

# **Response to Comments on Oregon's Draft 2004/2006 Integrated Report**



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## Introduction

Oregon Department of Environmental Quality (DEQ) is required by the federal Clean Water Act (CWA) to assess Oregon's water quality and report to the Environmental Protection Agency (EPA) every two years. 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 completed the narrative portion of the Integrated Report in July 2004 with the report titled **Oregon's 2004 Water Quality Assessment Section 305(b) Report** available at <http://www.deq.state.or.us/wq/305bRpt/ORWQ305bRpt2004.pdf>

DEQ began the data assessment process by preparing a Draft Assessment Methodology and issuing a public call for data to be submitted between April 1 - May 16, 2003. The Assessment Methodology contains the "decision rules" that DEQ used to assess water quality. The call for data included the minimum quality assurance and quality control (QA/QC) requirements for data submittal. DEQ evaluated the available water quality data for Oregon's waters using the decision rules and assigned a status from these categories:

- Category 1: All designated uses are met.
- Category 2: Some of the designated uses are met but there is insufficient data to determine if remaining designated uses are met. (Attaining)
- Category 3: Insufficient data to determine whether any designated uses are met.
  - 3B: Insufficient data but some data indicate non-attainment of a criterion and a potential concern.
- Category 4: Water is impaired or threatened but a TMDL is not needed. This includes:
  - 4A: All TMDLs needed to result in attainment of all applicable water quality standards have been approved. (TMDL approved)
  - 4B: Other pollution control requirements are expected to address all pollutants and will attain water quality standards.
  - 4C: Impairment is not caused by a pollutant (e.g., flow or lack of flow is not considered a pollutant).
- Category 5: Water is impaired or threatened and a TMDL is needed. This category constitutes the Section 303(d) list that EPA will approve or disapprove under the Clean Water Act.

The combination of water bodies in Categories 4 and 5 constitute the water quality limited waters under OAR 340-041-0046. The information from the draft assessment was posted as the Draft 2004 Integrated Report database and was available for public review. The public review and comment period on the water quality limited list was initially open from September 9, 2005 to October 24, 2005, and was extended until November 7, 2005, 5:00 PM.

After the public comment period closed, DEQ reviewed comments, made changes to the list of water quality limited waters, and prepared a final 2004/2006 Integrated Report. A summary of public comments and DEQ response to comments is provided on the following pages. DEQ will submit the final Section 303(d) list of Category 5: Water quality limited waters needing a TMDL to EPA for approval. Along with the Section 303(d) list, DEQ will also submit the final 2004/2006 Integrated Report, response to comments, the Assessment Methodology for Oregon's 2004 Integrated Report on Water Quality Status, and a prioritization and TMDL schedule to EPA. The final 2004/2006 Integrated Report and supporting documents will be available at <http://www.deq.state.or.us/wq/303dlist/303dpage.htm>

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

- General comments
- Corrections and updates
- Comments on policy issues
- Comments on Oregon's Assessment Methodology
- Comments on specific records in the 2004/2006 Integrated Report database

## General Response

### 1. 2004/2006 Integrated Report

*Commenters (24) suggested that the Notice of Extension of Comment Period referencing this report as the 2004/2006 was contrary to the original notice of the draft 2004/2006 Integrated Report. Commenter stated this was impermissible and did not provide opportunity for the public to submit any supporting data on a proposed 2006 list.*

DEQ began a cycle of assessment for reporting under Clean Water Act (CWA) Section 305(b) and Section 303(d) in early 2003. The intent was to complete the next report by April, 2004 to meet the biennial reporting requirements of the CWA. DEQ's assessment began with the preparation of a draft Assessment and Listing Methodology for the 2004 303(d) List and a public call for data from April 1 to May 16, 2003. DEQ completed a narrative report titled **Oregon's 2004 Water Quality Assessment Section 305(b) Report** in July 2004. Since the call for data in 2003, DEQ has worked to evaluate data and prepare a statewide assessment. Data available in the DEQ's Laboratory Analytical Storage and Retrieval database for a 10 year time period from 1/1/1994 to 12/31/2003 was retrieved. DEQ developed a computer program that was able to evaluate over 500,000 analytical data records for almost 7,500 monitoring sites across the state and approximately 200,000 days of continuous temperature monitoring data with over 20 million temperature readings. During the process of evaluating data, the state standards for temperature and dissolved oxygen for Oregon's waters were revised and designated fish uses were refined in December 2003. DEQ needed to modify the assessment strategies and protocols to incorporate the changes to the water quality standards and refinements to designated fish uses.

Given the challenges of the assessment and the limited staff resources to conduct the assessment, the intended 2004 target date for completing the Integrated Report evaluation of data was not met. The draft 2004 Integrated Report and list of water quality limited waters were presented for public comment for 45 days from September 9, 2005 to

October 24, 2005. In response to requests from the public, the comment period was extended until November 7, 2005. Prior to extending the public comment period, DEQ evaluated the schedule and status of the ongoing water quality assessment process. DEQ concluded that a more comprehensive planning process to address the intended use of the Integrated Report and revise assessment protocols prior to beginning the next water quality assessment cycle was warranted. Given DEQ's resources, it would not be possible to issue another call for data and complete another data assessment by the next CWA target date of April 2006. The extension of the public comment period noted that the draft Integrated Report was proposed to be a 2004/2006 Integrated Report representing the time frame for which DEQ will submit the report to EPA.

DEQ will begin planning for the next cycle of water quality assessment as soon as the 2004/2006 Integrated Report is completed and approved by EPA. DEQ intends to review the assessment strategy for the standards and criteria that are applied and issue a call for data for the next assessment. The assessment of data will likely continue DEQ's strategy of evaluating a 10 year record of data prior to updating the 303(d) lists. This will provide the public and third parties the opportunity to provide additional data for the next assessment cycle.

## **2. Water Quality Standards**

*Commenters (A, 18, 21, 23, 25, 26, and 28) provided comments on Oregon's water quality standards, beneficial uses, and numeric criteria and rule and standard revisions processes including use attainability analyses.*

In preparing the 2004/2006 Integrated Report, DEQ applied Oregon's existing water quality standards including the criteria and designated beneficial uses contained in OAR 340-041 to assess water quality throughout the state. The water quality standards and current designated uses were not revised or open for review or comment as part of the 2004/2006 Integrated Report process. The review and modification of water quality standards and designated uses are conducted in a periodic Triennial Review of standards. The schedule and the water quality standards currently under review are available at <http://www.deq.state.or.us/wq/standards/wqstdshome.htm> . For the 2004/2006 Integrated Report, water bodies were evaluated using the current standards adopted in rule and approved by EPA. The fish beneficial uses in Oregon's 2003 rule revisions provide explicit designations in locating where and when various kinds of protected salmonid use exist that are applied for the 2004/2006 Integrated Report. Assessment conclusions may differ from prior assessments, especially with regard to water bodies that were assumed to provide salmon and steelhead spawning habitat during certain seasons. For the 2004/2006 Integrated Report, water bodies were evaluated using the fish use designations adopted in Oregon standards in 2003 and approved by EPA.

## **Corrections/Updates**

Several comments pointed to systematic errors in the data evaluation or assignment of status for the 2004/2006 Integrated Report. These errors were corrected for all the effected records. The following corrections were made to the final 2004/2006 Integrated Report:

### **1. Chlorophyll a in Fall/Winter/Spring**

All site data for chlorophyll a for the Fall/Winter/Spring season were re-evaluated to be consistent with the Assessment Methodology for Oregon's 2004 Integrated Report on Water Quality Status and to correct status assignments in the draft Integrated Report. For each site, an average value for a Fall/Winter/Spring time period (October 1 through May 31) was calculated by counting the number of samples within three consecutive months. The Assessment Methodology specifies that data from at least 3 samples in a 90 day time period is required to assign a status of Category 5: Water quality limited, 303(d) list, TMDL needed, or Category 2: Attaining. After the data were re-evaluated, 60 sites previously assessed as exceeding or attaining the criterion were found to have insufficient data with less than the necessary 3 samples in three consecutive months. Stream segments containing these sites were reviewed and assigned a status based on the corrected site status. After reviewing site data, forty one (41) segments from the Draft 2004/2006 Integrated Report were re-assigned a status of Category 3: Insufficient data. The summary of data in the supporting data field for each segment was corrected to reflect updated site evaluations. The supporting data field lists each monitoring site in the segment and summarizes the data by giving the date range for the 90 day time period with the maximum average chlorophyll a value, the number of samples in that date range, the number of months in that date range with sample data, and the average value for that time period. Where segments had been assigned a status in previous assessments in 1998 or 2002, but data available in 2004 did not meet data requirements, the prior assigned status is carried forward for 2004.

### **2. Dissolved oxygen for estuaries**

Dissolved oxygen data were evaluated for estuaries using the estuarine site criterion (not less than 6.5 mg/L). In the Draft 2004/2006 Integrated Report, the supporting data summary mislabeled monitoring stations, but presented correct locations and site status and correctly assigned a segment status category based on the evaluation of data. For the final 2004/2006 Integrated Report, the supporting data field has been updated to correctly label monitoring stations. Forty two (42) records were updated.

### **3. Duplicate records**

Oregon's 2004/2006 Integrated Report database is organized by assigning a unique record identification to a water body segment that is specific for assessing a pollutant parameter and criteria, season, and location. The Draft Integrated Report inadvertently created new record identifications that duplicated segment locations, parameter, and seasons from prior assessment cycles. These new records were eliminated and the information from the 2004 assessment was associated with the record ID from the prior assessment year for approximately 400 records.

### **4. Walla Walla River Subbasin TMDL**

On September 29, 2005, EPA approved the TMDLs developed in the Walla Walla Subbasin Stream Temperature Total Maximum Daily Load and Water Quality Management Plan. Four water bodies are de-listed in the final 2004/2006 Integrated Report and assigned Category 4A: Water quality limited, TMDL approved. These are:

Mill Creek (Record ID 5263), North Fork Walla Walla River (Record ID 12592), South Fork Walla Walla River (Record ID 5080), and Walla Walla River (Record ID 5078).

## Policy Issues for the 2004/2006 Integrated Report

### 1. De-listing streams found to be impaired by flow alteration, habitat modification

*Commenter (4) expressed concerns that de-listings for flow alteration “demoted” streams to a less important category which severely compromises efforts by watershed councils and others to restore in-stream flow. Commenter (4) expressed specific concerns about flow alteration impacts on the Marys River. Commenter (25) suggested DEQ not use Category 4C where the impairment is not caused by a pollutant, but continue to list these waters in Category 5: Water quality limited, 303(d) list, TMDL needed.*

In finalizing Oregon’s 2002 303(d) list of impaired waters, DEQ followed direction from EPA regarding prior listings for flow alteration, habitat modification, and biological criteria impairments. EPA found that, although effects were considered evidence of pollution in a water body, they were not pollutants as defined under the federal Clean Water Act. EPA indicated to DEQ that it would not take action to approve TMDLs for streams that had been listed for impairments that were not pollutants. EPA recommended placing waters in Category 4: Water quality limited but a TMDL is not needed when the impairment is not caused by a pollutant rather than listing waters in Category 5: Water quality limited, 303(d) list, TMDL needed. In 2002, DEQ de-listed 56 segments that had been previously listed for flow modification, 207 segments previously listed for habitat modification, and 10 segments that had been previously listed for biological criteria. These segments were de-listed and assigned a status of “Water Quality Limited Not Needing a TMDL”, equivalent to Category 4. These de-listings were approved by EPA in 2003. With the 2004/2006 Integrated Report, DEQ will de-list and assign Category Cat4C: Water quality limited, not a pollutant to two more water bodies (Record IDs 4106 and 3301) for biocriteria impairment that are addressed by TMDLs that have been approved by EPA for the pollutants temperature and sediment.

It should be noted by all users of this assessment information that these waters are still categorized as water quality limited and impaired. Although de-listed from the federal Section 303(d) list of as Category 5: Water quality limited, TMDL needed, these waters are still considered water quality limited. DEQ does not consider Category 4 to be a less important category. The combination of water bodies in Categories 4 and 5 constitute the water quality limited list under OAR 340-041-0046. Any management decisions, including review of applications for water withdrawals, should consider the potential effect the decision will have on all impaired waters.

Even though flow modification is not a pollutant, it is one factor that contributes to impairments from pollutants such as temperature, dissolved oxygen, and pH. Where these pollutants exceed standards, the water body is listed as Category 5: Water quality limited, 303(d) list, TMDL needed. Although a TMDL for temperature does not explicitly allocate stream flows, it does consider that the temperature standard includes stream flow within its definition of natural thermal potential. Natural flows are incorporated into natural thermal potential stream temperature simulations by removing

all human-caused flow modifications (dams, withdrawals, and point sources). The natural thermal potential often becomes the basis for thermal load allocations. For instance, when a stream's natural thermal potential exceeds the numeric criteria, the natural thermal potential supersedes and becomes the new criteria. Therefore, flow modifications are accounted for when determining temperature TMDLs. A similar analysis is often incorporated into TMDLs for dissolved oxygen and pH.

DEQ notes that the Marys River is listed as Category 5: Water quality limited, 303(d) list, TMDL needed for dissolved oxygen and temperature. The TMDLs for these parameters and management plans for this watershed should consider the response of these pollutant parameters to flow alterations. In reviewing a Division 33 water right application, DEQ would likely recommend denying such an application in these waters.

## **2. Use of fish consumption advisories and beach closures as basis for evaluating water quality impairments**

*Several commenters (7, 12, 15, 16, 17, 25) expressed concern that DEQ was not using information about fish consumption advisories or beach closures from the Oregon Department of Health Services (ODHS) to update the 2004/2006 Integrated Report and list water bodies as Category 5: Water quality limited, 303(d) list, TMDL needed.*

In prior listing cycles (1998 and 2002), DEQ used fish consumption advisories issued by ODHS as the basis for placing water bodies on the 303(d) list. Several Oregon streams were listed for specific pollutant parameters using fish advisory information. These included listings for mercury in the rivers and reservoirs in the Coast Fork Willamette watershed; the Owyhee, Snake, and Willamette Rivers; and reservoirs in the North and South Umpqua watersheds. The Columbia and Willamette Rivers were also listed on the basis of ODHS fish consumption advisories for DDT, PCBs, aldrin, and dieldrin. These listings are maintained in the 2004/2006 Integrated Report and Section 303(d) list. ODHS fish consumption advisories issued in 2003 and 2004 addressed streams and reservoirs that are already listed and which will be maintained as listed for the 2004/2006 Integrated Report and Section 303(d) list. The supporting data field cites the information that was used for the original listing in 1998 or 2002.

