



Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality

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Jill Gable

303(d) Listing Program

Office of Water and Watersheds

USEPA Region 10

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Seattle, WA 98101

RE: EPA's Proposed Addition of Segments to Oregon's 2010 Section 303(d) List

Dear Ms. Gable:

The Oregon Department of Environmental Quality (DEQ) has reviewed the Environmental Protection Agency's (EPA) proposed additional listings to Oregon's 2010 Section 303(d) list of water quality limited waters needing Total Maximum Daily Loads, along with supporting information provided at Web site links published by EPA with the March 15, 2012 Federal Register notice.

With this letter, DEQ is providing general comments, a list of EPA's segments that DEQ finds should not be added to the 303(d) list with a brief justification comment (Attachment 1), and a list of EPA's segments that contain errors that should be corrected before being added to Oregon's 303(d) list (Attachment 2).

Overall Comments

DEQ did not conduct an in-depth review or attempt to recreate the data evaluations EPA conducted to support their proposed additions to Oregon's 303(d) list. The information provided by EPA is not complete or transparent enough to allow a rigorous review by DEQ. For example, EPA's list of proposed additions to Oregon's 303(d) list does not provide information about the specific pollutant criteria being applied, the sites in the listing segment where monitoring data were evaluated, or a summary of the data results EPA used to support the conclusion that a 303(d) listing is justified.

Because of this lack of information, DEQ is not able to verify that correct criteria or time periods for monitoring station data have been selected by EPA, or to verify that sampling data have been accurately evaluated using the methodology specified for each pollutant. EPA provided spreadsheets that document the working steps in their data evaluation, but did not provide links or clear summaries relating the details from the data analyses to the proposed listings. Selecting the correct applicable criterion and time period to evaluate pollutants, especially for temperature and dissolved oxygen data, are key first steps for accurate assessment conclusions. DEQ describes below some problems in EPA's data analyses, and notes these errors in the attached lists. To the extent that DEQ identifies additional errors during the 2012 Integrated Report



development, we will document those errors and provide information during the 2012 process or future assessments to remove those segments from Oregon's 303(d) list and assign the correct water quality status to those segments.

Additional Sediment Listings

EPA proposed adding 31 streams to Oregon's 303(d) list because of impairments due to sedimentation. EPA developed an approach to apply Oregon's narrative criteria using numeric benchmarks for typical indicators of sedimentation conditions. EPA used benchmarks drawn from DEQ's statewide assessment of wadeable streams.¹ Their methodology was provided in Enclosure 2 in their March 12, 2012 letter to DEQ.² EPA selected benchmarks based on reference condition data and evaluated stream measurements of sands/fines and Relative Bed Stability (RBS). EPA concluded a stream was impaired for sedimentation if both measurements were greater than the reference benchmarks selected for the ecoregions in Oregon.

DEQ finds that EPA's methodology and proposed listings are reasonable given the lack of a numeric sediment standard. The field data used for the proposed listings are of high quality, and do not appear to lead to errors in determining impaired conditions using EPA's methodology.

While DEQ does not disagree with EPA's conclusions regarding waters placed on the 303(d) list, DEQ notes that it is continuing to work to develop Oregon's approach to assess sedimentation impairments, develop protective levels for stream restoration, and determine TMDL targets throughout the state. DEQ expects this will result in a more robust analysis that may use different measures and benchmarks, and potentially use other modeling components to aid in selecting benchmarks. DEQ's approach may differ significantly from EPA's current approach as a result of discussions and refinements that are currently underway.

Dissolved Oxygen

EPA's listings for dissolved oxygen specify a "season" by giving a calendar date range. It is difficult for DEQ to ascertain if the correct criteria have been applied for the proposed listings, and if EPA's evaluation of site monitoring data has been done correctly. In our interpretation of the proposed listings, EPA seems to use a "season" to indicate that the dissolved oxygen non-spawning cool or cold water criterion was applied to site data, or that the listing was for a "season" when the dissolved oxygen spawning criterion applies. DEQ reviewers have been able in some cases to ascertain that the specific time periods or listing segments in EPA's proposed listings for dissolved oxygen are in error. DEQ notes in the attached spreadsheets several instances when these "seasons" are not accurate for the proposed water body listing, or where some corrections should be made to EPA's listings to insure that they are accurate. Examples are dissolved oxygen listings for the Crooked River, Lenz Creek, and Neal Creek. There are

