Responses to Comments

on the

Draft 2002 303(d)
Water Quality Limited Water Bodies List

Oregon Department of Environmental Quality

January 2003

Summary of Public Comment and Agency Response

2002 303(d) List
Prepared by: Marilyn Fonseca **Date: December 6, 2002**

Comment period

The public comment period opened on August 5, 2002 and closed at 5 pm on November 1, 2002.
DEQ held public hearings on:
September 9, 2002 7 PM Eugene Water and Electric Board, Eugene, OR
September 12, 2002 7 PM Hatfield Marine Science Center Newport, OR
September 16, 2002 7 PM DEQ Headquarters Portland, OR
September 23, 2002 7 PM DEQ Roseburg Office Roseburg, OR
September 24, 2002 7 PM Jackson County Courthouse Auditorium Medford, OR
September 25, 2002 7 PM Board of County Commissioners Klamath Falls, OR
September 26, 2002 7 PM Central OR Board of Realtors Bend, OR
October 1, 2002 7 PM DHS Child Welfare Baker City, OR
October 2, 2002 7 PM DEQ Pendleton Office Pendleton, OR
October 3, 2002 7 PM Columbia Gorge Community College The Dalles, OR

Organization of comments and responses

Forty two people provided written comments. Four people testified at the hearings.
Summaries of individual comments and the Department's responses are provided below. A list of commenters and their reference numbers precede the summary of comments and responses.
The persons who provided each comment are referenced by number at the end of the comment.

List of Commenters and Reference Numbers

Reference Number	Name	Organization	Address	Date on comments
1	Patti Howard	Columbia River Inter-Tribal Fish Commission	729 NE Oregon St., Ste. 200 Portland, OR 97232	11/1/02
2	Jeff D. Blackwood	U.S. Dept./Agriculture	2517 S.W. Hailey Ave Pendleton, OR 97801	10/25/02
3	Dean Marriott	City of Portland Environmental Services	1120 Fifth Ave., Rm. 1000 Portland, OR 97204-1912	10/31/02
4	Michael Farrow	Confederated Tribes of the Umatilla Indian Reservation	PO Box 638 Pendleton, OR 97801	11/1/02
5	Dallas J. Emch	US Dept of Agriculture Forest Service	211 East 7th Avenue Eugene, OR 97440	10/31/02
6	Ela Whelan	Water Environment Services	9101 SE Sunnybrook Blvd, Ste. 441 Clackamas, OR 97015	10/31/02

List of Commenters and Reference Numbers				
Reference Number	**Name**	**Organization**	**Address**	**Date on comments**
7	Linda James	City of Creswell	PO Box 276 Creswell, OR 97426	10/28/02
8	Ron Wenker	Bureau of Land Mgmt Medford District Office	3040 Biddle Road Medford, OR 97504	10/29/02
9	Paula vanHaagen	EPA Region 10	1200 Sixth Avenue Seattle, WA 98101	11/1/02
10	Bill Dryden & Jeff Barry	Boise Cascade Corp	111 West Jefferson St. Boise, ID 83728	11/1/02
11	Steve Witbeck	Roseburg Wastewater Treatment Plant	3485 West Geodeck Roseburg, OR 97470	9/23/02
12	Bob Kerby	Harney Soil and Water Conservation District	29563 Hwy 20 West Hines, OR 97738	9/26/02
13	Chad Boyd	(Not stated)	506 N. Roanoke Hines, OR 97738	9/26/02
14	Lynn Shumway	Burnt River Irrigation District	PO Box 5053 Bridgeport, OR (no zip code)	10/1/02
15	Gary Marshall	Harney County Watershed Council	450 N Buena Vista Burns, OR 97720	9/26/02
16	Marv Lewallen	Weyerhaeuser	1300 SW Fifth, Ste. 600 Portland, OR 97201	11/1/02
17	Kathryn VanNatta	Northwest Pulp & Paper Assn. (NWPPA)	1300 114th Ave. SE, Ste. 200 Bellevue,WA 98004	11/1/02
18	Gordon Ross	Former Coos County Commissioner	Unknown	9/23/02
19	Harold Belisle	U.S. BLM Oregon State Office	PO Box 2965 Salem, OR 97208	10/31/02
20	William Dameworth	Pope & Talbot	PO Box 400 Halsey, OR 97348	11/1/02
21	Paul Wiegand	NCASI West Coast Regional Center	PO Box 458 Corvallis, OR 97339	11/12/02
22	Ray Kinney	Private citizen	91636 W. Fork. Rd. Deadwood, OR 97430	10/31/02
23	R. Thomas Butler	State Representative	900 Court St. NE H-289 Salem, OR 97301	10/30/02
24	Richard Roy	Malheur National Wildlife Refuge	36391 Sodhouse Lane Princeton, OR 97721	9/24/02
25	Stephen C. Downs.	City of Salem	555 Liberty St. SE, Rm. 325 Salem, OR 97301	11/1/02