For evaluating water quality data, the water quality criteria in OAR 340-041-0033 Table 20 establish levels of toxic substance that may not be exceeded in the water column for the protection of human health based on fish consumption only or water and fish ingestion. These criteria are based in part on bioconcentration factors from the water column to fish. However, Oregon does not have numeric standards for concentrations of toxic substances measured directly in fish tissue. The assessment for the 2004/2006 Integrated Report evaluated water column data and compared data to numeric standards. DEQ applied a conservative approach and always applied the most stringent criteria whenever it was available and compared water column data to these criteria. In addition to listing based on fish consumption advisories from prior years, some additional water body segments have been assigned to Category 5: Water quality limited, 303(d) list, TMDL needed if the water column data were also found to exceed Table 20 criteria. For instance, the Coast Fork of the Willamette River was initially listed in 1998 for mercury from 0 to 31.3 miles based on fish consumption advisories. This listing is maintained and



another segment from 31.3 to 38.8 miles is added on the basis of Table 20 criteria being exceeded in the water column.

DEQ did not review beach advisory information as a basis for listing water bodies. Beach advisories are based on a single sample result and are not the same as a finding that a standard, based on an average of data over time, are exceeded. DEQ did compare available e. coli data for freshwater and fecal coliform data for marine waters to the applicable Oregon bacteria standard. These standards were developed to protect water contact recreation as well as shellfish harvesting as the beneficial use. EPA promulgated new federal criteria in November 2004 to protect water contact recreational use in marine coastal waters using a measure of enterococci. However, these criteria were promulgated too late in the water quality assessment process to be incorporated into the review of data for the 2004/2006 Integrated Report. Since 2004, the ODHS Oregon Beach Monitoring Program has been routinely testing Oregon marine beaches for enterococci and issuing beach advisories when a single test exceeds the federal criterion. DEQ did not develop a protocol in time for the 2004/2006 Integrated Report to review beach advisories or data on enterococci in Oregon's marine coastal waters.

### **3. Updating assessment using 2003 temperature criteria and designated fish uses**

*Commenters (10, 20) asked whether previous 303(d) listings for temperature were carried over if data were not available to evaluate new fish designated uses and temperature criteria. Commenters (10, 20) suggested re-evaluating original listings based on new criteria or designated uses, and not carrying forward listings if no data were evaluated. Another commenter (25) agreed with DEQ's protocol that a lack of data should not lead to de-listing.*

DEQ evaluated all temperature data that were submitted in response to the call for data and available in the LASAR database at the time of the evaluation, and applied new temperature criteria and refined designated uses. Temperature data available for a 10 year period (1/1/1994 to 12/31/2003) were evaluated. This time period overlapped part of the 10 year period reviewed for prior assessments in 1998 and 2002, and if data were available in the LASAR database, all data were evaluated using the new temperature standards adopted in 2003. If data on a previously listed water body showed that the new criteria were met, the water body was de-listed in 2004. If no data were available on a previously listed segment to evaluate against current criteria, the water body remains on the 303(d) list. If refinements were made in locating where and when various kinds of protected salmonid use exist on a water body so that salmon and steelhead spawning is not a designated use during a particular time, a previous segment listing based on a spawning time period and/or criterion was de-listed, and available data were evaluated using the applicable criterion for the currently designated salmonid use.

*Commenter (28) found the reasons for de-listings difficult to discern and expressed concern about de-listing based on a change in criteria or use.*

The 2004/2006 Integrated Report was prepared using the current standards approved by EPA for Clean Water Act purposes, including numeric criteria and designated fish uses revised most recently in 2003. Assessments done prior to these revisions may have applied numeric criteria for temperature or dissolved oxygen based on assumptions about

fish beneficial uses or salmon and steelhead spawning use and time periods. The standards adopted in 2003 explicitly identify where and when protected salmonid uses exist. Water quality information was evaluated by applying the correct criteria and designated uses for portions or entire water bodies during specific time periods. Where refinements were made for salmon and steelhead spawning use and data are available for review, prior listing records are de-listed and available data are evaluated using the current criteria, time period, and segment location for protected salmonid use. The conclusion for that evaluation is associated with a new record, a new status is assigned, and supporting data is presented with the new record for the 2004/2006 Integrated Report. If no salmon or steelhead spawning exists, available data are evaluated only against the non-spawning temperature criteria. To determine how a water body status may have changed, a reviewer should look not only at de-listings but at all the records for that parameter, i.e. temperature or dissolved oxygen, for that water body.

For example, the Willamette River is currently designated as supporting salmon and trout rearing and migration from River Mile 50.6 to River Mile 186.5, with salmon and steelhead spawning occurring in the segment from River Mile 54.8 to River Mile 186.5 from October 15 to May 15. Assessments from prior years for dissolved oxygen listed three segments (River Mile 54.8 to 108, 108 to 119.7, and 119.7 to 148.8) for spawning in the time period from October 1 - May 31. These prior listings are de-listed in order to update the assessment by evaluating available data using the explicit segment and time period designations. Data are evaluated using the dissolved oxygen spawning criterion for monitoring sites in the segment from 54.8 to 186.5 for the time period October 15 - May 15. Data show the criterion is not met and this segment is assigned Category 5: Water quality limited, 303(d) list, TMDL needed.

*Commenter (28) asked whether proposed de-listings would allow new or increased discharges into streams that are removed from the 303(d) list.*

De-listing a water body does not directly determine whether new or increased discharges will be allowed but the basis for the de-listing may. DEQ de-lists water bodies from Category 5: Water quality limited, 303(d) list, TMDL needed when a TMDL is no longer needed. Water bodies may be de-listed if a TMDL is developed. The TMDL includes wasteload allocations that may or may not allow new or increased discharges into streams. Water bodies that are de-listed on the basis of criteria changes or use clarifications are evaluated using the current applicable criteria and may remain in Category 5 for the same pollutant (temperature, dissolved oxygen) if those standards are not met. This requires developing TMDL and wasteload allocations for those waters that will determine whether or not new or increased discharges will be allowed.

*Commenters (A., 28) asked whether an anti-degradation review is prepared for streams that are de-listed.*

An anti-degradation review is not done as part of the water quality assessment process.

#### **4. Category 4B**

*Commenter (19) suggests that Category 4B should not be assigned to a water body unless appropriate control measures have been developed and applied to all significant contributors to the water quality problem.*

DEQ assigns the status of Category 4B: Water quality limited, other control measures to a water body only when the pollutant sources and relative contributions have been identified and evaluated, appropriate control measures have been identified, and with assurance that these measures will be implemented. Several water bodies were assigned Category 4 B status in the Draft 2004/2006 Integrated Report on the basis of Section 401 certification conditions associated with a Federal Energy Regulatory Commission (FERC) license. A detailed analysis of the adequacy of these conditions to address and manage all sources of pollutants is being done in the North Umpqua watershed as part of the TMDL process for temperature and dissolved oxygen since it is not clear that all sources will be controlled by the certification conditions. DEQ will defer de-listing these water bodies until the TMDL analysis of sources and controls is completed. Other pollutants, such as Total Dissolved Gas and pH which have exceedences associated solely with the hydroelectric operations regulated through the 401 conditions and FERC license, will be de-listed as Category 4B on the basis of the hydroelectric license conditions providing adequate control measures.

*Commenter (23) asked how Category 4B can be used to include pollution control plans when developing a TMDL.*

To date, DEQ has not assigned Category 4B or de-listed streams on the basis of a pollution control plan developed in lieu of or to satisfy a TMDL water quality management plan. When a TMDL is developed, all sources of pollution are considered and load allocations developed. The TMDL considers existing control measures including pollution control plans when determining what control measures are necessary to restore the water body. Control measures and plans need to provide an assessment showing what actions are needed and provide reasonable assurance that these actions will be implemented. DEQ will de-list water bodies after the TMDL is developed and approved. The water body is de-listed and assigned Category 4: Water quality limited, TMDL approved.

#### **5. Assessment for streams without sufficient data**

*Commenters (21) asked if DEQ had set a timeline to obtain sufficient data to assess water bodies where current data are insufficient to meet data requirements. Commenter (A) suggested waters assigned to Category 3: Insufficient data should trigger monitoring requirements.*

DEQ currently focuses monitoring resources to follow-up in Category 5 water bodies where additional information is needed to develop TMDLs according to the prioritized schedule. A summary of DEQ's current funding and monitoring priorities is available in Oregon's Water Quality Monitoring Strategy at <http://www.deq.state.or.us/lab/wqm/WaterMonitoringStrategy-Final.pdf>.

## **6. Available Data**

*Commenter (25) suggested DEQ did not use all available data.*

To prepare the 2004/2006 Integrated Report, DEQ evaluated data that were available in the DEQ laboratory analytical storage and retrieval database (LASAR) as well as data that were submitted from third parties during the call for data (April 1 to May 16, 2003). Data in LASAR is of known quality and only data meeting the QA/QC requirements for Level A or Level B, discussed in the Assessment Methodology, were used for the 2004/2006 Integrated Report. A set of data was retrieved from the LASAR database and downloaded to a program that performed the data evaluation according to the Assessment Methodology. The data set included close to 500,000 data records that were available in LASAR at the time of the data retrieval and the program evaluated more than 20 million continuous temperature readings available in LASAR.

## **7. Application of Narrative Standards**

*Commenter (25, 26) suggests DEQ did not apply water quality standards including narrative criteria, designated use support, and the antidegradation policy. Commenter (26) asked specifically about the availability of numeric criteria to evaluate biocriteria.* Oregon's standards for pollutants contain both narrative and numeric criteria. The general narrative criteria are applied by assessing specific pollutants using numeric criteria for that pollutant parameter. For example, the broad narrative criteria prohibiting toxic substances in harmful concentrations in the environment are assessed by evaluating specific toxic substances using the associated numeric criteria. For the 2004/2006 Water Quality Assessment, DEQ applied all the numeric criteria for pollutants adopted in OAR 340-041 to quantitatively evaluate water quality monitoring data retrieved from the LASAR database. DEQ did not assign an assessment status (Category 1 through Category 5) in 2004/2006 for "exceedences" of narrative criteria when narrative criteria are not associated with approved numeric criteria. The Assessment Methodology contains the decision rules that indicate how analytical data were evaluated for each pollutant parameter including toxic substances. Numeric criteria were used similarly in 1998 and 2002 assessments to evaluate analytical data.

For the 1998 assessment cycle, DEQ did review some information on aquatic weeds or algae, biological conditions, and sedimentation and assigned water bodies to the 303(d) list using best professional judgment in the absence of explicit and approved pollutant numeric criteria. Those protocols are included as explanation in the Assessment Methodology. In response to the call for data in 2003 instances, third parties submitted some information with a request to de-list water bodies for sediment. DEQ reviewed this information using best professional judgment in the absence of explicit numeric criteria. DEQ will continue to develop methods and metrics to apply the narrative criteria. DEQ is planning to review and update the Assessment Methodology for the next assessment cycle. This process will provide a forum to discuss how narrative criteria can be applied for assessment purposes.

DEQ uses an independent applicability approach to evaluate water quality standards. Each part of the water quality standard is evaluated independently. If the numeric criteria for any pollutant are exceeded, that exceedence supports a determination that the water

body is impaired and the beneficial uses protected by that numeric standard are impaired. Similarly, if the numeric criteria for a pollutant are not exceeded, the water body is determined to support the beneficial uses that standard protects. A discussion of the general status of beneficial use support is provided in **Oregon's 2004 Water Quality Assessment Section 305(b) Report** (available at <http://www.deq.state.or.us/wq/305bRpt/ORWQ305bRpt2004.pdf>) along with a summary of information about stream condition indicators for selected parameters related to general narrative criteria, such as biological conditions for macroinvertebrates, fish and amphibian communities, and sediment levels.

## Comments on Assessment Methodology

The draft [Assessment Methodology for Oregon's 2004 Integrated Report on Water Quality Status](#) (Assessment Methodology) was open for public comment during the call for data in April and May 2003. DEQ revised and finalized the Assessment Methodology prior to beginning the evaluation of data. The Assessment Methodology was posted and available for information during the public comment period on the Draft 2004/2006 Integrated Report (September 9, 2005 to November 7, 2005). This information was provided to inform the public on how DEQ reviewed information and what decision rules were used to determine which water bodies are water quality limited or impaired. DEQ was not taking comments on the methodology during the 2005 public comment period.

Many comments received during the 2005 public comment period pertain to the Assessment Methodology. DEQ presents a brief summary of these comments here, and provides clarification if necessary to explain the decision rules for the assignment of water quality status in the 2004/2006 Integrated Report. DEQ did not change the protocols presented in the Assessment Methodology based on these comments, but did make clarifications where needed.

### 1. Data evaluation and data requirements

*One commenter (3) said DEQ used information summarized in [Oregon's 2004 Water Quality Assessment Section 305\(b\) Report \(July 2004\)](#) from the Oregon Water Quality Index (OWQI) to assign a category status for 303(d) reporting. Another commenter (26) suggested DEQ should use this information for 303(d) listing purposes.*

DEQ has not yet developed protocols to determine an assessment status or assign a Category 5 status to waters that are reported as “fair to very poor” based on comparison to the benchmarks in the OWQI. The OWQI was not used to assign status categories to water bodies in the 2004/2006 Integrated Report. DEQ uses an independent applicability approach to evaluate water quality standards and evaluates each pollutant parameter independently. If the numeric criteria for a pollutant are exceeded, that exceedence supports a determination that the water body is impaired by that pollutant and the designated uses protected by that numeric standard are impaired. Similarly, if the numeric criteria for a pollutant are not exceeded, the water body is determined to, in part, support the designated uses that standard protects. This approach was used in 1998, 2002, and 2004 to evaluate data. The data requirements for assigning water bodies to

Category 2: Attaining and Category 5: Water quality limited, 303(d) list, TMDL needed for each pollutant are provided in the Assessment Methodology.

