

## Enclosure 2: EPA 303(d) Listing Methodology

The federal Clean Water Act (CWA) Section 303(d) requires states to identify state waters where existing pollution controls are not stringent enough to achieve state water quality standards. The CWA also requires EPA to approve or disapprove the list of waters that the state has identified and if EPA disapproves this list then EPA must identify waters in the state that are not achieving the state's water quality standards. EPA must also seek public comment on the proposed listings.

EPA received Oregon's 2010 303(d) list from the Oregon Department of Environmental Quality (DEQ) on May 23, 2010. On March 15, 2012, EPA partially disapproved Oregon's 2010 303(d) list because Oregon failed to consider all readily available data and information when they developed their list. As required by 40 CFR 130.7(d)(2), EPA developed a list of waters that are not achieving Oregon's water quality standards. Below is the methodology that EPA used to assess water quality data and information for compliance with Oregon's water quality standards.

EPA began the list development process by retrieving data from Oregon's Laboratory Analytical and Storage Retrieval (LASAR) database. Only A and A+ Quality Assurance/Quality Control (QA/QC) status data in LASAR were used. A+ status data is data of known quality collected by DEQ that meets QC limits established in the Quality Assurance Project Plan. A status data is data of known quality submitted by entities outside of DEQ that meets QC limits established in a DEQ-approved QAPP. EPA also gathered data from its own STORET (Storage and Retrieval) data warehouse and from the U.S. Geological Survey (USGS) water data repository. EPA reviewed data collected from January 1, 2000, through December 28, 2010, from all three sources. In conducting its assessment, EPA reviewed Oregon's water quality standards in Oregon Administrative Rules (OAR) Chapter 340 Division 41 and Oregon's 303(d) list assessment methodology. Standards that have been approved by EPA were used for list development.

In developing its list of impaired waters, EPA utilized Oregon's 2010 assessment methodology, which is based on federal regulations and guidance, for parameters addressed by Oregon's methodology.<sup>1</sup> For parameters not included in Oregon's methodology (fine sediment, for example), EPA utilized methodologies that were consistent with federal regulations and guidance and based on scientific literature or methodologies utilized by other states. In this document, EPA is including methodologies only for parameters for which EPA conducted an assessment.

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<sup>1</sup> Methodology for Oregon's 2010 Water Quality Report and List of Water Quality Limited Waters, page 2. Oregon Department of Environmental Quality, May 12, 2011.

EPA's Assessment Methodology by Parameter

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**Parameter:** Bacteria – *E. coli* (*Escherichia coli*)

**Beneficial Uses Affected:** Water contact recreation

**Narrative Criterion:** OAR 340-041-0009(4) (See Appendix B)

**Numeric Criterion:** OAR 340-041-009(1)(a) (See Appendix B)

**Data Requirements:** A minimum of 5 representative data points available per site collected on separate days for each time period of interest. Where there were 2 or more data points per day, EPA only used the highest value. Data were analyzed seasonally as noted in the Time Period section.

**Assessment Methodology:** Category 5: Water Quality Limited (303(d) list)  
A 30-day log mean greater than 126 *E. coli* organisms per 100 ml based on a minimum of five samples or more than 10% of the samples exceed 405 *E. coli* organisms per 100 ml, with a minimum of at least two exceedances.

**Summary of data evaluated:**

**DATA SOURCE:** DEQ – LASAR  
**DATA PULLED:** 12/28/2010  
**DATA RANGE:** 1/1/2000 - 12/28/2010  
**COMMENTS:** Only A+ and A QA/QC status data  
**DATA EVALUATED:** 771 surface water sites  
25538 individual measurements at 771 sites (station IDs)

**# OF SAMPLE SITES IMPAIRED:** 373 individual measurements at 271 sites (station IDs)

**DATA SOURCE:** STORET  
**DATA PULLED:** 12/28/2010  
**DATA RANGE:** 1/1/2000 - 12/28/2010  
**COMMENTS:** METADATA IN DOCUMENT CALLED STORET\_ECOLIMETADATA  
**DATA EVALUATED:** 4209 individual measurements at 95 sites (station IDs)  
**# OF SAMPLE SITES IMPAIRED:** 53 individual measurements at 33 sites (station IDs)

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/28/2010  
**DATA RANGE:** 1/1/2000 - 12/28/2010  
**COMMENTS:** Surface water quality data only, parameter code: 31648  
**DATA EVALUATED:** 608 individual measurements from 3 sites (station IDs)  
**# OF SAMPLE SITES IMPAIRED:** 2 individual measurements from 1 site

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### **IMPAIRED:**

#### **Summary of new listings:**

After evaluating all readily available data and information, EPA is proposing to add 137 new *e. coli* listings to Oregon's 303(d) list. The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of *E. coli* data is found in Appendix A.

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<b>Parameter:</b>	<b>Bacteria – Fecal Coliform</b>
<b>Beneficial Uses Affected:</b>	Shellfish Growing Water Contact Recreation
<b>Narrative Criterion:</b>	OAR-340-041-0007(11) and OAR-340-041-0009(4) (See Appendix B)
<b>Numeric Criterion:</b>	OAR-340-041-009(1)(b) (See Appendix B)
<b>Data Requirements:</b>	A minimum of 5 representative samples per site collected on separate days. Where there were 2 or more data points per day, EPA only used the highest value. The numeric value of results reported at the Minimum Reporting Level (MRL) was used to calculate the median concentration. Data evaluated for marine and estuarine waters.
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list) For datasets of less than 30 samples, a minimum of 2 exceedences of 43 organisms/100 ml. For datasets with greater than 30 samples, 10% of the samples must exceed 43 organisms/100 ml. Or For datasets with a minimum of 5 samples the median value is greater than 14 organisms/100 ml.
<b>Summary of Data Evaluated:</b>	
<b>DATA SOURCE:</b>	DEQ - LASAR
<b>DATA PULLED:</b>	6/23/2011
<b>DATA RANGE:</b>	1/1/2000 - 12/31/2010
<b>COMMENTS:</b>	Only A+ and A QA/QC status data
<b>DATA EVALUATED:</b>	6713 individual measurements
<b># OF SAMPLE SITES IMPAIRED:</b>	117
<b>CRITERIA:</b>	43 organisms/100 ml

### Summary of new listings:

After evaluating all readily available data and information, EPA is proposing to add 17 new fecal coliform listings to Oregon's 303(d) list. The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of fecal coliform data is found in Appendix A.

