hydraulics and Hydrology Branch | 02/24/2014 | Department Of The Army | PO Box 2946<br>Portland OR 97208-2946 |
| 3 | David Croxton<br>Manager, Watershed Unit | 02/24/2014 | United States Environmental Protection Agency (EPA) Region 10 | 1200 Sixth Ave, Suite 900<br>Seattle WA 98101-3140<br>(206) 553-6694 |
| 4 | Douglas McLaughlin<br>Principal Research Scientist | 02/24/2014 | Nation Council For Air And Stream Improvements, Inc | Western Michigan University<br>A114 Parkview Campus<br>Kalamozoo MI 49008-5436<br>(269) 276-3545 |
| 5 | Janet A. Gillaspie<br>Executive Director | 02/24/2014 | Oregon Association Of Clean Water Agencies (ACWA) | 107 SE Washington, Suite 242<br>Portland OR 97214<br>(503) 236-6722 |
| 6 | Karen Skiles<br>Regulatory Compliance Manager | 02/24/2014 | City Of The Dalles | 1215 West First Street<br>The Dalles OR 97058<br>(541) 506-2005 |
| 7 | Karl Morgenstern<br>Environmental Management Supervisor | 02/24/2014 | Eugene Water & Electric Board | 500 East 4th Ave<br>PO Box 10148<br>Eugene OR 97440-2148<br>(541) 685-7365 |
| 8 | Kathryn VanNatta<br>Director of Government and Regulatory Affairs | 02/24/2014 | Northwest Pulp & Paper Association | 212 Union Avenue SE, Suite 103<br>Olympia WA 98501-1302<br>(360) 529-8638 |

| Commenter Number | Name / Title | Date Received | Representing | Address / Phone |
|---|---|---|---|---|
| 9 | Kim Cox<br>Environmental Policy Division Manager | 02/21/2014 | City of Portland, Environmental Services | 1120 SW 5th Ave, Room 1000<br>Portland OR 97204<br>(503) 823-4913 |
| 10 | Kristina L. McNitt | 02/24/2014 | Oregon Forest Industries Council | PO Box 12826<br>Salem OR 97309<br>(503) 371-2942 |
| 11 | Michele Campbell<br>Attorney, Stoel Rives | 02/24/2014 | Daimler Trucks North America LLC's | 900 SW 5th Ave, Suite 2600<br>Portland OR 97204<br>(503) 294-9676 |
| 12 | Michelle Cahill<br>Wastewater Division Director | 02/21/2014 | City of Eugene Public Works<br>Metropolitan Wastewater Management Commission | 410 River Ave<br>Eugene OR 97404<br>(541) 682-8600 |
| 13 | Miles Johnson<br>Clean Water Attorney | 02/24/2014 | Columbia Riverkeeper | 111 Third Street<br>Hood River OR 97031<br>(541-387-3030 |
| 14 | Miyoko Sakashita<br>Oceans Director, Senior Attorney | 02/24/2014 | Centers For Biological Diversity | 351 California Street #600<br>San Francisco CA 94101 (415) 632-5308 |
| 15 | Mona LaPierre<br>Environmental Monitoring Manager | 02/20/2014 | Water Environmental Services, Clackamas County | 150 Beavercreek Road<br>Oregon City OR 97045<br>(503) 742-4567 |
| 16 | Nina Bell<br>Executive Director | 02/24/2014 | Northwest Environmental Advocates | PO Box 12187<br>Portland OR 97212-018/7<br>(503) 295-0490 |
| 17 | Paul Eckley<br>Gresham Wastewater Services Division Manager | 02/19/2014 | City Of Gresham | 1333 NW Eastman Parkway<br>Gresham OR 97030<br>(503) 618-2219 |
| 18 | Ray Kinney | 01/08/2014 | Private Land Owner | |
| 19 | Ray Sessler<br>President | 02/24/2014 | Oregon Cattlemen's Association | 3415 Commercial St Se, Suite 217<br>Salem OR 97302<br>(503) 361-8941 |

| Commenter Number | Name / Title | Date Received | Representing | Address / Phone |
|---|---|---|---|---|
| 20 | Richard J. Kepler<br>Manager Water Quality/Quantity Program | 02/24/2014 | Oregon Department Of Fish & Wildlife | 4034 Fairview Industrial Drive SE<br>Salem OR 97302<br>(503) 947-6084 |
| 21 | Steve Covey<br>Environmental Services Supervisor | 02/24/2014 | City Of McMinnville | 230 NW Second Street<br>McMinnville OR 97128<br>(503) 434-7413 |
| 22 | Theresa Walch<br>Water Resource Manager | 02/24/2014 | Eugene Public Works Department, City Of Eugene | 99 E Broadway Ave<br>Eugene OR 97401<br>(541) 682-5549 |
| 23 | Wendy Edde<br>Stormwater Program Manager | 02/24/2014 | Bend Oregon | 575 NE 15th Street<br>Bend OR 97701<br>(541) 317-3000 |
| Received After Deadline | | | | |
| 24 | Barry Bushue<br>President | 02/25/2014 | Oregon Farm Bureau | 3415 Commercial St. SE<br>Salem OR 97302<br>(503) 399-1701 |
| 25 | Brian Wegener<br>Advocacy & Communications Manager | 02/25/2014 | Tualatin Riverkeepers | 11675 SW Hazelbrook Road<br>Tualatin OR 97062<br>(503) 486-5850 |
| 26 | Kent P. Connaughton<br>Regional Forester | 02/25/2014 | United States Department Of Agriculture | 1220 SW Third Ave<br>PO Box 3623<br>Portland OR 97208-3623<br>(503) 808-2468 |