*Commenters (3, 10, 11, 13) discussed the inherent uncertainty associated with taking grab samples to characterize water bodies and the statistical validity of methods used to analyze data sets of various sizes. Another commenter (24) suggested requiring a minimum set of data points per site on separate days was too restrictive and rigid a protocol.*

The Assessment Methodology lists the specific data requirements for each standard assessed in the 2004/2006 Integrated Report, and the requirements for assigning a Category 5 or Category 2 status. DEQ generally uses available data and applies a 10% rule with a minimum data set of five samples per site for most parameters unless the water quality standard specifically requires something different such as measurement of an instantaneous concentration or average over a specific time period (temperature). Evaluating most parameters for a summer and a fall/winter/spring season attempts to account for variations that may occur seasonally. A site is considered water quality limited if greater than 10% of the samples exceed the appropriate criterion. These requirements were developed based on EPA guidance recommending a simple “rule of thumb” for evaluating data sets of limited size and is intended to account for data sets that may not be fully representative of water conditions.<sup>1</sup> This approach is consistent with that used for Oregon’s 1998 and 2002 review of data for the 303(d) lists in those years.<sup>2, 3</sup> DEQ has not yet developed a statistical protocol for 303(d) assessment and reporting to account for data sets of various sizes, seasonal differences, different types of pollutants, or to assess trends in water quality over multiple years. It may be appropriate for future listing cycles to develop a more rigorous statistical protocol to evaluate large sets of data or to determine when to integrate data from multiple sampling sites that may be geographically related in order to assess a water body. Large sample sets are generally not available for toxic substance data where sample collection and analysis is infrequent and small sample sets of less than 5 are more common. For the 2004/2006 Integrated Report, DEQ has used a conservative approach to evaluate toxic substance data by listing water bodies on the basis of two samples at any monitoring site on a water body exceeding the criteria, but has not pooled data from multiple monitoring sites within a water body or segment of a water body.

*Commenters (11, 19) suggested using two data points to classify a water body impaired for toxics is not consistent with EPA guidance or statistically valid and that grab sample results do not represent 24 or 4 day averaging periods, and that exceptions should be allowed for infrequent exceedences. Other commenters (25) suggested requiring two samples for listing was overly stringent given the expense of sample analyses.*

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<sup>1</sup> Consolidated Assessment and Listing Methodology (CALM), EPA, DRAFT April 20, 2001.

<sup>2</sup> Consolidated Assessment and Listing Methodology for Oregon’s 2002 303(d) List of Water Quality Limited Water bodies and Integrated 305(b) Report, (January 2003)

<http://www.deq.state.or.us/wq/303dlist/Final2002AssessmentAndListingMethodolgy.pdf>

<sup>3</sup> Oregon Department of Environmental Quality's Listing Criteria for the 1998 303(d) list.

EPA guidance recommends an assessment protocol that is consistent with a State's water quality standards. DEQ provides the decision rules used to evaluate toxic substance data in the Assessment Methodology. The decision rules apply Oregon's numeric water quality criteria for toxic substances. Oregon's toxic substance acute criteria specify a limit not be exceeded in the average concentration for one (1) hour. The chronic criteria specify a limit not be exceeded in the average concentration for 96 hours (4 days). The standards specify these criteria are not to be exceeded more than once every three (3) years. The protocol to list a water body for toxic substances when two samples exceed numeric criteria is based on a practical approach to evaluating data sets that are often very limited for toxic substances. Water quality monitoring is almost never done on a frequency sufficient to determine an average over the specified 1 and 96 hour time periods, and rarely is sufficient to determine the frequency of excursions over a 3 year duration. Data sets for toxics substances often have fewer than 5 samples collected at a monitoring site and may be during only one year of monitoring. Therefore, DEQ has used a simple and conservative approach to evaluate available data from small data sets to detect excursions of Oregon's toxic substance water quality criteria. Single samples are used to represent one or 96 hour averages. The decision rules assign a water body segment to Category 5 on the basis of two samples at a single monitoring site exceeding the standard. One exceedence at each of five monitoring sites in one segment is insufficient to assign a Category 5 status to the segment, but one exceedence is flagged as a potential concern (Category 3B: Potential Concern). A conservative approach is also used to say that the water body attains the standard by requiring at least 5 valid samples at a monitoring site below the applicable criteria for assignment to Category 2: Attaining.

DEQ anticipates that more data will be collected and available to characterize levels of toxic substances in water bodies, particularly in conjunction with implementing the agency Toxics Directive <http://www.deq.state.or.us/wq/wqfact/ToxicsRPAIMDFactSheet.pdf> for the issuance or renewal of National Pollutant Discharge Elimination System (NPDES) permits. DEQ plans to review and update the protocols and data requirements prior to the next assessment cycle. Statistical procedures used by DEQ to set permit effluent limits for toxic pollutants may provide a different approach to identify water bodies that are water quality limited for toxic substances where human health criteria are applied.<sup>4</sup> Protocols for applying the toxic substance human health criteria for water quality assessment purposes will be reviewed and updated as warranted.

*Commenters (10, 11) suggested that data collected by the USGS using Semipermeable Membrane Devices (SPMDs) were not appropriate to evaluate in the Integrated Report water quality assessment.*

DEQ evaluated data for the 2002 Integrated Report that was collected by USGS using SPMDs. DEQ found as part of the 2002 report that the data met the data quality requirements for assessment purposes and made determinations based on that data. DEQ

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<sup>4</sup> Reasonable Potential Analysis for Toxic Pollutants, DEQ Internal Management Directive, September 2005, <http://www.deq.state.or.us/wq/wqPolicy/WOIMDRPA.pdf>

will not now discount high quality data that has already been reviewed and found to be acceptable that were used for the 2002 assessment which has been approved by EPA.

*Commenter (11) commented the age criterion for data was not clear.*

The Assessment Methodology specifies the time period for data that was reviewed for this assessment as available data collected since 1993. The date range for data retrieved from the LASAR database was from 1/1/1994 to 12/31/2003.

*Commenter (21) suggested DEQ was incorrectly de-listing water bodies when there was not enough information to indicate whether the waterbody is water quality limited.*

DEQ did not de-list water bodies if the data evaluated for 2004 were insufficient to assign a status. A status of “Attaining” or “303(d)” from a prior assessment year was carried forward if a water body segment had insufficient data in the 2004 evaluation.

*Commenter (25) suggested requirements for geographic information and QA/QC were not clear.*

Geographic information and QA/QC requirements were specified in the Assessment Methodology and in the call for data issued in 2003. QA/QC information was required for data submitted by third parties during the call for data and is required before data is loaded into DEQ’s LASAR database. Only data that met the Level A or B requirements discussed in the Assessment Methodology were used for 2004/2006 Integrated Report assessment purposes. Data that were graded A or B were then evaluated according to the parameter-specific data requirements set out in the Assessment Methodology.

**2. Terminology for Water Quality Assessment Categories.**

*Commenters (9, 14, and 19) noted some inconsistencies in terminology used for the status assessment categories for 2004 compared to 2002 and 1998.*

With the 2004/2006 Integrated Report, DEQ is conforming to the terminology suggested in EPA guidance<sup>5</sup>. The records in the databases use the following terms as equivalent assessment category status:

<b>2004/2006 Integrated Report</b>	<b>Previous years</b>
Cat 2: Attaining some criteria/uses	Attaining
Cat 3: Insufficient data	Insufficient Data
Cat 3B: Potential concern	Potential concern
Cat 4A: Water quality limited, TMDL approved	TMDL approved
Cat 4B: Water quality limited, other control measures	Water quality limited not needing a TMDL
Cat 4C: Water quality limited, not a pollutant	Water quality limited not needing a TMDL
Cat 5: Water quality limited, 303(d) list, TMDL needed	303(d)

<sup>5</sup> Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act: United States Environmental Protection Agency, (July 21, 2003)



In prior cycles, Category 4B and 4C were not specifically identified in the assessment status, but were called “Water quality limited not needing a TMDL”. When older records are carried forward in the database without modification for 2004, the terminology used in the original year assessment is retained.

*Commenter (25) suggested the Assessment Methodology was not clear on how Category 4B would be determined.*

DEQ has made limited use of Category 4B in the 2004/2006 Integrated Report and will provide EPA with information to support the assignment of this status on a case by case basis based on the EPA’s guidance. Where Category 4B is assigned to a water body in the 2004/2006 Integrated Report, the specific control measure is cited in the supporting data field. For instance, if Category 4B is assigned based on a hydroelectric certification or a permit, those licenses or permits are identified in the 2004/2006 Integrated Report supporting data field.

*Commenters (25, 26) suggested Category 3 and “Potential Concern” are considered Water Quality Limited under Oregon rules.*

DEQ uses these categories when data do not meet the minimum sample requirements for the data evaluation as specified in the Assessment Methodology. Available data are not sufficient to determine if the water quality at a monitoring site meet does or does not meet criteria and are not sufficient to assign a status to the water body. An evaluation of insufficient data does not lead to the conclusion that the water body is water quality limited. The Assessment Methodology has been clarified to indicate that “Potential Concern” is a sub-category of Category 3: Insufficient data. The Assessment Methodology also discusses specifically when this status is assigned for toxic substance data evaluation. In previous assessment years (2002), “Potential Concern” was also used for cases where some data collected in drought years indicated a potential exceedence of the temperature criterion, or levels in sediments indicated a potential for toxic substances exceedences in the water column, but no data were available to evaluate the water body using ambient water quality criteria. These statuses were carried forward if used for a water body in prior years, but data for 2004 were not generally evaluated using this protocol for drought conditions.

*Commenter (27) asked about the meaning of de-listing a segment once a TMDL is completed. Commenter (28) asked the basis for removing segments from the 303(d) list when water continues to exceed applicable water quality standards.*

The section 303(d) list is a list of water quality limited waters that need a TMDL. Once a TMDL has been approved by EPA for a water body, the water body is “de-listed” and assigned to Category 4A meaning that the water body is still considered to be water quality limited but a TMDL is no longer needed because it has been completed. The TMDL is the plan for attaining and maintaining water quality standards based on the calculations of wasteload and load allocation and includes a water quality management plan (WQMP). The WQMP outlines the management strategies to restore water quality and sets the goals and objectives and the timeline for implementing the management strategies and attaining water quality standards. The water body is considered to be water

quality limited until information shows that water quality standards are attained. Moving a water body from Category 5 to Category 4 does not mean the water body is attaining standards, but it does count as progress in restoring water quality since the analysis and restoration plan have been put in place. Category 4 is the list of streams that are water quality limited, but are not in Category 5: Water quality limited, 303(d) list, TMDL needed.

### **3. Use of Category 5: Water quality limited, 303(d) list, TMDL needed**

*Two commenters (3, 11) suggested that streams should not be assigned Category 5 status if the only pollutant sources are non-point sources. One commenter (21) suggested DEQ had adopted a policy to remove water bodies with nonpoint sources from the list of Category 5: Water quality limited, 303(d) list, TMDL needed.*

DEQ finds that pollutants contributed by non-point sources alone or in combination with point sources can result in water quality criteria not being met and beneficial use impairment and either case would be sufficient to assign a status of Category 5 to a water body. Further, EPA guidance<sup>6</sup> does not discuss source type as a basis for not assigning a Category 5 status when the beneficial uses are impaired and impairment is related to a pollutant. DEQ does not do a rigorous analysis of potential sources as part of the water quality assessment process. This analysis is done during development of the TMDL to address all sources of pollution, set load and wasteload allocations, and bring water bodies into compliance with the standards. Oregon's programs addressing point and non-point sources are reported and discussed in the narrative [Oregon's 2004 Water Quality Assessment Section 305\(b\) Report \(July 2004\)](#).

*One commenter (11) suggested DEQ was biased in finding water bodies to be impaired and assigning water bodies to Category 5 rather than other alternative categories. Commenter said DEQ should consider the statistical validity of data sets before listing in Category 5.*

DEQ developed “decision rules” for assigning water bodies to categories that are provided in the Assessment Methodology. DEQ uses an independent applicability approach to evaluate water quality standards. Each part of the water quality standards is evaluated independently. If the numeric criteria for any pollutant are exceeded, that exceedence supports a determination that the water body is impaired and the designated uses protected by that numeric standard are impaired. Similarly, if the numeric criteria for a pollutant are not exceeded, the water body is determined to support the designated uses that standard protects. This approach was used in 1998, 2002, and 2004 to evaluate data. The data requirements for assigning water bodies to Category 2 and Category 5 for each standard are provided in the Assessment Methodology.

### **4. De-listing requirements**

*Commenters (A, 25) suggest review of data for de-listing should consider narrative criteria, beneficial use support, and antidegradation policy.*

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<sup>6</sup> Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act: United States Environmental Protection Agency, (July 21, 2003) <http://www.epa.gov/owow/tmdl/tmdl0103/index.html>

In reviewing data for de-listing, DEQ considers the original basis for the listing and the type of data used for that decision. The majority of past listings have been done by comparing data to numeric criteria, and 2004/2006 de-listing review considers data compared to currently applicable numeric criteria.

*Commenter (25) suggests reviewing data for de-listing should consider whether data show the water body is in compliance with standards and not negate earlier conclusions if QA/QC requirements are met.*

DEQ reviewed available data and de-listed a water body if data showed water quality criteria are being met. All data need to be Data Quality Level A or B and meet the minimum sample requirements.

*Commenter (25) suggests caution in de-listing a water body on the basis of completing a TMDL.*

DEQ reviewed the EPA approval letters for each TMDL and de-listed or did not list water bodies for the parameters and watersheds that were specifically approved by EPA.

*Commenter (25) suggested TMDLs developed for one or more pollutants that are surrogates should be identified in the TMDL.*

DEQ de-listed water bodies in cases where the TMDL identified pollutants and developed pollutant loads that would indirectly address other impairments when the relationship was established in the TMDL and addressed in EPA's approval of the TMDL.

## **5. Segmentation**

*Commenter (25) questioned the third element of the General Segment protocol in the Assessment Methodology and suggested this would lead to small segment changes with each listing.*

The three steps in the segmentation protocol represent a hierarchy. DEQ will clarify that the third step was followed when segments have not been established for previous lists. A table of segmentation rules used in the data evaluation will be added to the Assessment Methodology. DEQ agrees that breaking down segments into smaller divisions when new sampling stations are added could complicate the assessment that does not represent the overall stream water quality. Although defining smaller segments might provide greater precision, it may not necessarily facilitate an overall understanding of the stream water quality.