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<b>Parameter:</b>	<b>Chlorophyll a</b>
<b>Beneficial Uses Affected:</b>	Water contact recreation Aesthetics Fishing Water Supply Livestock Watering
<b>Numeric Criterion:</b>	OAR-340-041-0019 (See Appendix B)
<b>Data Requirements:</b>	A minimum of three samples collected over any three consecutive months (at least one per month) at a minimum of one representative location.
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list) The average chlorophyll a value over three consecutive months exceeds the value referenced in the rule. The average must be calculated with at least one sample in each month. Where there were 2 or more data points per day, EPA only used the highest value.
<b>Summary of data evaluated:</b>	
<b>DATA SOURCE:</b>	DEQ - LASAR
<b>DATA PULLED:</b>	12/28/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/28/2010
<b>COMMENTS:</b>	Only A and A+ QA/QC Status Data
<b>DATA EVALUTED:</b>	875 sites - 6529 individual measurements from 875 sites
<b># of SAMPLE SITES</b>	
<b>IMPAIRED:</b>	19
<b>DATA SOURCE:</b>	STORET
<b>DATA PULLED:</b>	12/28/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/28/2010
<b>COMMENTS:</b>	Metadata in document called STORET_CHLAMetadata
<b>DATA EVALUTED:</b>	374 individual measurements from 36 sites
<b># of SAMPLE SITES</b>	
<b>IMPAIRED:</b>	1
<b>DATA SOURCE:</b>	USGS
<b>DATA PULLED:</b>	12/28/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/28/2010
<b>COMMENTS:</b>	Surface water quality data only, parameter code: 32209 parameter code 32209 defined as: Chlorophyll a, water, fluorometric method, corrected, micrograms per liter
<b>DATA EVALUTED:</b>	808 individual measurements at 3 sites
<b># of SAMPLE SITES</b>	
<b>IMPAIRED:</b>	6 (3 sites, 2 seasons each)

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<b>DATA SOURCE:</b>	USGS
<b>DATA PULLED:</b>	12/28/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/28/2010
<b>COMMENTS:</b>	Surface water quality data only, parameter code: 32211 parameter code 32211 defined as: Chlorophyll a, phytoplankton, spectrophotometric acid method, micrograms per liter
<b>DATA EVALUTED:</b>	125 individual measurements from 2 sites
<b># of SAMPLE SITES</b>	
<b>IMPAIRED:</b>	2 (1 site, 2 seasons)
<b>DATA SOURCE:</b>	USGS
<b>DATA PULLED:</b>	12/28/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/28/2010
<b>COMMENTS:</b>	Surface water quality data only, parameter code: 32217 parameter code 32217 defined as: Chlorophyll a, fluorometric method, uncorrected, micrograms per liter
<b>DATA EVALUTED:</b>	808 individual measurements from 3 sites
<b># of SAMPLE SITES</b>	
<b>IMPAIRED:</b>	6 sites (3 sites, each for 2 seasons)

### Summary of new listings:

After evaluating all readily available data and information, EPA is proposing to add 8 new Chlorophyll a listings to Oregon's 303(d). The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of chlorophyll a data is found in Appendix A.

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**Parameter:** Dissolved Oxygen

**Beneficial Uses Affected:** Fish and Aquatic Life  
Salmon and Steelhead Spawning  
Resident Trout Spawning  
Cold-Water Aquatic Life  
Cool-Water Aquatic Life  
Warm-Water Aquatic Life  
Estuarine Water

**Numeric Criterion:** OAR-340-041-0016 (See Appendix B)

**Data Requirements:** A minimum of 5 representative data points available per site collected on separate days per applicable time period. The daily mean of continuous dissolved oxygen data is calculated and represents one data point. Any combination of 5 days of continuous or grab sample data in the time period is acceptable.

**Assessment Methodology:** Category 5: Water Quality Limited (303(d) list)  
Greater than 10 percent of samples exceed the appropriate criterion and a minimum of at least two exceedances of the criterion for the time period of interest.

### NOTES:

#### **Cold or Cool Water Criteria:**

During non-spawning time periods, cold water criteria for dissolved oxygen are applied in areas designated for core cold water fish use in tables and figures referenced in OAR 340-041-0101 through OAR 340-041-0340.

Cold water criteria are also applied in designated bull trout spawning and rearing areas in non-spawning time periods.

Cool water criteria for dissolved oxygen are applied in areas designated specifically for cool water species fish use in tables and figures referenced in OAR 340-041-0101 through OAR 340-041-0340.

Cool water criteria for dissolved oxygen are also applied in non-spawning time periods in areas designated as salmon and trout migration corridors (no rearing) on tables and figures referenced in OAR 340-041-0101 through OAR 340-041-0340.

In non-spawning time periods where the designated fish use is “salmon and trout rearing and migration” or “redband and Lahontan cutthroat trout”, the cold or cool water criteria apply based on the ecoregion where the sampling site is located. This policy is described in a June 22, 1998 letter from DEQ to EPA, Region X (Appendix 3). The ecoregions are described in: Omernik, J. and Gallant, A., 1986, Ecoregions of the Pacific Northwest, EPA/600/3-86/033.

#### **Warm Water Criteria:**

The warm water criteria are applied to waters identified in OAR 340-041 Table 190B as supporting borax lake chub.

#### **Lakes:**

Unless designated as salmon and steelhead spawning areas, natural lakes and reservoirs are not considered spawning habitat. The applicable cold or cool water criteria are applied year round.

#### **Estuarine Criteria:**

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The estuarine water criterion for dissolved oxygen applies for samples taken in estuarine conditions. The spawning criteria is not applied for resident trout, but is applied for designated salmon and steelhead spawning periods. EPA used specific conductivity measurements as an indicator for estuarine conditions, where simultaneous data was available. If the recorded specific conductivity was greater than 200 uS/cm, the estuarine dissolved oxygen criterion of 6.5 mg/L was applied. If the recorded specific conductivity was less than 200 uS/cm, the appropriate freshwater criteria were applied. Data collected in non-coastal waters was evaluated using the appropriate freshwater criteria. The spawning criterion during assumed resident trout spawning time periods was not applied in sections of a water body where data indicated estuarine conditions.