¹ Hubler, S. 2007. Wadeable Stream Conditions in Oregon (DEQ07-LAB-0081-TR). Oregon Department of Environmental Quality, Laboratory Division Watershed Assessment Section, Hillsboro, OR. ([Hubler 2007](#))

² Letter from Michael A. Bussell, Director, Office of Water and Watersheds, US Environmental Protection Agency Region 10, to Greg Aldrich, Acting Director, Water Quality Program, Oregon Department of Environmental Quality, RE: Partial Approval/Partial Disapproval of Oregon's Final 2010 303(d) List, March 15, 2012.

likely other errors or inconsistencies that DEQ has not been able to identify given the limited supporting data provided by EPA along with the proposed additional listings.

Recommend Not to List Because TMDLS Are Approved

DEQ recommends that EPA not list several assessment segments that EPA identified as impaired. (See Attachment 1 for specific proposed listings.) These segments are covered by recent TMDLs addressing impairments on a large geographic area scale, and were approved by EPA to apply to 4th or 5th field Hydrologic Unit Codes (HUCs). EPA's approvals of these TMDLs stated that further stream listings would not be needed in future 303(d) cycles. The appropriate classification for these water bodies is **Category 4A: Water quality limited, TMDL approved**, and it is not appropriate to add these to Oregon's 2010 303(d) list. In some older TMDLs, implementation of the TMDLs for seasons and areas outside the original listings may be occurring, and EPA should contact DEQ staff directly to discuss the necessity for, or details of, EPA's currently proposed listings. The Bear Creek TMDL in the Middle Rogue approved by EPA in 1992 is one specific TMDL that may already cover several of the proposed new listings. The early Tualatin TMDL for dissolved oxygen approved by EPA in December 1992 is another.

Several recent TMDLs for bacteria (*E. coli* and fecal coliform) were approved by EPA, and restoration and management activities are currently being implemented. In some cases, water bodies on EPA's proposed 303(d) list are in fact currently being monitored to determine the effectiveness of TMDL water quality management plans in the watershed. The appropriate classification for these water bodies is **Category 4A: Water quality limited, TMDL approved**, and it is not appropriate to add these to Oregon's 2010 303(d) list. The TMDLs include:

1. North Coast Subbasins (North Coast) TMDL, EPA approval date 08/20/2003 - Identifies and addresses bacteria (fecal coliform and *e. coli*) to protect shellfish harvesting and water contact recreational uses in the watershed. (Neawanna Creek and Necanicum River locations were monitored for bacteria concentrations as part of TMDL development. Effectiveness monitoring is currently taking place at Foley Creek and Nehalem Bay and River.)
2. Nestucca Bay Watershed (North Coast) TMDL, EPA approval date 5/13/2002 – Identifies and addresses bacteria (fecal coliform and *e. coli*) to protect shellfish harvesting and water contact recreational uses in the watershed. (Implementation occurring in Beaver Creek, Three Rivers, and Upton Slough.)
3. Tillamook Bay Watershed (North Coast) TMDL, EPA approval date 07/31/2001 - Identifies and addresses bacteria (fecal coliform and *e. coli*) to protect shellfish harvesting and water contact recreational uses in the watershed. (Effectiveness monitoring occurring in Bewley Creek, Elk Creek, Hathaway Slough, Squeedunk Slough, and Trib of Mill Creek.)

New Data Showing Attainment

DEQ and the Tillamook Estuary Partnership have been implementing restoration activities in coastal watersheds and are collecting more data that are not currently available in DEQ's

LASAR database, and were likely not available to EPA for their listing review. When DEQ is able to complete a more comprehensive assessment in these watersheds, new data will likely show that conditions are improving and in fact show attainment of water quality standards (Example, E. coli in Squeedunk Slough) and justify a water quality status classification as **Category 2: Attaining**. This information is provided to EPA to further support DEQ's recommendation that TMDLs are already in place for these coastal waters and additional 303(d) listings are not appropriate.