*Commenter (25) asked how fish beneficial use segments were integrated into the general segmentation protocol and how exemptions, exceptions, and narrative language were applied or natural condition criteria applied.*

Fish use designations were used to define segments for parameters with numeric criteria tied to protecting various kinds of salmonid uses. These include criteria for temperature and dissolved oxygen. The general segmentation protocols were used for other pollutant parameters. Information on the protocols used to evaluate data is provided in the Assessment Methodology in the sections on the temperature and dissolved oxygen parameters along with the citation of the criteria from Oregon's water quality standards

(OAR 340-041). No other general protocols were developed for exemptions, exceptions, and narrative language for the current assessment. Natural condition criteria were not applied in the general assessment of stream data. In the limited number of cases where natural conditions are considered in lieu of numeric standards, the documentation justifying this conclusion is cited in the supporting data.

## **6. Aquatic Weeds or Algae**

*Commenter (25) suggests listing acreages in irrigation districts based on the narrative criteria.*

DEQ did not list water bodies for aquatic weeds or algae because they were in irrigation districts. The Assessment Methodology notes that no new data were collected or received for review for aquatic weeds or algae. No numeric criteria are available for aquatic weeds or algae as a pollutant.

## **7. Bacteria**

*Commenters (A, 26) suggested the fecal coliform criteria should continue to be used for protection for water contact recreation.*

DEQ used the current applicable standards for evaluating bacteria. The standard for freshwater and estuarine waters other than shellfish growing water is based on numeric criteria for E. coli. When E. coli data were available for a freshwater stream and showed the criteria were met, then prior listings based on outdated numeric criteria for fecal coliform were de-listed. However, if no data were available, or e. coli data showed exceedences of the criteria, prior fecal coliform listings were not removed.

## **8. Biological Criteria Listings**

*Commenter (10) asked for clarification about review of data for biological criteria.*

*Commenter (25) suggested using biological data as well as invasive species information for listing purposes. Commenter (26) questioned DEQ about not using the narrative criteria for the 2004/2006 Integrated Report assessment.*

DEQ did not review any new information for listing purposes based on the narrative biological criteria for the 2004/2006 Integrated Report. Status and 303(D) listings for biological criteria from prior assessment cycles were carried forward for the 2004/2006 Integrated Report.

## **9. Chlorophyll a**

*Commenter (19) suggests chlorophyll a is not an appropriate parameter for water quality assessment purposes.*

Oregon's narrative standard for nuisance phytoplankton growth contains numeric levels that guide follow-up actions. DEQ applies the numeric criteria for chlorophyll a in OAR 340-041-0019 to assess where water quality beneficial uses are impaired for water contact recreation, aesthetics, fishing, water supply, and livestock watering. When these criteria are exceeded, the narrative guides DEQ to further analysis to determine a pollution control strategy. Waters impaired for these beneficial uses due to this pollutant parameter are assigned Category 5: Water quality limited, 303(d) list, TMDL needed status or Category 4 if a TMDL is not necessary.

## **10. Dissolved Oxygen**

*Commenters (24, 25, and 27) suggest equating continuous dissolved oxygen data to the average over a 24 hour period as one data point de-emphasizes the value of continuous monitoring data versus grab data. Commenters also suggest time of sampling and depth of sampling should be considered when evaluating dissolved oxygen data and the length of spawning time periods be considered in minimum data requirements.*

In order to screen all the available data against numeric criteria, DEQ developed protocols and data evaluation tools to make use of as much data as possible. A more rigorous analysis of dissolved oxygen information can be done at the discretion of the Department, as allowed by the standard (OAR 340-041-0016(2)), and alternate criteria would apply. As more continuous monitoring data is available in DEQ's LASAR database, developing a different protocol for assessing the absolute minimum of a daily continuous monitoring data set may be warranted for the next assessment cycle. For the 2004 assessment, DEQ did not want to exclude grab sample data which constituted over 99% of the available data. Only 10 out of 2,252 monitoring sites had continuous dissolved oxygen monitoring data available for evaluation. As more continuous dissolved oxygen data becomes available, DEQ will consider developing a more rigorous data evaluation protocol or evaluate only continuous dissolved oxygen monitoring data. DEQ agrees that a more rigorous evaluation may be warranted for these sites.

*Commenter (24) asked for clarification on how the dissolved oxygen criterion was applied.*

As indicated in the Assessment Methodology, in designated salmon and steelhead spawning areas, the cold or cool dissolved oxygen criterion is applied during non-spawning time periods depending on ecoregion according to a policy set out in a June 22, 1998 letter from DEQ to EPA. In some areas, DEQ has applied a cold water criterion rather than a cool water criterion based on specific information about the fish beneficial uses on the water body. These include: Deschutes River (Record IDs 11885 and 11886) and Lava Lake (Record ID 11937).

## **11. Sedimentation**

*Several commenters (23, 24) provided comments on the methodology used for assessing compliance with the sedimentation standard. One commenter (3) objected to DEQ using professional judgment to determine if a standard is met.*

Pollution from sediment as a pollutant is addressed only through Oregon's narrative criterion (OAR 340-041-0007(13)) and no numeric criteria are available. In the 1998 listing cycle, DEQ used stream information relating impairments to beneficial uses and excessive sedimentation as the basis for listing several streams in Oregon, and these listings were approved by EPA. Oregon does not have a numeric criterion for sedimentation. For the 2004/2006 Integrated Report, DEQ elected to use professional judgment to review data and information submitted during the call for data to determine if stream beneficial uses were being supported and de-list specific streams, but did not review information to list new streams. DEQ continues to work on a protocol that can be used to assess sedimentation as a stream pollutant.

## **12. Temperature**

*Commenter (19) suggests the listing criteria for temperature should include exceptions for infrequent exceedences.*

The numeric criteria for temperature in OAR 340-041 apply to a calculation of the average of the daily maximum temperatures from seven consecutive days, made on a rolling basis. These criteria allow for an occasional exceedence on a single day if the average over seven days does not exceed the seven-day average maximum temperature criteria.

*Commenter (25) notes that the Assessment Methodology does not discuss seasonality with regard to temperature criteria.*

DEQ grouped all data for temperature into spawning and non-spawning seasons. The specific dates for spawning seasons are designated in rule for streams throughout the state.

*Commenter (25) questions how “drought years” were determined. Commenter (27) notes that many data were excluded for drought years and the procedure for making the determination was not provided in the Assessment Methodology. Commenter (27) also provides a detailed analysis of the application of the Air Temperature Exclusion and Low Flow Condition exception to the numeric temperature criteria for the John Day Basin. The Assessment Methodology does not discuss determining drought years because this was not used as a general protocol for assessing data for the 2004/2006 Integrated Report. As a general protocol, all available data in the 10 year time period prior to 2003 were reviewed against currently applicable temperature criteria. DEQ felt this was a sufficient data screening protocol given staff and computer resources to analyze the abundance of available continuous temperature monitoring data. In prior listing cycles in 1998 and 2002, DEQ did use a determination of drought conditions to qualify some data reviewed for the 1998 and 2002 Integrated Report. The years identified as “drought years” were 1991, 1992, 1994, and 2001 and the procedures are contained in the [Consolidated Assessment and Listing Methodology for the Final 2002 303\(d\) List](#) (page 17 and 18). In decisions to list or de-list water bodies in 1998 and 2002, some data were excluded. However, this exclusion was not applied generally for data reviewed in 2004. In response to Commenters 2, 9, 14, and 22, certain listing records were reviewed in 2004 to assure that decisions made for the 2004 listing process were consistent with conclusions from prior assessments.*

Commenters are correct that the current temperature standard allows for exclusions from 303(d) listing based on air temperatures. The analysis and protocol presented by Commenter (27) provides an excellent starting point for DEQ to develop a protocol for the future assessment and listing cycles.

## **13. Toxic substances**

*Commenter (10) agreed that DEQ should use criteria in OAR 340-041-0033(2) Table 20. Commenters (A, 26, 29) disagreed and said DEQ should use newly adopted standards that have not been approved by EPA. Commenter (29) suggested iron should not be listed on Table 20.*

As noted in the Assessment Methodology, Oregon's standards for toxic substances were revised in 2004 but have not been approved by EPA. For Clean Water Act purposes, DEQ must apply standards approved by EPA. For the 2004/2006 Integrated Report, DEQ applied the numeric criteria from Table 20 including the criteria for iron. Criteria for metals on Table 20 are based on total recoverable concentrations.

*Commenters (10, 11, 13, 19, and 29) suggested that natural background levels for pollutants especially metals such as iron should be assessed before listing a water body and that it is not appropriate to develop natural background levels in the TMDL process.* DEQ uses available analytical data to assess whether numeric criteria are met or exceeded in waters throughout the state. Although a study to determine the levels of metal in the natural background is not precluded in the water quality assessment process, the TMDL development process where DEQ currently commits resources for focused data gathering and evaluation efforts that are necessary for such a study. The TMDL typically reviews information on geology, climate, seasonal variation, land use and ownership that is the necessary starting point to determine what a natural background condition may be in a watershed. The focused monitoring and data gathering, source identification, pollutant identification, and water quality standard identification done in a TMDL provide data that may distinguish what pollutant levels are due to natural or anthropogenic sources or conditions. Studies to determine an area-specific natural condition or pollutant background level are appropriate as the next step following identification of waters that do not meet the statewide water quality criteria. If statistical and scientific information determines that the natural condition exceeds the numeric criteria, then under Oregon standards (OAR 340-041-007(2)) those natural conditions supersede the numeric criteria and become the standards for that water body. It may still be necessary to complete the allocations for a TMDL if identified sources contribute pollutants that result in exceedence of the natural condition. This analysis is typically done for parameters such as temperature and nutrients in a TMDL. It is appropriate to also carry out these studies in the TMDL for other toxic pollutants such a metals including iron that may occur at background levels but may also be added from point or non-point source contributions.

*Commenter (11) stated that no policy was given for treatment of sample quantification limits.*

Many toxic substance numeric criteria are near or below analytical reporting limits. Oregon's Assessment Methodology (page 44) specifies how data reported below a method reporting limit was used in the assessment:

**Toxic Substances**

**Minimum Reporting Limit**

For sample results reported as less than a minimum reporting limit (<MRL), the MRL was compared to the toxic substance criteria. If the MRL was below the criteria, the result was counted as attaining the criteria. If the MRL was above the criteria, the sample result is unknown with regard to the standard and was not counted as either exceeding or attaining the criteria.

*Commenter (25) notes that application of the narrative criteria for toxic substances is not discussed.*

DEQ applied the numeric criteria for evaluating analytical data for toxic substances, and did not develop protocols to apply narrative criteria.

#### **14. Alkalinity**

*Commenter (2) asked for clarification and objected to applying the criteria for alkalinity to assign a status of “potential concern”.*

Oregon has adopted toxic substance criteria that include a criterion for alkalinity. (OAR 340-041-0033(2) and Table 20). This criterion is based on EPA’s 1986 Quality Criteria for Water setting 20 mg/L alkalinity as a minimum value in order to protect freshwater aquatic life except where natural conditions are less. Alkalinity is a measure of carbonate and bicarbonate ions and the buffering capacity of water to pH changes. Freshwater systems have natural variations in pH that are related to photosynthetic activity and other inorganic and organic chemical reactions. There is a large amount of data measuring alkalinity in Oregon’s waters. However, applying the alkalinity criterion as an isolated standard to determine where water is water quality limited may lead to incorrect conclusions about overall natural water quality. For the 2004/2006 Integrated Report evaluation, DEQ chose to flag streams where data indicated alkalinity less than the criterion as a Category 3B: Potential Concern. This information should be considered with other water quality information such as water conditions for pH, chlorophyll a, aquatic weeds, algae, and dissolved oxygen in determining the overall condition of water bodies assessed in the 2004/2006 Integrated Report.

#### **15. Turbidity**

*Commenter (25) notes the citation of the rule on turbidity is incomplete and the application of the rule is not discussed.*

The complete rule language has been added to the Assessment Methodology, along with a note to the effect that no data or information were reviewed for the 2004/2006 Integrated Report.

#### **16. Appendices**

*Commenter (25) provides comments on documents included as Appendix 1, 2, and 3.*

The Assessment Methodology provides these documents as references cited in appropriate sections of the Assessment Methodology.

## **Comments on specific records**

### **1: Clean Water Services – Charles Logue**

1. Beaverton Creek, Tualatin River, other streams in subbasin–

*Commenter suggests that the discussion in the 2001 Tualatin Sub-Basin TMDL of arsenic, iron, and manganese should be sufficient to not list any streams within this sub-basin or flag them as potential concern even though there are multiple monitoring sites and events that exceed the applicable water quality criterion.*

The Tualatin TMDL

<http://www.deq.state.or.us/WQ/TMDLs/WillametteBasin/Tualatin/TualatinTMDL.pdf>

was completed prior to the 2002 Integrated Report. EPA noted in their TMDL approval,



dated August 7, 2001, that Fanno Creek in the Tualatin Subbasin was listed on the 1998 303(d) list for arsenic, iron, and manganese. However, EPA stated: “TMDLs have not been developed for these parameters. Therefore, this Section 303(d) action does not cover these parameters.” EPA did subsequently approve the de-listing of Fanno Creek from the 2002 303(d) list as “meeting standards” on the basis that the Tualatin TMDL discussed “naturally occurring” levels of arsenic, iron, and manganese in the basin. (Appendix G: Toxics Discussion <http://www.deq.state.or.us/WQ/TMDLs/WillametteBasin/Tualatin/TualatinAppxG.pdf> ). EPA took no position on whether this discussion could be applied to other streams within the basin.

On reviewing the Appendix G: Toxics Discussion, DEQ finds that the purpose of the discussion paper was to address whether a TMDL was warranted for the 1998 Fanno Creek 303(d) listings for arsenic, iron, and manganese. While an analysis of subbasin wide monitoring data was conducted, it did not result in developing an alternative “natural background” level that could be used to screen data for water quality assessment purposes throughout the subbasin. The Tualatin TMDL identifies several POTWs, industrial point sources, and stormwater discharge points within the basin. The discussion paper did not determine what natural levels of pollutants would be expected within the subbasin in the absence of these potential sources or evaluate data for statistically significant differences between “natural” or reference condition streams and water bodies where exceedences of the water quality criteria were recorded. Therefore, the streams will remain listed as Category 5 or flagged as potential concern where the available data indicate water quality criteria are exceeded. A future analysis of surface water data to establish natural background levels could lead to de-listings if listed stream segments are found to reflect natural background levels.