### Summary of data evaluated:

**DATA SOURCE:** DEQ - LASAR  
Data was downloaded 6/28/2011 and (the Middle Willamette subbasin) 8/1/11

**DATA PULLED:**

**DATA RANGE:** 1/1/1999 – 4/14/11

**COMMENTS:** Only A+ and A QA/QC status data

**DATA EVALUATED:** 784 surface water sites  
147,376 individual measurements at 784 sites (station IDs)

**# OF SAMPLE SITES IMPAIRED:** 260 at 217 sites (station IDs)

**DATA SOURCE:** STORET

**DATA PULLED:** 06/02/2011

**DATA RANGE:** 01/01/1999 - 10/27/2010  
METADATA IN DOCUMENT CALLED STORET\_DOMETADATA

**COMMENTS:** 222 surface water sites 3623 individual measurements at 222 sites

**DATA EVALUATED:**

**# OF SAMPLE SITES IMPAIRED:** 26 (from 33 sites/site ids)

**DATA SOURCE:** USGS

**DATA PULLED:** 06/02.2011

**DATA RANGE:** 01/01/1999 – 05/19/2011  
Surface water quality data only, parameter codes: 00300 (dissolved oxygen (mg/l)) and 00301 (percent oxygen saturation)

**COMMENTS:**

**DATA EVALUATED:** 555 sites  
17693 individual measurements from 555 sites  
71 individual measurements from 63 sites

**# OF SAMPLE SITES IMPAIRED:** (station IDs)

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### **Summary of new listings:**

After evaluating all readily available data and information, EPA is proposing to add 235 new dissolved oxygen listings to Oregon's 303(d) list. The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes). The evaluation of dissolved oxygen data is found in Appendix A.

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<b>Parameter:</b>	<b>pH</b>
<b>Beneficial Uses Affected:</b>	Resident Fish and Aquatic Life Water Contact Recreation
<b>Narrative Criterion:</b>	OAR-340-041-0021(2) (See Appendix B)
<b>Numeric Criterion:</b>	Statewide: OAR 340-041-0021 (See Appendix B) Basin-Specific: OAR 340 041-0101 through OAR 340-410350 (See Appendix B)
<b>Data Requirements:</b>	A minimum of 5 representative data points available per site collected on separate days for each time period of interest.
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list) Greater than 10 percent of the samples are outside the range of the appropriate criterion and a minimum of at least two samples outside the range of the appropriate criterion for the time period of interest. Where there were 2 or more data points per day, EPA only used the highest value.

**Summary of data evaluated:**

<b>DATA SOURCE:</b>	DEQ LASAR - ph(SU)
<b>DATA RANGE:</b>	1/1/2000 - 12/7/2010
<b>COMMENTS:</b>	Only A+ and A QA/QC Status data. Freshwater sites only.
<b>DATA EVALUTED:</b>	1963 individual measurements from the 450 sites
<b># OF SAMPLE SITES IMPAIRED:</b>	4

<b>DATA SOURCE:</b>	LASAR - Field ph(SU)
<b>DATA RANGE:</b>	1/1/2000 - 12/7/2010
<b>COMMENTS:</b>	Only A+ and A QA/QC Status data. Freshwater sites only.
<b>DATA EVALUTED:</b>	50666 individual measurements
<b># OF SAMPLE SITES IMPAIRED:</b>	45

<b>DATA SOURCE:</b>	STORET
<b>DATA PULLED:</b>	12/7/2010
<b>DATA RANGE:</b>	1/1/2000 - 12/7/2010
<b>COMMENTS:</b>	METADATA IN DOCUMENT CALLED STORET_PHMETADATA
<b>DATA EVALUTED:</b>	236 surface water sites 1352 individual measurements from the 236 surface water sites
<b># OF SAMPLE SITES IMPAIRED:</b>	4

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**IMPAIRED:**

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/8/2010  
**DATA RANGE:** 1/1/2000 - 12/7/2010  
**COMMENTS:** Surface water quality data only, parameter code: 00400  
parameter code 00400 defined as: pH, water, unfiltered, field,  
standard units.  
Ponds, wetlands, waterbodies without names or location info. not  
included  
**DATA EVALUTED:** 205 surface water sites out of a total of 483 sites  
6105 individual measurements from the 205 surface water sites  
**# OF SAMPLE SITES**  
**IMPAIRED:** 10

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/8/2010  
**DATA RANGE:** 1/1/2000 - 12/7/2010  
**COMMENTS:** Surface water quality data only, parameter code: 00403  
parameter code 00403 defined as: pH, water, unfiltered, laboratory,  
standard units  
Ponds, wetlands, waterbodies without names or location info. not  
included  
**DATA EVALUTED:** 1369 individual measurements from the 161 surface water sites  
**# OF SAMPLE SITES**  
**IMPAIRED:** 1

**DATA SOURCE:** DEQ - LASAR  
**DATA PULLED:** 6/20/2011  
**DATA RANGE:** 1/1/2000 - 12/7/2010  
**COMMENTS:** Only A+ and A QA/QC Status data. Bay/Estuary/Ocean data only.  
**DATA EVALUTED:** 5751 Bay/Estuary/Ocean data points evaluated  
**# OF SAMPLE SITES**  
**IMPAIRED:** 3

**DATA SOURCE:** EPA Office of Research & Development  
**DATA PULLED:** 6/20/2011  
**DATA RANGE:** 5/1/2004 - 9/23/2010  
**COMMENTS:** Collected using an approved QAPP  
**DATA EVALUTED:** 77693 Bay/Estuary/Ocean data points evaluated  
**# OF SAMPLE SITES**  
**IMPAIRED:** 0

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### **Summary of new listings:**

After evaluating all readily available data and information, EPA is proposing to add 34 new pH listings to Oregon's 303(d). The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of pH data is found in Appendix A.

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<b>Parameter:</b>	<b>Sedimentation</b>
<b>Beneficial Uses Affected:</b>	Resident Fish and Aquatic Life Salmonid Fish Spawning and Rearing
<b>Narrative Criterion:</b>	OAR 340-041-0007(12) (See Appendix B)
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list)

EPA interpretation of Oregon's Narrative Criterion:

### **Background:**

Substrate is an important feature of stream habitat. It provides cover and protection for juvenile fish, habitat for macroinvertebrates and habitat for spawning salmon. Natural levels of sediment inputs create important habitat features and maintain the dynamic equilibrium of streams. However, excess supplies of fine sediments can decrease both the abundance and quality of this habitat by filling spaces between gravels, cobbles and boulders. Negative effects to the habitat of fish and other aquatic organisms from the deposition of fine sediment are well known (Waters 1995 and Chapman 1988). Human activities that increase fine sediment inputs to stream include erosion from forestry, mining, roads, agriculture, urbanization, stream channel alterations, and dredging.