List of Commenters and Reference Numbers				
Reference Number	**Name**	**Organization**	**Address**	**Date on comments**
26	Harrison Thach	Student, Portland	10311 SE Mitchell St. Portland, OR 97266	11/13/02
27	Mohamed Madey	Student, Portland	1902 SE 88th St. Portland, OR 97266	11/13/02
28	Harold J. Belisle	U.S. Dept. Interior, BLM	PO Box 2965 Portland, OR 97208	8/12/02
29	Mrs. Reno's 4th & 5th graders	Lent Elementary School	5704 SE 97th Portland, OR 97266	10/28/02
30	Jeff Uebel	Private citizen	Uebels4@cs.com	9/14/02
31	Ronald Brandt	Private citizen Swanson Group, Inc.	P.O. Box 250, Glendale, OR 97442 ronb@superiorlumber.com	9/12/02
32	Frank Wildensee	City of Portland - Environmental Services	1120 SW Fifth, Rm. 1000 Portland, OR 97204	9/10/02
33	Lisa Arkin & David Monk	Oregon Toxics Alliance	PO Box 1106, Eugene, OR 97440	11/14/02
34	Bob Hawthorne	Private citizen	42041 Cupper Creek Road Kimberly, OR 97848	10/28/02
35	Trish Carroll	US Forest Service Pacific Northwest Regional Office Water Quality and Riparian Programs FS-EPA Liaison	333 SW 1st Ave, Portland, OR 97208 tcarroll@fs.fed.us 503-808-2905 503-807-6188 cell	11/12/02
36	LaVelle Holmes	Private landowner	70530 Middle Fork Lane Bates, OR 97817	10/29/02
37	Glenda Christian	Private citizen	glenchri02@aol.com	9/23/02
38	Louis Wasniewski	Ochoco National Forest	1645 Hwy 20, East Bend, OR 97701	11/12/02
39	Louis Wasniewski	Deschutes National Forest	(See above address, ref. # 38) (541) 383-5566	11/12/02
40	Pat Larson	OR Cattlemen's Assn.	3415 Commercial St. S.E. Ste. # 117 Salem, OR 97302	10/28/02
41	Ivars Steinblums	Mt. Hood National Forest	16400 Champion Way Sandy, Oregon, 97055	11/08/02
42	Cindy Ricks Myers	South Coast/ Lower Rogue Watersheds	P.O. Box 666 Gold Beach, OR 97444	11/4/2002

Summary of Comments and Agency Responses	
Comment 1	Listing Methodology: p. 42 Parameter: Toxics. Are salmon (anadromous fish) included as a beneficial use? (1)
Response	Yes, the "toxics" criteria are designed for the protection of aquatic life (Guidelines for Deriving Numerical National Water quality criteria for the protection of aquatic organisms and their uses, EPA, 1985). The aquatic life criteria are applicable to the following beneficial uses: anadromous fish passage; salmonid fish rearing; salmonid fish spawning and resident fish and aquatic life.

Comment 2	Listing Methodology: p. 42 Parameter: Toxics. How are reference conditions selected for the determination of background conditions? (1)
Response	For the 2002 303(d) list DEQ did not determine background conditions. DEQ directly compared data to the "toxics" criteria contained in the State's water quality standards. DEQ determines background conditions during TMDL development. If DEQ determines that background levels are higher than the criteria the TMDL document will contain an assessment of the background conditions. Allocations are not developed for that parameter in the TMDL.

Comment 3	Listing Methodology: p. 42 Parameter: Toxics. It is our understanding that the Oregon Health Department does not currently issue health advisories for anadromous fish. Therefore, reliance on public health advisories only as surrogates for EPA criteria could potentially exclude the water bodies associated with these fish from the 303(d) list. (1)
Response	Health advisories are used in the listing process in addition to listings based on evaluation of water quality.

Comment 4	Listing Methodology: p. 42 Parameter: Toxics. Was an analysis conducted that compared the EPA Quality Criteria for Water (1986) and the more recent EPA recommendations for toxic criteria to determine whether additional water bodies would be added (or conversely deleted from) the proposed 303(d) list (e.g., metals and dioxins, furans, and PCBs)? (1)
Response	No, DEQ currently is in the process of updating the table of "toxics" criteria as part of the triennial review of the State's water quality standards. Part of the review is to examine the 1999 criteria as well as other information. When the criteria are approved by EPA DEQ will use the updated criteria in development of following 303(d) lists.