## 2. Fanno Creek

*Commenter suggests that Fanno Creek should not be listed as Category 5 for exceeding the water quality standard for dieldrin based on the USGS data that was reviewed.*

*Commenter compares data to the OAR 340-041-0033 Table 20 aquatic life criterion of 0.0019ug/L.*

The data for Fanno Creek were evaluated using the protocols for toxic substances developed in DEQ’s Assessment Methodology. DEQ applies the most stringent criterion to protect beneficial uses. In this case, the applicable criterion is 0.000071 ug/L dieldrin from Table 20 for protection of human health. The USGS data contain results for 38 samples from one monitoring site (14206950) analyzed for dieldrin between 3/1/1993 and 9/18/2001 on filtered and unfiltered water samples. Several of the samples appear to be duplicates, or replicates comparing filtered and unfiltered results. DEQ protocols used the highest value reported for a sample date, therefore 31 results were reviewed. Twenty seven (27) of 31 results were reported as “< 0.001”. Four (4) of 31 results reported detections at 0.001 or 0.002 ug/L which exceed the criterion and meet data requirements to conclude a listing is warranted for dieldrin. The final report will be amended to indicate 4 of 31 samples exceeded the criterion.

For future water quality assessments, the application of the human health criteria will be reviewed and protocols for assessment may be changed if another approach is warranted. DEQ anticipates that more data will be collected and available to characterize levels of toxic substances in water bodies, particularly in conjunction with implementing the agency Toxics Reasonable Potential Analysis (RPA) Internal Management Directive (IMD) <http://www.deq.state.or.us/wq/wqfact/ToxicsRPAIMDFactSheet.pdf> for the issuance or renewal of National Pollutant Discharge Elimination System (NPDES) permits. DEQ plans to review and update the protocols and data requirements prior to the next assessment cycle. Statistical procedures used by DEQ to set permit effluent limits for toxic pollutants may provide a different approach to identify water bodies that are water quality limited for toxic substances where human health criteria are applied and where the analytical detection limits are near or above the criterion.<sup>7</sup> Protocols for applying the toxic substance human health criteria for water quality assessment purposes will be reviewed and updated as warranted.

### 3. Koll Wetland

*Commenter discusses data used to list Koll Wetland for chromium, copper, lead, silver, and zinc. Commenter indicates additional information has been collected by Clean Water Services.*

These listings were done on the 2002 303(d) list which was approved by EPA. No additional data were submitted during the call for data or were available for review for the 2004/2006 Integrated Report for de-listing purposes. New data should be submitted in the next call for data and will be reviewed during the next Integrated Report cycle. Until EPA approves revisions to the toxic substance standards, the applicable criteria for Clean Water Act purposes are criteria on Table 20 which are based on total recoverable concentrations.

### 4. Tualatin River

*Commenter suggests the listing for dissolved oxygen for spawning from January 1 to May 15 is in error.*

The Assessment Methodology discusses the policy to apply the dissolved oxygen criteria for spawning for resident trout which is set out in a 2/2/2004 letter from DEQ to EPA Region 10. The draft data assessment applied an assumed resident trout spawning time period based on a designated use in the Tualatin River for salmon and trout rearing and migration. However, upon further discussion with Oregon Department of Fish and Wildlife and review of the Tualatin TMDL Appendix F: Tualatin River Subbasin Fish Habitat and Fish Community Information <http://www.deq.state.or.us/WQ/TMDLs/WillametteBasin/Tualatin/TualatinAppxF.pdf>, this assumption is being modified. Available stream information shows that native cutthroat trout are the resident trout species, and that the likely spawning areas for this species do not include the segment of the Tualatin River designated for salmon and trout rearing and migration. The data from sites and time periods previously evaluated against the dissolved oxygen spawning criterion are combined with other data and evaluated

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<sup>7</sup> Reasonable Potential Analysis for Toxic Pollutants, DEQ Internal Management Directive, September 2005, <http://www.deq.state.or.us/wq/wqPolicy/WQIMDRPA.pdf>

against the cool water criteria (6.5 mg/L). This segment is found to be attaining that criterion.

#### 5. Phosphate phosphorus

*Commenter notes that the 2001 TMDL for the Tualatin subbasin addressed phosphorous.* The 2001 TMDL addressed phosphorus as the primary pollutant related to stream impairments by excess algal growth and to exceedences of pH, dissolved oxygen, and chlorophyll a water quality standards. The 2001 TMDL updated a 1/27/1994 TMDL for phosphorous. The TMDL addressed the phosphorous loads from groundwater in the basin and established the natural background conditions in the subbasin. The Tualatin River background phosphorus concentrations ranged from 0.04 mg/L to 0.11 mg/L, and concentrations in the lower reaches of the tributaries ranging from 0.04 to 0.19 mg/l. These are the appropriate benchmarks to apply to the streams in the Tualatin subbasin. The 2004/2006 Integrated Report records will be updated to indicate that a TMDL has been approved, and note the background level of phosphorus expected in the water body.

## **2: US Forest Service Ochoco National Forest Lookout Mtn. Ranger District – Arthur J Currier**

### 1. Squaw Creek (Record ID 12759)

*Commenter suggests not listing the lower 1.5 miles of this segment.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is salmon and trout rearing and migration from RM 0 to 40.3. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on available monitoring data from multiple sites within this segment that exceed the criterion, including a monitoring station at RM 1.6.

### 2. Cow Creek (Record ID 9049)

*Commenter suggests de-listing this segment based on a summary of data collected by the Ochoco National Forest.*

These data were not submitted during the call for data and were not available in LASAR for evaluation. The 2002 listing was based on 52 days exceeding the criterion. Information to de-list must be equivalent in quality and scope.

### 3. Shotgun Creek (Record ID 190)

*Commenter suggests that the original data analysis used to list this stream in 1998 was incorrect and recent National Forest monitoring data showed the temperature criterion being met.*

These data were not submitted during the call for data and were not available in LASAR for evaluation. The 1998 listing was based on 52 days exceeding the criterion. Information to de-list must be equivalent in quality and scope.

### 4. Canyon Creek (Record ID 12703)

*Commenter noted that data from one monitoring site used as the basis for this listing were likely not representative of stream conditions due to a temporary change in channel configuration that created stagnant pools at the monitoring location. Commenter offers that the Forest Service has a 10 year data set from this site, along with data from two*

*other locations on this stream, but did not submit this information during the call for data.*

Data were not available in LASAR for review by DEQ. The summary data offered by the commenter indicates that 3 days in 2005 exceeded the criterion which would likely be sufficient to list the stream. These data, QA/QC information, and data from the two upstream monitoring locations have not been submitted to regional DEQ staff working on TMDLs in this area. This stream was initially listed in 1998 based on data from another upstream monitoring location on the stream with 55 days exceeding the standard. The stream was de-listed in 2002 when DEQ determined that data from certain drought years would not be used as the basis for listing a stream. The data reviewed for the 2004/2006 Integrated Report appear to support the initial listing decision. The TMDL for this watershed is scheduled for completion in 2006. Further analysis of the overall watershed conditions and the natural thermal potential for all the streams in the watershed will be done in developing the TMDL. This analysis will evaluate temperature response in streams within the basin during years of high air temperature and low precipitation. Appropriate management measures to achieve watershed restoration will be developed. DEQ feels it is appropriate to list this stream based on the current available data, and evaluate a more comprehensive data set as part of the TMDL to determine natural thermal potential in streams within the context of the watershed.

#### 5. Little Hay Creek (12707)

*Commenter summarizes National Forest Service data for a 10 year time period and suggests that low flows in 1994, 2002 and 2003, due to drought, can account for three of the temperatures over threshold.*

This stream was initially listed in 1998 based on data showing 16 days exceeding the standard. The stream was de-listed in 2002 when DEQ determined that data from certain drought years would not be used as the basis for listing a stream. The data reviewed for the 2004/2006 Integrated Report appear to support the initial listing decision based on 2 days exceeding the criterion in 2002. The TMDL for this watershed is scheduled for completion in 2006. Further analysis of the overall watershed conditions and the natural thermal potential for all the streams in the watershed will be done in developing the TMDL. This analysis will evaluate temperature response in streams within the basin during years of high air temperature and low precipitation. Appropriate management measures to achieve watershed restoration will be developed. DEQ feels it is appropriate to list this stream based on the current available data, and evaluate a more comprehensive data set as part of the TMDL to determine natural thermal potential in streams within the context of the watershed.

#### 6. Willow Creek (12724)

*Commenter suggests that monitoring data in a short reach of Willow Creek meets the criterion.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is salmon and trout rearing and migration from RM 0 to 33.2. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on available monitoring data from multiple sites within the stream segment that exceed the criterion.

## 7. Sedimentation in Trout Watershed

*Commenter requests de-listing for sediment in the Trout Creek watershed based on an analysis of the original listing information and additional information submitted to show sediment narrative criteria are met.*

DEQ found the data submitted to be limited and not sufficient to evaluate using current interim benchmark methodologies. Data were generally limited to only one value for each reach from a single year, no lithology information was available, and the values cited are greater than DEQ's interim benchmark of 15% fine sediment <2mm. DEQ does not find these data sufficient to de-list these water bodies at this time. TMDLs are scheduled to be developed in this watershed to address pollutants including temperature and sediment and will include collection of additional data and information.

## 8. Trout Creek (12744)

*Commenter suggests that this stream should not be listed in its entirety, even though data shows criterion is exceeded.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is salmon and trout rearing and migration from RM 0 to 50.8. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on available monitoring data. This status is also consistent with a 1998 listing for the entire stream (Record ID 226) based on data from three locations showing the temperature criterion being exceeded.

## **5: Eldon Blevins, Citizen**

*Commenter noted the good water quality and water quantity in Rickreall Creek and the beneficial use of the stream by the City of Dallas.*

DEQ did not have much new information for Rickreall Creek to review for the 2004/2006 Integrated Report. Most of the information was available and reviewed for the 1998 water quality assessment cycle, and generally was found to be attaining water quality criteria. The stream was found to be impaired for temperature and was listed on the 1998 303(d) list. No new temperature information was reviewed for the 2004/2006 Integrated Report, and the 1998 listing is carried forward.

## **6: City of Portland Environmental Services - Frank Wildensee**

### 1. Willamette River – Chlorophyll a, Summer and Fall/Winter/Spring

*Commenter suggests that data from monitoring sites are insufficient to support decision for listing in summer season and in fall/winter spring. Commenter suggests only data that are depth integrated can be used to compare to the criterion.*

DEQ is allowed flexibility by the language of the standard (OAR 340-041-0019(1)(a)) to determine what method is used to find an average chlorophyll a value. The Assessment Methodology specifies that the average value will be determined with a minimum of 3 samples in a 90 day time period, but does not specify any method for depth averaging. All available data within a 90 day time period were used to calculate an average value.

For the Willamette River segment from RM 0 to 24.8 (Record ID 6228), samples collected at station LASAR 10611 had sufficient samples and exceeded the criteria of

0.015 mg/L in both summer 1996 (average 0.021) and summer 1997 (average 0.016). Only the maximum average is shown in the summary of supporting data. However, data collected from 1999 through 2003 shows the criterion was met in the three month summer period. The status of Category 2: Attaining will be maintained for this segment.

The assignment of Category 2 and Category 5 Status for all segments on the Willamette River for the Fall/Winter/Spring seasons appears to be in error in the draft data evaluation. None of the sampling sites had sufficient data collected in three consecutive months. The status will be changed to Category 3: Insufficient Data.

2. Fanno Creek – Dieldrin

See response to Commenter 1: Clean Water Services- Comment 2 above.

3. Johnson Creek – Chlordane

*Commenter suggests the three entries for the 2002 listing are confusing.*

The records have been consolidated to one showing the previous supporting data and notes for the 2002 Potential Concern status and the data evaluated for 2004.

**8: US Forest Service Umpqua National Forest – Mikeal Jones and  
23: USDA Forest Service, PNW Region, Trish Carroll**

*1. Commenters suggest that stream segments in the South Umpqua watershed including Beaver Creek (Record ID 5590), Jackson Creek (Record ID 5604), and the Upper South Umpqua (Record ID 9373) be de-listed for sedimentation based on discussion provided in a May 2003 letter.*

DEQ reviewed the information provided in the call for data in 2003 and made a recommendation not to de-list these streams in a memo dated January 26, 2004. No additional sediment data were submitted to DEQ for review on the water bodies in question. The commenter notes that additional cores samples were taken in 2004, but these data were not submitted to DEQ for review. Macroinvertebrate data were submitted in 2003 and reviewed by DEQ. DEQ had concerns with the USFS macroinvertebrate analysis. First, the sampling sites were compared to only one reference site. DEQ generally analyzes data compared to the whole reference population. Additionally, the field notes submitted to DEQ indicated concern over the selection of the reference site (Boulder Creek). In the comment section field personnel noted “This is a reference site, but as noted many times it is atypical” (Boulder Creek (North Umpqua River) October 27, 2000, Oregon, Umpqua National Forest, by Aquatic Biology Associates, Inc. Corvallis, Oregon, FILE: 00UM). DEQ recommended not de-listing the three water bodies in the South Umpqua basin based on the macroinvertebrate data submitted. DEQ encourages the US Forest Service to collect data using the EMAP protocol for Wolman Pebble counts. DEQ is considering a future sedimentation assessment methodology based on data collected by DEQ under the EMAP program.

## **9: Water Environment Services. Clackamas County – Andrew Swanson**

*Commenter requested DEQ check the following records:*

### 1. Phillips Creek (Record ID 8576)

This water body was listed in 2002 for e. coli for the Fall/Winter/Spring time period. Data reviewed for the 2004/2006 Integrated Report collected from 1/24/1996 to 4/15/2003 showed 11 out of 21 samples (52%) exceeding the criterion and the listing status did not change. Additionally, data reviewed for the summer time period from 6/20/2001 to 8/20/2002 showed 2 out of 5 samples exceeding the criterion, and a new listing record (Record ID 21906) was added for this time period. The two listings cover the full year.

### 2. Mount Scott Creek (Record ID 8573)

This water body was listed in 2002 for e. coli for the Fall/Winter/Spring time period. Data reviewed for the 2004/2006 Integrated Report collected from 3 sampling sites showed samples exceeding the criterion and the listing status did not change. Additionally, data reviewed for the summer time period showed samples exceeding the criterion, and a new listing record (Record ID 21907) was added for this time period. The two listings cover the full year.