Oregon's narrative water quality standard prohibits bottom deposits, including excessive fine sediment conditions, that are deleterious to fish or other aquatic life. Oregon does not have a numeric criterion for excess fine sediment in streams. Sediments cannot be treated as introduced pollutants such as pesticides or toxics, because they are not uniquely generated through human input or disturbance. Rather, sediments are components of natural systems that are present even in the most pristine settings.

To interpret and assess fine sediment data, it must be compared to a benchmark or estimate of what one would expect to find under natural conditions. EPA evaluated a number of benchmarks for fine sediments for use in conducting its listing assessments. For example, the National Marine Fisheries Service (NMFS) (NMFS, 1996), in connection with recovery of species listed under the Endangered Species Act, developed benchmarks for assessing the effect for individual or grouped actions at the watershed scale. The NMFS document includes a Matrix of Pathways and Indicators (MPI), which used as a benchmark percent fines (< 0.85 mm) with a target of < 12%. However, this value was developed principally for use with higher gradient, more mountainous streams and was intended to be used in concert with other indicators for Salmon recovery planning purposes (NMFS, 1996). EPA wanted benchmarks that could be applied across the entire state of Oregon.

Another benchmark developed by Tetra Tech Inc., (Jessup, 2009), proposed benchmarks for the wadeable streams in Oregon, based on both stream power and lithology. However, EPA did not have the site specific information on stream power and lithology to stratify sites according to these variables. Therefore, EPA used the benchmarks that were developed by Oregon DEQ (2007) for wadeable streams

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across the entire State. These benchmarks were very similar to those used by EPA when reporting on streams of the interior Columbia basin streams (Herger, et al, 2007). The benchmarks developed by Oregon DEQ (2007) were developed on a statewide basis and used readily available data. However, EPA fully expects that DEQ will continue to refine and re-evaluate these benchmarks in the future with additional data.

The Oregon DEQ (2007) benchmarks that EPA used were based on the reference condition approach. Reference conditions are based on the characteristics of the indicators, such as fine sediment, as measured at reference sites. Reference sites are those sites with minimal human disturbance. In this approach, existing fine sediment data is compared to the reference conditions.

The benchmark values used by EPA were for two measures of sedimentation that were used by Oregon DEQ (2007). First, fine sediment was assessed as the percentage of substrate composed of particles smaller than 2mm in diameter; the combination of “fines” (particles smaller than 0.6mm in diameter) and “sand” (particles between 0.6 and 2mm) categories. Second, EPA assessed Relative Bed Stability (RBS) which evaluates the ability of a stream of a particular size, steepness, discharge and roughness to move substrate downstream. Values less than zero indicate that the stream has a higher level of fine sediment than expected (Kaufmann, 1999).

In order for a site to be considered impaired for fine sediment it had to fail both tests. It had to have a RBS value that was less than the predicted value and it had to exceed its expected percent of sand and fines (Kaufmann, 1999).

### Data Evaluated:

EPA only assessed data from wadeable streams because the benchmarks only apply to wadeable streams. EPA used data that was collected for the past 10 years, using Environment Monitoring and Assessment Program (EMAP) physical habitat protocols. Detailed descriptions of field methods are listed in Peck et al. (2006) and habitat metric calculations are shown in Kaufmann et al. (1999).

### BENCHMARKS:

The table below shows the benchmarks that EPA used for relative bed stability and percent sand/fines.

Ecoregion	Coast Range	Willamette Valley + Puget Lowlands	Cascades	East Cascades	Blue Mountains	Klamath Mountains	Columbia Plateau + Northern Basin and Range + Snake River Plains
Relative Bed Stability	< -1.8	< -0.7	< -1.7	< -1.8	< -1.5	< -0.6	< -2.9
Percent Sand/Fines	> 45	> 50	> 45	> 44	> 31	> 31	> 71

### Summary of New Listings:

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After evaluating all readily available data and information, EPA is proposing to add 31 new sedimentation listings to Oregon's 303(d). The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of sedimentation data is found in Appendix A.

### **Sediment References:**

Chapman, D. W. (1988). "Critical review of variables used to defined effects of fines in redds of large salmonids." Transactions of the American Fisheries Society 117: 1-21.

Herger, L.G., G.A. Hayslip, and P.T. Leinenbach. 2007. Ecological Condition of Wadeable Streams of the Interior Columbia River Basin. EPA-910-R-07-005. U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

Jessup, B. 2009. Development of Bedded Sediment Benchmarks for Oregon Streams. Prepared by Tetra Tech, Inc. for: Oregon Department of Environmental Quality and U.S. EPA Region 10. Final Report. April 15, 2009.

Kaufmann, P. R., P. Levine, et al. 1999. Quantifying physical habitat in wadeable streams. EPA/620/R-99/003. U.S. Environmental Protection Agency. Washington, D.C.

National Marine Fisheries Service. 1996. Making ESA determinations of effect for individual or grouped actions at the watershed scale. Environmental and Technical Services Division, Habitat Conservation Branch, Portland, OR.

Oregon DEQ. 2007. Wadeable Stream Conditions in Oregon. Oregon Department of Environmental Quality Laboratory Division—Watershed Assessment Section. DEQ07-LAB-0081-TR.

Peck, D. V., A. T. Herlihy, B. H. Hill, R. M. Hughes, P. R. Kaufmann, D. Klemm, J. M. Lazorchak, F. H. McCormick, S. A. Peterson, P. L. Ringold, T. Magee, and M. Cappaert. 2006. Environmental Monitoring and Assessment Program-Surface Waters Western Pilot Study: Field Operations Manual for Wadeable Streams. EPA/620/R-06/003. U.S. Environmental Protection Agency, Washington, D.C.,

Waters, T. F. 1995. Sediment in streams: sources, biological effects, and control. American Fisheries Society. Bethesda, Maryland.