Estuarine Waters

Several Oregon criteria are specifically applicable in estuarine waters. Examples include Oregon's fecal coliform criteria for estuarine shellfish growing waters, the dissolved oxygen criterion for estuarine coastal waters, and Oregon's narrative temperature criteria for oceans and bays.

For its assessment methodology, DEQ developed protocols to identify sites in estuarine waters that rely on specific conductivity or salinity readings and geographic information. In some cases, DEQ acknowledges that water chemistry data and/or geographic information are somewhat ambiguous or conflicting. DEQ's assessment protocols do not accommodate variable conditions or provide definitive identification of the presence or absence of specific beneficial uses protected by the standards. In some cases, local information developed by DEQ basin coordinators may provide a better basis to select applicable criteria.

In DEQ's review of EPA's proposed listings, several potential errors are noted in estuarine waters in the South Coast. While EPA appears to have followed DEQ's methodology to identify estuarine waters and select the correct criteria, DEQ may refine either the identification process or use informed professional judgment on whether specific listing criteria are appropriate for TMDL development or other regulatory decisions. Some examples of these listings are noted in Attachment 2. In future evaluations, DEQ may develop a more rigorous assessment approach to identify where criteria specific for estuarine waters apply and will remove incorrect listings.

Toxic Pollutants - Data errors

During DEQ's review of the toxic data EPA evaluated, DEQ uncovered data errors that justify not listing multiple segments for toxic pollutants.

1. DEQ found a systematic error in DEQ's LASAR Web database for some reported data. Several results from laboratory quality control samples (Matrix Spike and Matrix Spike Duplicates) were erroneously entered into the data system as monitoring station sample results for pesticide data analyzed between 2002 and 2007. The QC samples represent performance control tests for laboratory equipment, and are not representative of the environmental water quality. The DEQ laboratory is working on a solution to remove these QC samples results from the LASAR Web database to avoid erroneous use of the data. DEQ's laboratory can provide more details to EPA on the specific data points that are affected

The use of these erroneous data results by EPA led to inclusion of a number of water segments on the proposed 303(d) additions for pesticides that are not warranted. Actual environmental sample results were non-detect or below the associated criteria. These listings are identified in Attachment 1 and should not be included on the 303(d) list.

2. DEQ notes in Attachment 1 several instances where the data EPA reviewed did not account for data result qualifiers. The data extracted from Portland Harbor Report did not bring forward the "U" qualifier that indicates the analyte was not detected in the sample. These results should be treated as non-detects rather than as "1".
3. DEQ notes in Attachment 1 two instances where samples appear to be for soil rather than water. The resulting listings for benzene and vinyl chloride should be deleted.

Toxic Pollutants – Oregon’s 2010 Assessment Methodology

Although DEQ did not provide new assessments for toxic pollutants with the submitted 2010 Integrated Report, DEQ did provide the assessment methodology that was developed for the 2010 Integrated Report.³ DEQ has several comments about EPA’s proposed additions for toxic pollutants that were developed using Oregon’s assessment methodology.

1. Assignment of Category 5: 303d for toxic pollutants

DEQ developed a protocol for the 2010 assessment to make the assignment of Category 5: 303(d) status for toxic pollutants more consistent with protocols for other pollutants when a robust data set (40 or more data results) is available.

“Category 5: Water Quality Limited, TMDL Needed (303(d) List) Two (2) or more valid results not meeting the most stringent applicable criterion for concentrations of a specific toxic substance in the water column when these samples represent 5% or more of the total valid samples”.

It appears that EPA did not take into account the underlined requirement and did not evaluate whether 2 samples exceedences represented 5% or more of the total valid samples. DEQ was not able to re-evaluate EPA’s data to determine if any proposed listings should be removed, but requests that EPA confirm that all final EPA additions to the 303(d) list for toxic pollutants have site data with exceedences representing at least 5% of the total valid samples.

2. Applicable criteria

DEQ’s assessment methodology calls for the application of the most stringent of the applicable aquatic or human health protection criterion for a toxic pollutant. Applicable criteria vary depending on whether the sampling site is in marine, estuarine, or fresh water. Given the short time frame and the lack of site specific supporting data, DEQ was

³ Methodology for Oregon’s 2010 Water Quality Report and list of Water Quality Limited Waters, Oregon Department of Environmental quality, May 12, 2011, page 50 – 62.

not able to identify and verify that EPA used the correct applicable criterion for site data evaluations.