### 3. Johnson Creek (Record ID 6033)

*Commenter noted that Johnson Creek had been listed in 1998 for temperature, but was de-listed in 2002 when DEQ determined that data from certain drought years would not be used as the basis for listing a stream.*

No additional data were available for review for the 2004/2006 Integrated Report and the record was not updated. The TMDL for Willamette Basin covers this stream and is currently being finalized. Analysis of the overall watershed conditions and the natural thermal potential for all the streams in the watershed was done in developing the TMDL. Appropriate management measures to achieve watershed restoration are developed in the TMDL to cover all streams in the watershed. At this time, there is no basis for adding an additional listing to the 2004/2006 Integrated Report.

## **10: Northwest Pulp & Paper – Kathryn VanNatta**

### 1. Willamette River

*Commenter asked whether an analysis of impairment of designated beneficial uses was performed for Category 5 listing for iron on the mainstem Willamette River Basin.* DEQ uses an independent applicability approach to evaluate water quality standards. Each part of the water quality standards is evaluated independently. If the numeric criteria for any pollutant are exceeded, that exceedence supports a determination that the water body is impaired and the designated uses protected by that numeric standard are impaired. This approach was used in 1998, 2002, and 2004 to evaluate data on water quality in the Willamette River. The numeric criteria for iron are exceeded in the Willamette River and 4 segments of the Willamette River were categorized as water quality limited (303(d)) and impaired by iron in 2002. In 2004, 2 additional segments were classified as Category 5: Water quality limited, 303(d) list, TMDL needed, and the impaired status of the four downstream segments was confirmed with additional data analysis.

2. *Commenter suggests that the Willamette River be de-listed for biological criteria (Record IDs 6124, 6125, 6126, and 6127) based on the 2004 Oregon State University Study, Environmental Stresses and Skeletal Deformities in Fish from the Willamette River, Oregon, USA.*

DEQ has reviewed the research paper cited by the commenter. The OSU study showed a strong correlation between skeletal deformities and parasites. The authors concluded there was little evidence to suggest that chemical contaminants were responsible for elevated frequencies of deformities in fish. The areas sampled in the study were the Newberg Pool (River Mile 47 and 44), the Wheatland Ferry (River Mile 74), and near Corvallis (River Mile 135).

This study does suggest that calculating TMDLs to address the biological impairment for aquatic species may not be possible, since the impairment cannot be directly related to a pollutant. However, DEQ does not want to imply that there is no biological impairment by de-listing the Willamette River at this point in time. DEQ has concerns about the Willamette River listed in Record IDs 6125, 6126, and 6127 for river miles 24.8 to 54.8, 54.8 to 108, and 108 to 119.7, respectively. These segments of the Willamette River will remain as Category 5: Water quality limited, 303(d) list, TMDL status until DEQ develops a mechanism to address impairments for narrative criteria, such as biological criteria, that do not directly relate to measurements and control of pollutants by TMDL load allocations. Other listings from previous years for specific pollutants (aldrin, DDT, DDE, Dieldrin, mercury, PCBs) based on fish consumption advisories will also be maintained.

The OSU research did not study conditions or chemicals in the lower segment of the Willamette River (Record ID 6124, RM 0 to 24.8). This river segment includes the Portland Harbor Superfund site. There is no basis to consider de-listing the lower segment of the Willamette River at this time and the listing will be maintained. Research conducted in this portion of the river (Sethajintanin, D., Johnson, E.R., Loper, B.R., and Anderson, K.A., (2004) Bioaccumulation Profiles of Chemical Contaminants in Fish from the Lower Willamette River, Portland Harbor, Oregon. Arch. Environ. Contam. Toxicol., 46, p. 114 – 123) shows levels of PCBs, pesticides, mercury, and DDT in fish tissue. Further study is needed to demonstrate that these pollutant levels are not correlated to fish deformities.

3. Columbia River (31, 34, 36, 39, 40, 41, 42, 43, 44, 45, 46)

*Commenter suggests updating these 1998 records indicating the TMDL for dioxin was approved using language similar to other Category 4a listings.*

These de-listing records were approved by EPA for the 1998 303(d) list. No data were reviewed for 2004. DEQ is not updating records from prior years that are simply carried forward.

**14: US Forest Service Mt. Hood National Forest - Ivars Steinblums**

Alder Creek (Record ID 12803) and Clear Creek (Record ID 8953)



*Commenter suggested not listing because data were collected in 2001, identified as a drought year in the 2002 Assessment Methodology.*

These streams are not proposed for listing, but are assigned the status of Category 4A: Water quality limited, TMDL approved since these streams are covered in a TMDL approved by EPA on 4/15/2005.

Eightmile Creek (Record IDs 1267 and 1270), Fifteenmile Creek (Record ID 1268), Fivemile Creek (Record ID 1269), Ramsey Creek (Record ID 1295), Gate Creek (Record ID 448)

*Commenter requests de-listing for sediment because data used for listing did not meet QA/QC requirements and additional information shows sediment criteria are met.*

DEQ found the data submitted to be limited and not sufficient to evaluate given current interim benchmark methodologies. Data were generally limited to only one value for each reach from a single year, no lithology information was available, and the values cited were greater than 15% fine sediment of <2mm, used by DEQ as an interim benchmark. DEQ does not find these data sufficient to de-list these water bodies at this time.

Eightmile Creek (Record ID 12743)

*Commenter suggested not assigning Category 5: Water quality limited, 303(d) list status to this segment.*

Based on DEQ's review of available temperature data, there is sufficient data from three monitoring stations in this segment that exceed the temperature criteria for 145, 46 and 69 days in 1999 and 2000.

Fifteenmile Creek (Record ID 12747)

*Commenter suggests not listing the upper portion of this segment.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is core cold water habitat from RM 23.8 to 53.3. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on a review of available monitoring data.

Ramsey Creek (Record IDs 12753 and 13378)

*Commenter suggests not listing the upper portion of this segment.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is core cold water habitat and salmon and steelhead spawning from RM 0 to 13.2. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on a review of available monitoring data.

Badger Creek (Record ID 12765)

*Commenter suggests applied beneficial use (Bull trout spawning and rearing) is incorrect.*

Badger Creek with LLID 1214307449415 addressed by this record is designated for bull trout spawning and rearing. Note, however, that Badger Creek with LLID 1211965452553 is designated as salmon and trout rearing and migration.

Clear Creek (Record ID 631)

*Commenter suggests this 1998 listing based on 1995 data should be de-listed based on recent data from 2002 and 2003.*

Commenter refers to data that were not submitted in the call for data and were not available for DEQ to review as part of the 2004/2006 Integrated Report process. The TMDL for this watershed is currently in development. During development of the TMDL, a thorough analysis of all data will be done to determine the appropriate management measures needed to achieve watershed restoration and attainment of temperature criteria. This stream will likely be de-listed in the next assessment cycle if the TMDL is approved, or additional available data show the criteria are met.

Eagle Creek (Record IDs 12877 and 13398)

*Commenter suggests this stream should not be listed above River Mile 17.*

The segment is defined for listing purposes based on contiguous miles with the same beneficial use designation, which in this case is core cold water habitat from RM 0 to 25.4 and salmon and steelhead spawning from RM 0 to RM 15.6. Category 5: Water quality limited, 303(d) list, TMDL needed status is assigned to this segment based on available monitoring data. This status is also consistent with a 2002 listing for the stream (Record ID 226) from RM 0 to RM 20.0 based on application of a rearing criterion which has been superseded by the current designated beneficial use as core cold water habitat.

#### **18: City of Salem – Justin Boyington**

Glenn Creek (Record ID 12139)

*Commenter suggests this stream should not be listed based on only 3 out of 44 samples exceeding the dissolved oxygen criterion of < 6.5 mg/L.*

Each monitoring station is evaluated using the data requirements in the Assessment Methodology. Data from Site GLE10 at river mile 4.9 meets the requirements for assigning a Category 5: Water quality limited, 303(d) list, TMDL needed status with 2 out of 9 samples (22%) < 6.5 mg/l and applicable % saturation.

#### **19: PacifiCorp – represented by Michael R Campbell, Stoel Rives**

Jenny Creek (Record ID 1984)

*Commenter suggests the listing from 1998 should be deleted because the designated fish use for this stream has been changed.*

Oregon's water quality standards were changed and fish beneficial uses clarified in December 2003. Numeric criteria for temperature and dissolved oxygen have changed in some water bodies. If data are available on a previously listed water body and an evaluation shows that the criteria are met, the water body is de-listed in 2004. If no data are available to evaluate against current criteria, the water body remains on the 303(d) list. A de-listing decision will be made for this stream when data are available for evaluation or the TMDL has been approved.

Klamath River (Record ID 15776)

*Commenter suggests this water body should not be assigned Category 5: Water quality limited, 303(d) list, TMDL needed on the basis of exceeding numeric chlorophyll a criteria since it is not a standards violation.*

DEQ applies the numeric criteria for chlorophyll a in OAR 340-041-0019 to assess where water quality beneficial uses are impaired for water contact recreation, aesthetics, fishing, water supply, and livestock watering. When these criteria are exceeded, waters impaired for these uses due to this pollutant parameter are assigned a Category 5: Water quality limited, 303(d) list, TMDL needed status or Category 4 if a TMDL is not necessary. Segments of the Klamath River were initially placed on the 303(d) list in 1998 for exceeding the chlorophyll a criteria in the summer, and remain in Category 5 for the 2004/2006 assessment.

Klamath River (Record ID 11587)

*Commenter suggests that the spawning criteria for dissolved oxygen should only be applied in segments of the Klamath River designated for redband trout fish use, and the status assigned only to the segment where the one monitoring site is located.*

DEQ agrees, and will modify Record ID 11587 for dissolved oxygen for the resident trout spawning period of January 1 through May 15 to cover the segment from RM 207 to RM 231.1. This segment is based on contiguous miles with the same beneficial use designation, which in this case is redband or Lahontan cutthroat trout from RM 207 to RM 231.1. It is also appropriate to apply the cold water criteria for this segment for the non-spawning time period based on ecoregion. Record ID 11982 for dissolved oxygen for the non-spawning period using the cold water criterion is modified to cover the segment from RM 207 to RM 231.1.

Klamath River (Record ID 12840)

*Commenter suggests the season should be modified for only a warm season from May 15 to September 16.*

The temperature criterion for redband or Lahontan cutthroat trout during the non-spawning time period is 20 degrees C, and applies year round whenever spawning does not occur, so the record is correct.

Klamath River/Unnamed Lake (Record IDs 2023 and 15775)

*Commenter suggests these records for chlorophyll a use inconsistent river miles and are assigned an incorrect status.*

DEQ agrees and will not use Record ID 2025 from the 1998 assessment, which appears to have been in error, and will modify Record ID 15775 to indicate the segment is for RM 223.3 to 226.1. Only one sample is available in this segment, and the correct status is Category 3: Insufficient data.

Klamath River/Unnamed Lake (Record IDs 2088 and 15782)

*Commenter suggests these records for pH use inconsistent river miles and are assigned an incorrect status.*

DEQ agrees and will not use Record ID 2088 from the 1998 assessment, which appears to have been in error, and will modify Record ID 15782 to indicate the segment is for RM

223.3 to 226.1. Only two samples are taken in this segment, and the correct status is Category 3: Insufficient data.

Fish Creek (Record IDs 5861 and 12916)

*Commenter (19) suggests that Category 4B should not be assigned to this water body unless appropriate control measures have been developed and applied to all significant contributors to the water quality problems for dissolved oxygen and temperature.*

DEQ agrees that the comprehensive analysis for temperature will be done in the TMDL and will retain the Category 5: Water quality limited, 303(d) list, TMDL needed status until the TMDL is complete. DEQ reviewed the information submitted for the hydroelectric certifications process, and have determined that other potential sources besides the hydroelectric operations exist. Other sources and control measures are not addressed under the hydroelectric certification and the stream will not be de-listed until the TMDL is completed.

North Umpqua River (Record IDs 13134, 13487, 13488, 13489)

*Commenter (19) suggests that Category 4B should not be assigned to this water body unless appropriate control measures have been developed and applied to all significant contributors to the water quality problems for dissolved oxygen and temperature.*

DEQ agrees that the comprehensive analysis for temperature will be done in the TMDL and will retain the Category 5: Water quality limited, 303(d) list, TMDL needed status until the TMDL is complete.

North Umpqua River (Record IDs 5711, 5709, 5710)

*Commenter (19) suggests that changes to hydroelectric project operations have reduced Total Dissolved Gas, and the criterion is now met or controlled by other measures, so the status should be changed to attaining and/or Category 4B.*

DEQ reviewed recent data submitted for the 401 certification and agrees that the data demonstrate the criteria are met for Clearwater #2 and Lemolo Powerhouse #1 (Record IDs 5711 and 5710). The record will be de-listed on the basis of Category 4B: Water quality limited, other control measures and the record updated to Category 2: Attaining status to indicate the data show the criteria are being met. The 401 certification also contains conditions to control Total Dissolved Gas at Lemolo Powerhouse #2 (Record ID 5709) and this record will be de-listed on the basis of Category 4B: Water quality limited, other control measures. Once appropriate measures have been implemented successfully, data will be reviewed to determine if the standard is attained.

North Umpqua River/Lemolo Lake (Record ID 5563)

*Commenter (19) suggests that the reservoir is exempt from pH standards, and the status should be changed to attaining.*

DEQ has reviewed the documentation in the North Umpqua Hydroelectric Project Evaluation Report and evaluated the information relative to the pH standard pertaining to water impounded by dams (OAR 340-041-0021(2)). The report presents sufficient information to determine that numeric pH criteria should not be applied, and to de-list this water body from the prior listing. DEQ has determined that the reservoir is in

compliance with the narrative portion of the standard since all practicable measures have been taken to bring the impounded waters into compliance with the criteria.

Hood River (Record IDs 14981, 14982, and 14995)

*Commenter suggests Hood River should not be assigned Category 5: Water quality limited, 303(d) list, TMDL needed status for beryllium, copper, and iron since levels are likely naturally occurring.*

Studies to determine an area-specific natural condition or pollutant background level are appropriate as the next step following identification of waters that do not meet the statewide water quality criteria. If DEQ determines that the natural condition exceeds the numeric criteria, then under Oregon standards (OAR 340-041-007(2)) those natural conditions supersede the numeric criteria and become the standards for that water body. No analysis was done as part of the water quality assessment process to determine background conditions. It may still be necessary to complete the allocations for a TMDL if identified sources contribute pollutants that result in exceedence of the natural condition. It is appropriate to carry out these studies in a TMDL for toxic pollutants such as metals that may occur as a natural background condition.