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**Parameter:** Temperature

**Beneficial Uses Affected:** Salmon and Steelhead Spawning  
 Core Cold Water Habitat  
 Salmon and Trout Rearing and Migration  
 Salmon and Steelhead Migration Corridor  
 Lohontan Cutthroat Trout or Redband Trout  
 Bull Trout Spawning and Juvenile Rearing

**Narrative Criterion:** OAR 340-041-0028 (See Appendix B)

**Numeric Criterion:** OAR 340-041-0028 (4) (See Appendix B)

**Data Requirements:** Continuous temperature data collected since 2003 for the time period of interest. “Grab” temperature readings will not be evaluated and “grab” data included in prior assessments were not re-evaluated.

**Assessment Methodology:** Category 5: Water Quality Limited (303(d) list)  
 Where continuous temperature data are collected, the seven-day average maximum temperature exceeds the applicable criterion. Seven-day average maximum temperature means a calculation of the average of the daily maximum temperatures from seven consecutive days made on a rolling basis.

EPA’s evaluation of temperature data:

EPA reviewed all readily available temperature data only for the subbasins that are not currently covered by a subbasin temperature TMDL.

Water temperature data from the following Subbasins or HUCs were downloaded. ODEQ has not issued basin wide temperature TMDLs for these areas:

HUC	Subbasin	STORET	LASAR	NWIS
16040201	Upper Quinn	25	No Continuous data	No Continuous data
16040204	Massacre Lake	14	No Continuous data	
16040205	Thousand-Virgin	15	No Continuous data	
17050103	Middle Snake-Succor	263 (no continuous data in Oregon)	No Continuous data	
17050105	South Fork Owyhee	97	No Continuous data	
17050106	East Little Owyhee	0	No Continuous data	
17050107	Middle Owyhee	0	No Continuous data	
17050108	Jordan	0	No Continuous data	
17050109	Crooked-Rattlesnake	0	No Continuous data	
17050110	Lower Owyhee	242 (no continuous data)	No Continuous data	
17050201	Brownlee Reservoir	6	No Continuous data	

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HUC	Subbasin	STORET	LASAR	NWIS
17050202	Burnt	49	1,974 continuous data	
17050203	Powder	188 (no continuous data)	No Continuous data	
17060101	Hells Canyon	2	7,144 continuous data	
17060103	Lower Snake-Asotin	7	No Continuous data	
17070101	Middle Columbia-Lake Wallula	28	No Continuous data	
17070301	Upper Deschutes	238 (no continuous data)	86,498 continuous data	
17070302	Little Deschutes	54	20,509 continuous data	
17070303	Beaver-South Fork	2	No Continuous data	
17070304	Upper Crooked	355 (no continuous data)	1,629 continuous data	
17070305	Lower Crooked	66	67,215 continuous data	
17070306	Lower Deschutes	112	No Continuous data	
17070307	Trout	1	No Continuous data	
17090008	Yamhill	1	186,774 continuous data	
17100204	Siletz-Yaquina	8	375,733 continuous data	
17100205	Alsea	3	378,217 continuous data	
17100206	Siuslaw	32	15,143 continuous data	
17100207	Siltcoos	2	22,512 continuous data	
17100304	Coos	67	227,036 continuous data	
17100305	Coquille	12	218,419 continuous data	
17100306	Sixes	0	572,439 continuous data	
17100312	Chetco	296 (no Continuous data in Oregon)	356,445 continuous data	
17120001	Harney-Malheur Lakes	0	101,142 continuous data	
17120002	Silvies	1	18,545 continuous data	

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HUC	Subbasin	STORET	LASAR	NWIS
17120003	Donner Und Blitzen	11	26,080 continuous data	
17120004	Silver	3	No Continuous data	
17120005	Summer Lake	2	No Continuous data	
17120006	Lake Abert	2	No Continuous data	
17120007	Warner Lakes	4	724 continuous data	
17120008	Guano	11	1,366 continuous data	
18010101	Smith	1005 (all in CA)	No Continuous data	
18010204	Lost	0	24,507 continuous data	
18010205	Butte	6	No Continuous data	
18010206	Upper Klamath	527 (no continuous data)	22,784 continuous data	
18010209	Lower Klamath	15913 (all in CA)	No Continuous data	
18020001	Goose Lake	9	No Continuous data	

Only continuous data is used to determine compliance with the water quality standard in Oregon consistent with Oregon DEQ's assessment methodology dating back as far as 1998 (citations: Methodology for Oregon's 2010 Water Quality Report and List of Water Quality Limited Waters, ODEQ, <http://www.deq.state.or.us/wq/assessment/docs/2010AssessmentMethodology.pdf>; Assessment Methodology for Oregon's 2004/2006 Integrated Report on Water Quality Status, ODEQ, <http://www.deq.state.or.us/wq/assessment/docs/methodology0406.pdf>; Consolidated Assessment and Listing Methodology for Oregon's 2002 303(d) List of Water Quality Limited Waterbodies and Integrated 305(b) Report, ODEQ, <http://www.deq.state.or.us/wq/assessment/docs/methodology02.pdf>; Final 1998 Oregon Section 303(d) List Matrix, ODEQ, <http://www.deq.state.or.us/wq/assessment/docs/matrix98.pdf>).

Data was downloaded by Hydrologic Unit Code (HUC): geographic unit based on hydrology delineated by USGS; also called "subbasins"). If any HUC that had less than 168 data points (the minimum for one week of continuous data) in the STORET or NWIS (National Water Information System: USGS's database for water monitoring information) databases, that data was not downloaded. Sites were only analyzed for locations and seasons which are not currently listed as impaired for temperature.

Data analysis for compliance with the 7 day average daily maximum temperature was accomplished using a Microsoft Excel-based macro (computer program) obtained from Oregon DEQ entitled : "7-day\_\_MACRO\_Bloom\_v2.xls".

### Summary of data evaluated:

**DATA SOURCE:** DEQ - LASAR

**DATA PULLED:** Data was downloaded 3/17/2011 for all the subbasins of interest and additional data was downloaded between 8/9/11 and 8/30/11 for the

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Coos, Chetco, Alsea, Coquille, Sixes, Yamhill, Upper Deschutes and Lower Crooked Subbasins.