3. Ammonia

DEQ's assessment methodology specifies protocols to calculate ammonia criteria for freshwater and saltwater, and to make the necessary conversions of the calculated criteria to total ammonia as N which is typically reported by laboratories and in DEQ's LASAR database. The criteria calculations are sample-specific and require data for pH, temperature, and salinity at the time of sample collection. EPA's supporting data for four proposed ammonia listings do not indicate if and how the ammonia criteria were calculated, if necessary pH and temperature data were available, and what criterion was applied to sample results. DEQ is not able to verify EPA's conclusion that ammonia exceedences are supported by sample data, and requests EPA provide information showing that the criteria have been appropriately calculated and data properly evaluated.

4. Arsenic Human Health Criteria

Previous assessments by DEQ for toxic pollutants were done using Oregon's effective toxic pollutant criteria from OAR 340-041 Table 20. Table 20 contains arsenic criteria for undifferentiated arsenic, arsenic (pentavalent), and arsenic (trivalent). Since DEQ developed the 2010 assessment methodology and submitted the 2010 Integrated Report in May 2011, EPA approved revised toxic pollutant criteria for human health. The revised human health criteria are contained in Table 40. EPA reviewed data and applied both Table 20 criteria for aquatic life and Table 40 criteria for human health to evaluate toxic pollutant data and propose additional listings for Oregon's 303(d) list.

Oregon's Table 40 human health criteria for arsenic specify the criteria as total inorganic arsenic. DEQ has not yet developed a protocol for evaluating arsenic data using Table 40 criteria. Most available data for Oregon streams in DEQ's LASAR database and other databases such as STORET are for undifferentiated arsenic, and are not specific in the valence state of the arsenic. Comparing Table 40 criteria only to data for total inorganic arsenic results would be the ideal approach. However, it appears that EPA did not have inorganic arsenic data results to evaluate.

The percent of total inorganic arsenic in a surface water sample compared to total undifferentiated arsenic can vary. DEQ does not have data for Oregon, but data for 40 sites in Idaho show inorganic arsenic concentrations vary from 25 to 100 percent of the total detectable arsenic and average around 74%. Applying the Table 40 inorganic arsenic criteria to total arsenic data may lead to overly conservative conclusions, especially when the detected concentrations are close to the 2.1 ug/L human health criterion. For example, total arsenic data reviewed by EPA for Mill Creek, Beaverton Creek, and Bear Creek have results near or below 4 ug/L. Since Oregon's revised human health criteria for inorganic arsenic were only recently approved by EPA, DEQ

has not developed an approach for evaluating arsenic data for 303(d) listing purposes. When data are insufficient but indicate a potential concern, DEQ uses Category 3(b) Potential Concern rather than Category 5. An example is the 1998 assessment of arsenic data from Beaverton Creek that resulted in a Potential Concern status. This category, rather than Category 5, would be more appropriate where available data are close to the criterion, and no inorganic arsenic data are available. DEQ has not developed the final approach it will use for future assessment and listing purposes. DEQ will revise its methodology to reflect that the revised arsenic criteria are expressed as inorganic, and will be considering the factors described here.

EPA's Final Additions to Oregon's 303(d) List

If EPA has any questions or needs additional information about the comments provided in this letter or the attachments, please feel free to contact Karla Urbanowicz, Water Quality Assessment Coordinator, at 503-229-6099 or urbanowicz.karla@deq.state.or.us . Any clarifications or communication we can provide to insure that EPA's final additions are as accurate and correct as possible will facilitate producing a high quality 303(d) list for Oregon.

Sincerely,



Jennifer Wigal
Manager, Standards and Assessment Section
WQ Division, DEQ

Attachment 1 OR DEQ Comments – Segments not to add to 303(d) list (EXCEL)

Attachment 2 OR DEQ Comments – Segments with errors (EXCEL)

Cc: Gregory K. Aldrich, Division Administrator, WQ Division, DEQ
Karla Urbanowicz, Water Quality Assessment Coordinator, WQ Division, DEQ
Eugene P. Foster, Manager, Watershed Management Section, WQ Division, DEQ