## **20: Oregon Department of Agriculture, Paul Measeles**

*Commenter suggests data used for prior listings should be re-evaluated using 2003 temperature criteria and designated uses. Commenter suggested several listings in the Donner und Blitzen, Guano, Harney-Malheur Lakes, Silver, Goose Lake, Lake Abert, and Warner Lakes should be deleted.*

DEQ evaluated all temperature data submitted in the call for data and available in the LASAR database at the time of the evaluation and applied current temperature criteria and designated uses. Temperature data available for the period 1/1/1994 to 12/31/2003 were evaluated. This time period overlapped part of the 10 year period reviewed for prior assessments in 1998 and 2002, and if data were available in the LASAR database, all data were evaluated using 2003 temperature standards and designated uses. If data on a previously listed water body showed that the new criteria were met, the water body was de-listed in 2004. If no data were available to evaluate against current criteria, the water body status remains 303(d). If the designated beneficial use on a water body has been clarified and salmon and steelhead spawning is not a designated beneficial use, a prior listing for a spawning time period and/or temperature criterion was de-listed, and available data were evaluated using the applicable criterion for the designated fish use. In the watersheds mentioned by the commenter, the designated fish use is generally redband or Lahontan cutthroat trout with a temperature criterion of 20.0 degrees Celsius. No water bodies are designated for salmon and steelhead spawning. The available data in these watersheds were evaluated using the designated uses and criteria. Thirteen (13) prior listings were de-listed if the criteria were met or the listing had been for spawning; fourteen (14) water body segments were assigned a Category 2: Attaining status using the new criteria, and thirty (30) water bodies did not meet the criterion and were assigned a Category 5: Water quality limited, 303(d) list, TMDL needed status for 2004. As additional data becomes available in future assessment cycles, other stream segments may be re-evaluated.

**21: Northwest Environmental Defense Center, David Theriault, Kailei Feeney, Erika Holsman, Shannon Rush, Jared Kahn, and Kevin Kerr**

*Commenters ask “What control measures are being implemented in response to the data in the 305(b) report that indicates that 60% of the streams in the Umpqua Basin are “poor quality” for temperature?”*

DEQ reviews available data for the Integrated Report and prioritizes water bodies placed in Category 5: Water quality limited, 303(d) list, TMDL needed for further work. The watersheds in the Umpqua Basin include the Umpqua, North Umpqua, and South Umpqua. Many water bodies in these watersheds have been placed in Category 5 or on the 303(d) list for temperature in the 2004/2006 Integrated Report or in prior assessments. DEQ is currently developing a TMDL, scheduled for public comment in 2006, to address temperature in the watersheds in the Umpqua basin. The TMDL will address point and non point sources and develop load allocations for all sources. Management strategies will be identified in a Water Quality Management Plan (WQMP). The wasteload and load allocations established in the TMDL will be implemented through water quality permits for sources regulated under permit requirements and through sector-specific or source-specific implementation plans for other sources. The WQMP will identify what implementation plans are required and the persons, including Designated Management Agencies, responsible for developing and revising those plans. Control measures consistent with the allocations developed in the TMDL and the WQMP will then be implemented.

*Commenters ask “How will conditions placed on the North Umpqua Hydroelectric Project ensure attainment of temperature standards in the North Umpqua Subbasin more effectively than TMDLs?”*

DEQ will evaluate the effect of control measures by hydroelectric power operations on stream temperature thoroughly in the TMDL. The final 2004/2006 Integrated Report will assign Category 5: Water quality limited, 303(d) list, TMDL needed status to temperature stream segments on Fish Creek and the North Umpqua until the TMDL is approved, rather than Category 4B as proposed in the Draft 2004/2006 Integrated Report.

*Commenters ask “How does de-listing the Coast Fork Willamette River for the criteria of fecal coliform support that water body’s designated use of water contact recreation?”*

The assessment for the 2004/2006 Integrated Report applies current standards and criteria which are summarized in the Assessment Methodology. The current bacteria standard for protection of water contact recreation in freshwaters and estuarine waters uses a numeric criteria based on a measure of e. coli. These criteria replaced the numeric criteria based on fecal coliform in 1996. Available data for the Coast Fork Willamette River meet the bacteria criteria for e. coli (Record IDs 17024 and 17025) and the status is Category 2: Attaining for these criteria and uses. The prior bacteria listings based on fecal coliform are de-listed because data show the current criteria are met in this water body.

*Commenters ask “Does DEQ consider a sewage treatment plant operating under a Water Pollution Control Facility (WPCF) permit a point source that is likely to impair water quality criteria for fecal coliform? Why is DEQ removing water bodies with these*

*sources of point source pollution from the 303(d) list?” Commenters specifically ask about the Lost River and John Day River with proposed de-listings for prior cycle listings for fecal coliform.*

Available data for the Lost River meet the bacteria criteria for E. coli (Record IDs 14839 and 14838) and the status of Category 2: Attaining is assigned for this pollutant. The prior bacteria listings based on fecal coliform are de-listed because data show the currently applicable bacteria criteria are met in this water body. The 1998 listing for the John Day River for fecal coliform for fall/winter /spring (Record ID 1526) is being de-listed because data for E. coli (Record ID 14667) show the criteria are met. However, the 1998 listing for the John Day River for fecal coliform for summer (Record ID 1908) is not being de-listed because data for E. coli (Record ID 14669) show the currently applicable bacteria criteria are exceeded.

*Commenters ask “Did DEQ use any sampling data from the Deschutes River taken during the month of June when it decided to de-list that water body for dissolved oxygen for the period of September 1 through June 30? Does DEQ believe that this is a representative sample?”*

DEQ reviewed the available data and applied the current designated uses and criteria. Several segments were de-listed in order to update the assessment. Prior listings on the Deschutes River from 1998 applied a spawning criterion for dissolved oxygen for the September 1 through June 30 time period for segments from river miles 46.4 to 99.8, 168.2 to 189.4, and 189.4 to 222.2 (IDs 273, 277, and 594). These have been superseded by a new designated spawning time period for October 15 to May 13 for the segment from river mile 0 to 83.6 where data are sufficient to indicate the criterion is attained (Record ID 11545). Therefore the prior segment from RM 46.4 to 99.8 (Record ID 273) is de-listed. Applying a DEQ implementation memo regarding resident trout spawning time periods, a spawning time period of January 1 to May 15 for the segment from river mile 116.0 to 222.2 was evaluated and data are sufficient to indicate the criterion is not attained. The new segment (Record ID 20881) is assigned Category 5: Water quality limited, 303(d) list, TMDL needed. The prior listings for segments river miles 168.2 to 189.4, and 189.4 to 222.2 (IDs 277 and 594) are de-listed because they are superseded by the new listed segment with a different spawning time period and segment length. Data from June are outside the designated spawning time period and were evaluated using the cold water criterion. The cold water criterion was exceeded in the segment from RM 171.7 to 223.3 (ID 11887), and that segment is assigned Category 5: Water quality limited, 303(d) list, TMDL needed.

*Commenters ask “Can DEQ ensure that pollution from rivers being de-listed which are connected to the Clackamas and McKenzie Rivers will not degrade those waters, which are protected by OAR 340-041-0350(“Three Basin Rule”)?” Commenters specifically ask about prior listings for e. coli in Deep Creek and dissolved oxygen in Mohawk River. Deep Creek (LLID 1224320453894 in the Clackamas watershed) is not being de-listed for e. coli. The 2002 Record ID 9365 with status 303(d) is being carried forward. A prior listing (Record ID 8526) for the Mohawk River applied a spawning criterion for dissolved oxygen. This listing has been superseded by a new designated spawning time period for January 1 to June 15 for the segment (Record ID 20949) from river mile 0 to*

7.2 where data are sufficient to indicate the criterion is attained. Data for dissolved oxygen in the McKenzie River also show the applicable dissolved oxygen criteria are attained.

## **22: Bureau of Land Management, Rosemary Mazaika**

Antelope Creek (Record IDs 2182, 12745)

*Commenter noted some draft changes to listing for temperature.*

DEQ reviewed the records for this stream. A 1998 listing (Record ID 2182) for rearing from RM 2 to 3 will be carried forward. The new Record ID 12745 for the current designated use of redband or Lahontan cutthroat trout for RM 0 to 14 is revised and assigned Category 3: Insufficient data status because data evaluated for this stream were collected in 2001. In the 2002 Assessment Methodology, the year 2001 was identified as a drought year and temperature data collected only in this year was not considered sufficient to show an exceedence of the temperature criteria. Oregon's standards allow for natural conditions and, in keeping with prior assessment methodologies, drought years are considered natural conditions and data from those years were not sufficient for listing purposes. In this specific case, the data from 2001 are not evaluated for listing purposes for 2004 to be consistent with 2002 assessment conclusions.

East Branch Lost River (Record ID 12748)

*Commenter noted a new listing for temperature.*

DEQ reviewed the records for this stream. Record ID 12748 for the current designated use of redband or Lahontan cutthroat trout for RM 0 to 2.4 is revised and assigned Category 3: Insufficient data status because data evaluated for this stream were only collected in 2001 which in the 2002 Assessment Methodology was identified as a drought year.

Corral Creek (Record ID 2161), Hawk Creek (Record ID 3916), Sanford Creek (Record ID 187), Macks Canyon (Record ID 244), Ferry Canyon (Record ID 634), and Deep Creek (Record ID 237)

*Commenter suggested that BLM has more data that would support assigning a Category 5: Water quality limited, 303(d) list, TMDL needed status to these water bodies.*

DEQ did not receive any additional data during the call for data. No additional data were available to assess as a basis for changing the status from prior year assessments from Potential Concern or insufficient data.

Camp Creek

*Commenter notes LASAR station mislocated.*

Latitude/longitude location information for LASAR station 31252 put this station on Camp Creek. However, BLM pointed out this station was actually on North Fork Big Butte Creek. Data from station 31252 was added to support the Category 5: Water quality limited, 303(d) list, TMDL needed status for North Fork Big Butte Creek and records for Camp Creek were deleted.

## **23: USDA Forest Service, PNW Region, Trish Carroll**



*Commenter asks about new listings for Trout Creek for pesticides and nutrients and what data were used for listings.*

It is not clear what water body or parameters the commenter is referring to. Any data used to assess the water body in 2004 is summarized in database record in the supporting data field. If listings are from prior years, the supporting data field contains a summary of the data.

**24: National Environmental Law Center, Oregon State Public Interest Group, Columbia Riverkeeper, James Scheller, Joseph Mann**

*Commenters identified errors in station identification numbers for samples summarized in the Supporting Data field for the Columbia and Skipanon samples from estuarine locations.*

This comment pointed out a systematic error in identifying stations for the summary of supporting data for records for dissolved oxygen in estuarine locations. DEQ reviewed the data and data analysis and found no error in the evaluations of data compared to the criterion, the sampling dates, or the counts of samples which were summarized in the supporting data field or assessment conclusions. The dissolve oxygen records for estuaries have been updated to display the correct LASAR identification number, but no other changes were necessary to the supporting data field. DEQ provided the commenters a list of correct LASAR station numbers and location information during the public review period at their request to assist in their review of the 2004/2006 Integrated Report. Commenters were referred to the LASAR database to review the analytical data for stations cited in the supporting data field.

*Commenters suggested data were not available for public review, were not evaluated correctly, and station locations were systematically mislocated and misplaced on streams.*

DEQ provided for public review a summary of the data evaluations used to support each assessment decision in the Draft 2004 Integrated Report database. Each record summary provided the basis for DEQ's assessment decision and category assignment. DEQ stores data in a Laboratory Analytical Storage and Retrieval Database known as LASAR. The data maintained in the LASAR database was and is currently available for public review at <http://www.deq.state.or.us/wq/lasar/LasarHome.htm> . To prepare the 2004/2006 Integrated Report, DEQ downloaded a set of data from LASAR to a program that evaluated the data according to the Assessment Methodology. During the public comment period on the Draft 2004 Integrated Report, parties interested in reviewing the analytical data were referred to the LASAR data base to access the data. The data set DEQ downloaded for evaluation included close to 500,000 data records. DEQ also evaluated approximately 20 million continuous temperature readings that were available in LASAR at the time of the data retrieval. Data is routinely added by the DEQ laboratory to the LASAR database as more data is received and QA/QC review is completed. There may be more monitoring stations and data in LASAR that were not available when data were retrieved for the 2004 assessment evaluation. The 2004/2006 Integrated Report database is not linked to data in LASAR, is not linked to the

intermediate calculations and evaluations done on the data set, and does not support a search for data or evaluation results by individual station. The 2004/2006 Integrated Report database does present a comprehensive summary of the supporting data on which the stream assessment is based.

The evaluation for the 2004 assessment worked with available information from the LASAR database regarding station locations, sampling dates, and QA/QC rating. The Assessment Methodology provides information on what data were used, and how water body segments were defined for assessment purposes. To define water body segments for status and listing purposes, DEQ used a 1:100,000 geo-referenced river reach system compiled for the Pacific Northwest. The river reach system is the hydrography component in a regional rivers and fisheries information system known as Stream Net. Information about this system is available at <http://www.streamnet.org/pnwr/PNWNAR.html>. The assessment for the 2004/2006 Integrated Report depends on accurate station location information in the LASAR database, and accurate identification of streams in the Stream Net system. Errors in information in either of these base data sources may propagate into assessment inaccuracies which can be corrected through the internal and public review process so that no errors are made in the Integrated Report assessment conclusions. However, changes to the framework of the Stream Net LLID system and LASAR data system are beyond the purview of the Integrated Report evaluation and assessment.

*Commenters provided a detailed review of monitoring stations, station locations, counts of samples, data results for monitoring locations, and details of analytical results for sampling in the Columbia River and Skipanon River and provided copies of reports and data summaries.*

DEQ checked the data sets for several of the monitoring stations cited by the commenters to verify the conclusions presented in the 2004/2006 Integrated Report are correct and that no gross errors were made in the assessment. DEQ found no effective differences in the conclusions.