**DATA RANGE:** 1/1/1999 – 4/14/11  
**COMMENTS:** Only A+ and A QA/QC status data  
**DATA EVALUATED:** 598 surface water sites  
2,742,497 individual measurements at 598 sites (station IDs)

**# OF SAMPLE SITES  
IMPAIRED:** 195 impairments at 185 sites (station IDs); 123 proposed new listings

**DATA SOURCE:** STORET  
**DATA PULLED:** 08/02/2011  
**DATA RANGE:** 01/01/1999 – 8/2/11  
**COMMENTS:**  
**DATA EVALUATED:** None – No station had a week of continuous sampling data

**# OF SAMPLE SITES  
IMPAIRED:** 0 (from 0 sites/site ids)

**DATA SOURCE:** USGS – NWIS data base - online water quality data  
**DATA PULLED:** 09/14/2011  
**DATA RANGE:** 01/01/1999 – 9/14/2011  
Surface water quality data only, parameter codes: 00011 (water temperature - degrees Fahrenheit) and 00010 (water temperature - degrees Celsius)  
**COMMENTS:** The response to the queries are copied below  
**DATA EVALUATED:** 0 sites  
0 individual measurements from 0 sites

**# OF SAMPLE SITES  
IMPAIRED:** 0 impairments (0 sites)

**Search Results -- No sites found**

No sites were found for water quality samples using your search criteria.

The sites you requested may be available offline. For more information, contact [Oregon Water Data Inquiries](#).

**Parameter codes = 00010**

**Parameter code operator = AND**

**Hydrologic unit = 17100205 or 17120009 or 17070303 or 17050201 or 17050202 or**

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18010205 or 17100312 or 17100304 or 17100305 or 17050109 or 17120003 or 17050106 or 18020001 or 17120008 or 17120001 or 17060101 or 17050108 or 17120006 or 17070302 or 18010204 or 17070305 or 17070306 or 18010209 or 17050110 or 17060103 or 17070101 or 17050107 or 17050103 or 17050203 or 17100204 or 17100207 or 17120004 or 17120002 or 17100206 or 17100306 or 18010101 or 17050105 or 17120005 or 16040205 or 17070307 or 17070304 or 17070301 or 18010206 or 16040201 or 17120007 or 17090008

**Sample medium** = [WS] Surface water

**Minimum number of samples** = 168

**Date range** = 01/01/1999 . 09/14/2011

**Period of record** = 1999-01-01 to 2011-09-14

**Search Results -- No sites found**

No sites were found for water quality samples using your search criteria.

The sites you requested may be available offline. For more information, contact [Oregon Water Data Inquiries](#) .

**Parameter codes** = 00011

**Parameter code operator** = AND

**Hydrologic unit** = 17100205 or 17120009 or 17070303 or 17050201 or 17050202 or 18010205 or 17100312 or 17100304 or 17100305 or 17050109 or 17120003 or 17050106 or 18020001 or 17120008 or 17120001 or 17060101 or 17050108 or 17120006 or 17070302 or 18010204 or 17070305 or 17070306 or 18010209 or 17050110 or 17060103 or 17070101 or 17050107 or 17050103 or 17050203 or 17100204 or 17100207 or 17120004 or 17120002 or 17100206 or 17100306 or 18010101 or 17050105 or 17120005 or 16040205 or 17070307 or 17070304 or 17070301 or 18010206 or 16040201 or 17120007 or 17090008

**Sample medium** = [WS] Surface water

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**Minimum number of samples = 168**

**Date range = 01/01/1999 . 09/14/2011**

**Period of record = 1999-01-01 to 2011-09-14**

### **Summary of New Listings:**

After evaluating all readily available data and information, EPA is proposing to add 122 new temperature listings to Oregon's 303(d). The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of temperature data is found in Appendix A.

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<b>Parameter:</b>	<b>Total Dissolved Gas</b>
<b>Beneficial Uses Affected:</b>	Resident Fish and Aquatic Life
<b>Narrative Criterion:</b>	OAR 340-041-0031(1) (See Appendix B)
<b>Numeric Criterion:</b>	OAR 340-041-0031(2) (See Appendix B)
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list) More than 10 percent of the samples exceed standard and a minimum of at least two exceedences of the standard, or a survey that identifies beneficial use impairment due to total dissolved gas such as assessment of fish conditions.

EPA's review of total dissolved gas (TDG) data:

EPA reviewed all readily available TDG data and information in LASAR, STORET and USGS and found no exceedences of Oregon's water quality standards.

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<b>Parameter:</b>	<b>Toxics</b>
<b>Beneficial Uses Affected:</b>	Aquatic Life – Fresh Water and Marine Water Human Health – Water and Fish Ingestion, Fish Consumption and Drinking Water
<b>Narrative Criterion:</b>	OAR 340-041-0033(See Appendix B)
<b>Numeric Criterion:</b>	OAR 340-041-0033 (See Appendix B)
<b>Data Requirements:</b>	Data collected since 1999.
<b>Assessment Methodology:</b>	Category 5: Water Quality Limited (303(d) list) Two or more valid results not meeting the most stringent applicable criterion for concentrations of a specific toxic substance in the water column.

EPA's review of toxics data:

EPA used values from Oregon DEQ Table 20: Aquatic Life Water Quality Criteria Summary, dated October 7, 2011 and Table 40: Human Health Water Quality Criteria for Toxic Pollutants, effective October 17, 2011. In cases where a particular toxic parameter is not listed, it is because EPA did not find detected values of that parameter in LASAR, STORET or USGS databases. Where there were 2 or more data points per day, EPA only used the highest value.

### 1,2-Diphenylhydrazine

<b>DATA SOURCE:</b>	EPA Portland Harbor
<b>DATA RANGE:</b>	1/1/2000 - 12/31/2010
<b>COMMENTS:</b>	Surface water quality data only water column data only
<b>DATA EVALUATED:</b>	24, 830
<b># OF IMPAIRED SITES:</b>	1
<b>CRITERIA:</b>	0.014 ug/L

### 2,4,6-Trichlorophenol

<b>DATA SOURCE:</b>	EPA Portland Harbor
<b>DATA RANGE:</b>	1/1/2000 - 12/31/2010
<b>COMMENTS:</b>	Surface water quality data only water column data only
<b>DATA EVALUATED:</b>	24, 830
<b># OF IMPAIRED SITES:</b>	1
<b>CRITERIA:</b>	0.23 ug/L

### 2,4-Dinitrotoluene

<b>DATA SOURCE:</b>	EPA Portland Harbor
<b>DATA RANGE:</b>	1/1/2000 - 12/31/2010
<b>COMMENTS:</b>	Surface water quality data only water column data only

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**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.084 ug/L