For example, the commenter provided a list of monitoring stations and data on the Skipanon River and Skipanon Waterway. These stations were within the data set DEQ evaluated for either the Skipanon River or the Skipanon Waterway, and dissolved oxygen data were evaluated if available in the data retrieval. The cold water and spawning criteria applied for the Skipanon River is stricter than the estuarine criterion applied in the Skipanon Waterway. The Skipanon River (LLID 1239211461664) was evaluated using the stricter criteria for cold water (8.0 mg/L) and for spawning (11.0) and was determined to have sufficient data to assign Category 5: Water quality limited, 303(d) list, TMDL needed status for both criteria. This is consistent with the conclusion from the 1998 and the 2002 assessment for the Skipanon River. Available data for the Skipanon Waterway (LLID 1239022461912) was evaluated as estuarine (6.5 mg/L), but was not sufficient data to assign a status category. However, DEQ also reviewed information from a modeling analysis by Craig Hesterlee in 10/7/2002 DEQ Memo "Evaluation of impact of current industrial dischargers to Skipanon River estuarine embayment (Skipanon Waterway)". This memo concluded that the Skipanon Waterway is water quality limited

for dissolved oxygen, so this record (Record ID 21131) will be changed to Category 5: Water quality limited, 303(d) list, TMDL needed.

*Commenters suggest dissolved oxygen data for specific station locations were incorrectly evaluated. Example included Station 10811.*

STATION	RESULT	UNIT	PARAMETER	SAMPLE DATE	SAMPLING EVENT
10811	40	%	Dissolved Oxygen	9/6/2000	20000760
10811	3.7	mg/L	Dissolved Oxygen	9/6/2000	20000760
10811	78	%	Dissolved Oxygen	8/6/2003	20030797
10811	7.0	mg/L	Dissolved Oxygen	8/6/2003	20030797
10811	5.4	mg/L	Dissolved Oxygen	8/6/2003	20030797
10811	6.8	mg/L	Dissolved Oxygen	8/7/2003	20030803
10811	7.4	mg/L	Dissolved Oxygen	8/7/2003	20030803
10811	6.0	mg/L	Dissolved Oxygen	8/7/2003	20030803
10811	88	%	Dissolved Oxygen	8/20/2003	20030927
10811	7.9	mg/L	Dissolved Oxygen	8/20/2003	20030927

Monitoring stations for the Columbia River included stations located in a portion of the river that was evaluated as estuarine (River mile 0 to 65.7), and freshwater (RM 0 to 306.1) when conductivity indicated freshwater conditions. As stated in the Assessment Methodology, the water body segments for dissolved oxygen are defined based on designated fish uses for a stream using LLID, starting river mile, and ending river mile. The segment length is determined by sequential segments with the same fish use. If data at any point on the segment does not meet numeric criteria for temperature or dissolved oxygen, the entire segment with that fish use is listed as water quality limited. The Columbia River is designated as a salmon and trout rearing and migration corridor from RM 0 to RM 306. As stated in the Assessment Methodology, a cool-water dissolved oxygen criterion (6.5 mg/L) was applied during non-spawning time periods in areas designated as salmon and trout migration corridors (no rearing). However, it appears that the data for the Columbia River in the non-estuarine portions were evaluated using a stricter cold water criterion of 8.0 mg/L. Never the less, for stations that had sufficient data, the Columbia River was found to be Category 2: Attaining. This is consistent with the conclusions from the 2002 Integrated Report when the Columbia River was de-listed for dissolved oxygen because data showed the criterion was met. The 2004/2006 Record ID 21103 will be changed to show that the applicable criterion is the cool-water dissolved oxygen criterion (6.5 mg/L).

Commenters also indicated that data from many monitoring stations on the Columbia River were not evaluated for the 2004/2006 Integrated Report. DEQ did spot check some of the lists of additional stations suggested by the commenter on the lower Columbia, and found 8 of the 10 stations did not have data in the retrieved data set, and 2 stations had insufficient data (1 or 3 results). It does not appear that any gross errors have been made in the conclusions and status assignment. More precise station location information and an expanded data set may be available for evaluation for the next assessment cycle.

*Commenter suggests that the Skipanon Waterway should not be separated from the Skipanon River.*

To define water body segments for status and listing purposes, DEQ used a 1:100,000 geo-referenced river reach system compiled for the Pacific Northwest. The river reach system is the hydrography component in a regional rivers and fisheries information system known as Stream Net. Information about this system is available at <http://www.streamnet.org/pnwr/PNWNAR.html>. The designated fish beneficial uses for each of the identified waterbodies is established by rule. The Skipanon Waterway (LLID 1239022461912) was evaluated as estuarine (6.5 mg/L). The Skipanon River (LLID 1239211461664) was evaluated using the stricter criteria for cold water (8.0 mg/L) and for spawning (11.0). Both water bodies were assigned Category 5: Water quality limited, 303(d) list, TMDL needed status.

## **27: Columbia River Inter-Tribal Fish Commission, Olney Patt, Jr. and Dr. Dale McCullough**

*Commenters noted that many streams, especially in the John Day Basin, were de-listed due to data being collected in a drought year under an application of the Air Temperature Exclusion and Low Flow Condition exception to the numeric temperature criteria. Commenters provide a detailed analysis of air temperature, precipitation, and flow data for the John Day Basin and found that there was no basis to exclude data from any of the years 1991, 1992, 1991, or 2001. Commenters also note that low flow conditions can be related to irrigation withdrawals and an index of drought conditions should be independent of the level of irrigation withdrawals.*

The actions to de-list streams or exclude data based on drought conditions were done for the 1998 and 2002 303(d) lists which have been approved by EPA. For those lists, streams with data only from “drought years” were determined to be a Potential Concern and not listed based on temperature exceedences only in the drought years. For the 2004/2006 Integrated Report, all available data were evaluated and no blanket exclusions were made. If assessments for prior years resulted in de-listing, these are superseded by the data analysis done using the current standard and designated beneficial use. If no data were available for the 2004 evaluation, a prior year status of Potential Concern may be carried forward. In the Lower, Middle Fork, and North Fork John Day watersheds, no streams were de-listed for temperature in 2004. Data analyzed in 2004 for the John Day River and the North Fork John Day River, as two examples, resulted in multiple temperature listings for these rivers for year round and spawning time periods.

A TMDL is currently being developed for the John Day Basin to address impairments for temperature. The TMDL will consider temperature in the entire basin since there are many streams throughout the basin that are currently listed as water quality limited for temperature. The TMDL will include model results for the main stem, North, Middle, and South Fork John Day River. The model will use data collected from temperature monitoring in 2002 to 2004 and will incorporate information about air temperature and other weather variables, stream hydraulics including flow and gradient, and other stream channel and landscape characteristics. The modeling will help determine load allocations for all perennial streams in the John Day basin in the absence of anthropogenic effects such as irrigation withdrawals. The TMDL will develop representative natural temperature profiles for the modeled water bodies and heat load allocations will be based on natural riparian vegetations, stream morphology, and natural flow conditions. The exclusion of drought year data from prior listing evaluations will not affect the outcome of the TMDL or model.

The commenter provides an excellent analysis of data that could be used when considering the application of an exception to the numeric criteria for specific streams, time periods, or basins based on air temperature or stream flow. DEQ may consider this as an addition to the protocol for the next assessment and 303(d) list cycle, although this level of detailed analysis is probably more appropriate when developing the TMDL. DEQ is in the process of preparing temperature implementation guidance for permit development and issuance, and the analysis presented by the commenter will be a useful template.

*Commenter discussed the de-listings due to a use designation specifically in the Burnt River basin.*

Streams listed in prior years for exceeding the spawning temperature were de-listed if the designated use is currently No (Salmon and Steelhead) Spawning. Available temperature data for these streams were evaluated using the criteria for the fish uses designated by rule in 2003. The examples in the Burnt River basin cited by the commenter (Cottonwood Creek, Dark Canyon, Dixie Creek, Lawrence Creek, North Fork Dixie Creek, and South Fork Dixie Creek) were de-listed because the prior listing was based on applying spawning criteria (12.8 degrees C) and current designated uses do not include salmon and steelhead spawning. These streams were evaluated using the designated use of redband or Lahontan cutthroat trout, and were listed as Category 5: Water quality limited, 303(d) list, TMDL needed for exceeding that criterion (20 degrees C). Another stream, Pine Creek, was de-listed for spawning since that is no longer a designated use, and the available data were found to attain the applicable criterion for redband or Lahontan cutthroat trout. While streams may be de-listed from prior listings based on uses that are not currently designated, they may still be water quality limited and assigned Category 5: Water quality limited, 303(d) list, TMDL needed status based on the applicable criterion for current designated fish uses.

*Commenter discusses applying the spawning dissolved oxygen criterion for resident trout in streams where no salmon or steelhead spawning use is designated in the Burnt River basin and which are being de-listed for temperature.*

In cases where dissolved oxygen data were available, the data were evaluated for an assumed spawning time period for resident trout such as redband or Lahontan cutthroat trout as outlined in the Assessment Methodology. This assumed spawning time does not also extend to the temperature criterion. The temperature criterion for spawning is applied only in streams where salmon and steelhead spawning use is identified in rule. The temperature criterion for redband or Lahontan cutthroat trout of 20 degrees C was applied in the Burnt River watershed, and no temperature spawning criterion was applied since salmon and steelhead spawning is not a designated use. In the Burnt River watershed, seven streams were de-listed for prior listings based on spawning temperatures, nine streams were listed for non-spawning temperatures based on a review of data for 2004 compared to the 20 degree C criterion, and five streams remain on the 303(d) list based on prior year reviews where no additional data were available to review for 2004. Data for dissolved oxygen from the Burnt River were reviewed for a spawning period from January 1 through May 15, and assigned Category 5: Water quality limited, 303(d) list, TMDL needed based on exceeding the criterion. No other dissolved oxygen data were available for other streams in the Burnt River watershed to evaluate for the assumed resident trout spawning period.

**29: GSL Properties, Inc., David K. Bell**

*Commenter suggests the 2002 de-listing of Fanno creek for iron should be the basis for de-listing the Willamette River for iron.*

EPA approved de-listing of Fanno Creek from the 2002 303(d) list as “meeting standards” on the basis of a discussion in the Tualatin TMDL of “naturally occurring” levels of arsenic, iron, and manganese in the basin. (Appendix G: Toxics Discussion <http://www.deq.state.or.us/WQ/TMDLs/WillametteBasin/Tualatin/TualatinAppxG.pdf> ). EPA took no position on whether this discussion could be applied to other streams within the Tualatin basin or applied outside of the Tualatin watershed

On reviewing the Appendix G: Toxics Discussion, DEQ finds that the purpose of the discussion paper was to address whether a TMDL was warranted for the 1998 Fanno Creek 303(d) listings for arsenic, iron, and manganese. While an analysis of basin wide monitoring data was conducted, it did not result in developing an alternative “natural background” level that could be used to screen data for water quality assessment purposes throughout the subbasin and certainly not to extrapolate to the entire Willamette Basin. The Tualatin TMDL identifies several publicly owned treatment works (POTWs), industrial point sources, and storm water discharge points within the basin. The discussion paper did not determine what natural levels of these pollutants would be expected within the subbasin in the absence of these sources or test for statistically significant differences between “natural” or reference condition streams and water bodies where exceedences of the water quality criteria were recorded. Therefore, the Willamette River will remain listed as Category 5: Water quality limited, 303(d) list, TMDL needed or flagged as potential concern where the available data indicate water quality criteria are exceeded. A future analysis of surface water data to establish natural background levels could lead to de-listings if listed stream segments are found to reflect natural background levels.

## List of Commenters on Draft 2004/2006 Integrated Report

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28	Brent Foster	Columbia Riverkeeper	721 NW 9 <sup>th</sup> Ave, Suite 300 Portland, OR 97209	
27	Olney Patt, Jr.	Columbia River Inter-Tribal Fish Commission	729 NE Oregon, Suite 200 Portland, OR 97232	503-238-0067
26	Brett VandenHeuvel	Willamette Riverkeeper	49 SE Clay St. Portland, OR 97214	503-223-6418
25	Nina Bell	Northwest Environmental Advocates	PO Box 12187 Portland, OR 97212	503-295-0490
24	Joseph J. Mann James Scheller	National Environmental Law Center, Oregon State Public Interest Research Group Northwest environmental Defense Center, Columbia Riverkeeper	369 Broadway Street, Suite 200 San Francisco, CA 94133	415-622-0086 x306
23	Trish Carroll	USDA Forest Service Pacific Northwest Region		503-808-2905
22	Rosemary Mazaika	Bureau of Land Management Oregon State Office		503-808-6076

<b>Commenter #</b>	<b>Name</b>	<b>Representing</b>	<b>Address</b>	<b>Phone</b>
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16	Richard Jones		Portland, OR	
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14	Ivars Steinblums	Mt. Hood National Forest	16400 Champion Way Sandy, OR 97055	503-668-1780
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12	Anthea Karl		1346 SE Sherrett St. Portland, OR 97202	
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<b>Commenter #</b>	<b>Name</b>	<b>Representing</b>	<b>Address</b>	<b>Phone</b>
10	Kathryn VanNatta	Northwest Pulp & Paper	1300 114 <sup>th</sup> Ave SE Suite 200 Bellevue, WA 98004	425-455-1323
9	Andrew Swanson	Water Environment Services Clackamas County	9101 SE Sunnybrook Blvd. Suite #441 Clackamas, OR 97015	503-353-4598
8	Mikeal Jones	Umpqua National Forest	2900 NW Stewart Parkway Roseburg, OR 97470	541-957-3356
7	Angelo De Ieso II		Portland, OR	
6	Frank Wildensee	City of Portland Environmental Services	1120 SW Fifth Ave Room 1000 Portland, OR 97204	503-823-2926
5	Eldon Bevins		561 SW Levens St Dallas, OR 97338	
4	Sandra Coveny	Marys River Watershed Council	PO Box 1041 Corvallis, OR 97339	541-758-7597
3	Pat Larson	Oregon Cattlemen's Association	61931 Cottonwood Rd. La Grande, OR 97850	
2	Arthur J. Currier	Ochoco National Forest USDA Forest Service	Lookout Mtn Ranger District 3160 NE Third St. Prineville, OR 97754	541-416-6500

<b>Commenter #</b>	<b>Name</b>	<b>Representing</b>	<b>Address</b>	<b>Phone</b>
1	Charles Logue	Clean Water Services	2550 SW Hillsboro Highway Hillsboro, OR 97123	503-681-3600

**Public Hearing Testimony – October 11, 2005**

A	Brett VandenHeuvel	Willamette Riverkeeper	620 SW Main Suite 615 Portland, OR 97205	
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