**3,3'-  
Dichlorobenzidine**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.0027 ug/L

**Arsenic**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 1/24/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 1449 individual measurements  
**# OF IMPAIRED SITES:** 24  
**CRITERIA:** 2.1 ug/L  
0.0021 mg/l

**DATA SOURCE:** STORET  
**DATA PULLED:** 1/25/2011  
**DATA RANGE:** 1/1/2000 - 12/28/2010  
**COMMENTS:** METADATA IN DOCUMENT CALLED STORET\_ARSENICMETADATA  
**DATA EVALUATED:** 188 individual measurements  
surface water column data only  
**# OF IMPAIRED SITES:** 7  
**CRITERIA:** 2.1 ug/L  
0.0021 mg/l

**DATA SOURCE:** USGS  
**DATA PULLED:** 1/24/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - Parameter Code: 01000 - Arsenic, water, filtered, micrograms  
water column data only  
**DATA EVALUATED:** 386 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 2.1 ug/L  
0.0021 mg/l

**DATA SOURCE:** USGS

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**DATA PULLED:** 1/24/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - Parameter code: 01002 - Arsenic, water, unfiltered, micrograms per liter  
water column data only  
**DATA EVALUATED:** 236 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 2.1 ug/L  
0.0021 mg/l

**Benzene**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.44 ug/L

**DATA SOURCE:** LASAR  
**DATA PULLED:** 1/26/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
**DATA EVALUATED:** 131 individual measurements  
No Benzene data for Oregon in Storet  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.44 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 1/26/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
Parameter code: 34030 - Benzene, water, unfiltered, recoverable, micrograms per liter  
**DATA EVALUATED:** 67 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.44 ug/L

**Bis(2-chloroethyl) ether**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830

Enclosure 2: EPA 303(d) Listing Methodology

**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.02 ug/L

**Chlordane**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only

**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000081 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 1/27/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - CHLORDANE  
water column data only-Parameter code: 39350 - Chlordane (technical), water, unfiltered, recoverable,  
micrograms per liter

**DATA EVALUATED:** 37 individual measurements, all non-detects  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.000081 ug/L

**Chlorpyrifos**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 1/31/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - chlorpyrifos  
water column data only  
No chlorpyrifos water column data found in Storet

**DATA EVALUATED:** 2161 individual measurements  
**# OF IMPAIRED SITES:** 18  
**CRITERIA:** .041 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 1/31/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - chlorpyrifos  
water column data only - Parameter code: 38933 - Chlorpyrifos, water, filtered, recoverable,  
micrograms per liter

**DATA EVALUATED:** 839 Individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** .041 ug/L

**Cyanide**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010

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**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 5.2 ug/L

**DDD**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 12/28/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - 4 4`-DDD / p p`-DDD  
water column data only  
No data in STORET  
**DATA EVALUATED:** 918 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000031 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/28/2010  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
**PARAMETER CODE:** # P39360 - p,p'-DDD, water, unfiltered, recoverable, micrograms per liter  
water column data only  
**DATA EVALUATED:** 37 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.000031 ug/L

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000031 ug/L

**DDE**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 12/28/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - 4 4`-DDE / p p`-DDE  
water column data only  
No data in STORET  
**DATA EVALUATED:** 881 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000022 ug/L

Enclosure 2: EPA 303(d) Listing Methodology

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/28/2010  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
**PARAMETER CODES:** # P34653 - p,p'-DDE, water, filtered, recoverable, micrograms per liter  
 # P39365 - p,p'-DDE, water, unfiltered, recoverable, micrograms per liter  
 water column data only  
**DATA EVALUATED:** 491 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 0.000022 ug/L

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
 water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000022 ug/L

**DDT**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/1/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - DDT  
 water column data only  
 No water column DDT data in STORET  
**DATA EVALUATED:** 801 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 0.000022 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/1/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only-DDT-Parameter code: 39370 - p,p'-DDT, water, unfiltered, reco  
 micrograms per liter  
 water column data only  
**DATA EVALUATED:** 37 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 0.000022 ug/L

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
 water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1

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**CRITERIA:** 0.000022 ug/L

**Dieldrin**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/7/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - dieldrin  
 water column data only  
 No dieldrin water column data in STORET  
**DATA EVALUATED:** 831 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 0.000053 ug/l

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/7/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only-dieldrin-Parameter code: 39380-Dieldrin, water, unfiltered, rec  
 micrograms per liter  
 water column data only  
**DATA EVALUATED:** 37 individual measurements  
**# OF IMPAIRED SITES:** 3  
**CRITERIA:** 0.000053 ug/l

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/7/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only-dieldrin-Parameter code: 39381 - Dieldrin, water, filtered, reco  
 micrograms per liter  
 water column data only  
**DATA EVALUATED:** 839 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.000053 ug/l

**Endosulfan**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/8/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - endosulfan  
 water column data only  
 No endosulfan water column data in STORET  
**DATA EVALUATED:** 940 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** .056 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/8/2011

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**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - endosulfan water column data only  
**PARAMETER CODES:** 61590 - Endosulfan sulfate, water, filtered, recoverable, micrograms per liter  
34357 - beta-Endosulfan, water, filtered, recoverable, micrograms per liter  
34362 - alpha-Endosulfan, water, filtered, recoverable, micrograms per liter  
39388 - alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter  
**DATA EVALUATED:** 745 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** .056 ug/L

**Guthion**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/10/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - Guthion (Azinphosmethyl) water column data only  
No water column Guthion (Azinphosmethyl) data in STORET  
**DATA EVALUATED:** 2102 individual measurements  
**# OF IMPAIRED SITES:** 20  
**CRITERIA:** .01 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/10/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - guthion - Parameter code: 82686 recoverable, micrograms per liter - Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), water column data only  
**DATA EVALUATED:** 840 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** .01 ug/L

**Heptachlor**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/14/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - heptachlor water column data only  
No surface water heptachlor data in STORET  
**DATA EVALUATED:** 689 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.0000079 ug/L

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010

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**COMMENTS:** Surface water quality data only  
water column data only

**DATA EVALUATED:** 24, 830

**# OF IMPAIRED SITES:** 1

**CRITERIA:** 0.0000079 ug/L

  

**DATA SOURCE:** USGS

**DATA PULLED:** 2/14/2011

**DATA RANGE:** 1/1/2000 - 12/31/2010

Surface water quality data only - heptachlor - P39410 - Heptachlor, water, unfiltered, recovera

**COMMENTS:** micrograms per liter  
water column data only

**DATA EVALUATED:** 37 individual measurements

**# OF IMPAIRED SITES:** 0

**CRITERIA:** 0.0000079 ug/L

**Hexachlorobenzene**

**DATA SOURCE:** EPA Portland Harbor

**DATA RANGE:** 1/1/2000 - 12/31/2010

**COMMENTS:** Surface water quality data only  
water column data only

**DATA EVALUATED:** 24, 830

**# OF IMPAIRED SITES:** 1

**CRITERIA:** 0.000029 ug/L

**Hexachlorobutadiene**

**DATA SOURCE:** EPA Portland Harbor

**DATA RANGE:** 1/1/2000 - 12/31/2010

**COMMENTS:** Surface water quality data only  
water column data only

**DATA EVALUATED:** 24, 830

**# OF IMPAIRED SITES:** 1

**CRITERIA:** 0.36 ug/L

**Hexachloroethane**

**DATA SOURCE:** EPA Portland Harbor

**DATA RANGE:** 1/1/2000 - 12/31/2010

**COMMENTS:** Surface water quality data only  
water column data only

**DATA EVALUATED:** 24, 830

**# OF IMPAIRED SITES:** 1

**CRITERIA:** 0.29 ug/L

**Iron**

**DATA SOURCE:** LASAR

**DATA PULLED:** 2/14/2011

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**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - iron (dissolved)  
 water column data only  
**DATA EVALUATED:** 1837 individual measurements  
**# OF IMPAIRED SITES:** 2  
**CRITERIA:** 1000 ug/L  
 1 mg/L

**DATA SOURCE:** STORET  
**DATA PULLED:** 2/14/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - iron (all total iron, no dissolved iron)  
 water column data only  
**DATA EVALUATED:** 184 individual measurements (all total iron, no dissolved iron)  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 1000 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/14/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - iron (dissolved) - Parameter code: 01046 - Iron, water, filtered  
 micrograms per liter  
 water column data only  
**DATA EVALUATED:** 419 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 1000 ug/L

**Malathion**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/15/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - malathion  
 water column data only  
 No malathion water column data in STORET  
**DATA EVALUATED:** 3063 individual measurements  
**# OF IMPAIRED SITES:** 8  
**CRITERIA:** .1 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/15/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - malathion - Parameter code: 39532-liter  
 Malathion, water, filtered, recoverable, micrograms per  
 water column data only  
**DATA EVALUATED:** 842 individual measurements  
**# OF IMPAIRED SITES:** 0

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**CRITERIA:** .1 ug/L

**Mercury**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/15/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - mercury  
water column data only  
**DATA EVALUATED:** 759 individual measurements  
**# OF IMPAIRED SITES:** 3  
**CRITERIA:** .012 ug/L

**DATA SOURCE:** STORET  
**DATA PULLED:** 2/15/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - mercury  
water column data only  
**DATA EVALUATED:** 298 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** .012 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/15/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**PARAMETER CODES:** 50285 - Methylmercury, water, filtered, recoverable, nanograms per liter  
50287 - Mercury, water, filtered, nanograms per liter  
71890 - Mercury, water, filtered, micrograms per liter  
71900 - Mercury, water, unfiltered, recoverable, micrograms per liter  
**DATA EVALUATED:** 144 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** .012 ug/L

**Nitrates**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 12/29/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - Nitrates - CAS#14797558  
water column data only  
**DATA EVALUATED:** 14934 individual measurements  
**# OF IMPAIRED SITES:** 7  
**CRITERIA:** 10 mg/L  
10000 ug/L

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**DATA SOURCE:** STORET  
**DATA PULLED:** 12/29/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - Nitrates  
water column data only  
**DATA EVALUATED:** 119 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 10 mg/L  
10000 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 12/29/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
**PARAMETER CODES:** # P00618 - Nitrate, water, filtered, milligrams per liter as nitrogen  
# P00630 - Nitrate plus nitrite, water, unfiltered, milligrams per liter as nitrogen  
# P00631 - Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen  
**DATA EVALUATED:** 14408 individual measurements  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 10 mg/L  
10000 ug/L

**N-  
Nitrosodiphenylamine**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.55 ug/L

**N-  
Nitrosodipropylamine**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only  
water column data only  
**DATA EVALUATED:** 24, 830  
**# OF IMPAIRED SITES:** 1  
**CRITERIA:** 0.0046 ug/L

**Parathion and Methyl Parathion**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/16/2011

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**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - parathion & methyl parathion data  
 water column data only  
 No parathion water column data found in STORET  
**DATA EVALUATED:** 3050 individual measurements  
**# OF IMPAIRED SITES:** 10  
**CRITERIA:** .013 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/16/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - parathion  
 water column data only  
**PARAMETER CODES:** 39542 - Parathion, water, filtered, recoverable, micrograms per liter  
 82667 - Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, microgram  
 liter  
**DATA EVALUATED:** 843 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** .013 ug/L

**Thallium**

**DATA SOURCE:** LASAR  
**DATA PULLED:** 2/22/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - thallium data only  
 water column data only  
 No thallium water column data in STORET  
**DATA EVALUATED:** 1366 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.043 ug/L

**DATA SOURCE:** USGS  
**DATA PULLED:** 2/22/2011  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only - thallium data only  
 water column data only  
**PARAMETER CODES:** 01057 - Thallium, water, filtered, micrograms per liter  
 01059 - Thallium, water, unfiltered, micrograms per liter  
**DATA EVALUATED:** 229 individual measurements  
**# OF IMPAIRED SITES:** 0  
**CRITERIA:** 0.043 ug/L

**Vinyl chloride**

**DATA SOURCE:** EPA Portland Harbor  
**DATA RANGE:** 1/1/2000 - 12/31/2010  
**COMMENTS:** Surface water quality data only

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	water column data only
<b>DATA EVALUATED:</b>	24, 830
<b># OF IMPAIRED SITES:</b>	1
<b>CRITERIA:</b>	0.023 ug/L

### **Summary of New Listings:**

After evaluating all readily available data and information, EPA is proposing to add 95 new listings for toxics to Oregon's 303(d). The total number of new listings differs from the number of sample sites impaired because there is overlap in the locations between the three data sets and many of the sites were located within the same LLID (Longitude/Latitude ID, which is the system used by Oregon to identify streams and lakes) or because the site was previously listed. The evaluation of toxics data is found in Appendix A.