Comment 5	Listing Methodology: p. 42 Parameter: Toxics. The lower fish consumption rates used to derive human health toxic contaminate criteria in the EPA Quality Criteria for Water (1986) would underestimate risk to certain Oregon subpopulations and potentially allow for less stringent criteria in several water bodies. (1)
Response	The current "toxics" criteria used by the State are based on a fish consumption rate of 6.5 g/day. As part of the triennial review DEQ is considering a range of fish consumption rates derived from national numbers of fish consumption (EPA 2000, Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), US EPA (EPA-822-B-00-004) and the fish consumption rate of Columbia basin tribal

	members (CRITFC 1994. A Fish Consumption Survey of the Umatilla, Nez Perce, Yakima, and Warm Springs Tribes of the Columbia River Basin. Columbia River Inter-Tribal Fish Commission, Portland, OR. Technical Report No. 94-3).

Comment 6	Listing Methodology: Please provide information on the ODEQ provisions in place that will lead to the restoration of water quality in de-listed water bodies (i.e., those with EPA- approved TMDLs). (1)
Response	DEQ has finalized a rule addressing the development of TMDLs. Included in the rule is a requirement for the development of a: "Water quality management plan (WQMP). This element provides the framework of management strategies to attain and maintain water quality standards. The framework is designed to work in conjunction with detailed plans and analyses provided in sector-specific or source-specific implementation plans." (OAR 340-042-0040).

Comment 7	303(d) List: Was the toxic contaminant database compiled as part of DEQ's "Willamette Project" in April 1998 used in the development of the 2002 - 303(d) list? (1)
Response	Yes, the data were used. The data in the "Willamette Project" were collected by DEQ and US Geological Survey (USGS). As part of the 2002 303(d) list development, DEQ reviewed all DEQ water quality data collected from 1990-2000. DEQ also reviewed all USGS water quality data collected from 1990-2000.

Comment 8	303(d) List: Did ODEQ consider all submitted water quality data (i.e., data meeting all QA/QC requirements) as part of the supporting database for listing or de-listing of a water body? (1)
Response	Yes, all data was assessed according to the procedure described in the "Consolidated Assessment and Listing Methodology for Oregon's Final 2002 303(d) List and 305(b) Report", ODEQ, December 2002.

Comment 9	Umatilla Subbasin: We support the delisting of streams based on EPA-approved TMDL (2001). The Umatilla National Forest is actively involved in coordinated monitoring programs as part of implementing the TMDL and management plans. There is need for ongoing technical assistance from local DEQ staff in analyzing and interpreting monitoring data to measure progress. (2)
Response	DEQ has staff available to help with data analyses including the volunteer monitoring coordinator and the 303(d) list coordinator.

Comment 10	Nine of thirty-two new statewide listings for Iron are in the Umatilla subbasin. DEQ data were used as the basis for this listing, however, there are no industrial sources we know of, and levels may be reflective of natural background. We recommend further evaluation of existing data to verify this parameter as a water quality concern. (2)
Response	For the draft 2002 303(d) list DEQ did not determine background conditions. DEQ directly compared data to the "toxics" criteria contained in the State's water quality standards. DEQ determines background conditions during TMDL development. If DEQ determines that background levels are higher

	than the criteria the TMDL document will contain an assessment of the background conditions. Allocations are not developed for that parameter in the TMDL.

Comment 11	We provided data and listing comments in 1998, and 1996/1994 and repeat those comments. The upper South Fork Walla Walla watershed is a reference area for near-optimum stream and riparian conditions. The National Forest lands are managed in a protected status for water and fish. There are ridgetop roads and timber management in headwater areas, however, midslopes and valley bottoms are intact and functioning properly. Annual maximum 7-day average of daily maximum water temperatures measured at the Forest boundary were between 50 and 55 degrees F from 1995 to 2001. We consider these temperature conditions to be at or near potential. We recommended an upper segment break at ~RM 9.5 (Elbow Creek) or ~RM11 (National Forest boundary). (2)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have a well defined procedure to determine natural conditions prior to placing a water body on the 303(d) list, however, in order for a parameter to be designated as "naturally occurring" there would need to be documentation of no anthropogenic sources to the pollutant.

Comment 12	Lower Grande Ronde: Wenaha River – based on wilderness status, no land uses, and near optimum conditions recommend change in upper segment boundary to Wilderness ~RM6. (2)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have a well defined procedure to determine natural conditions prior to placing a water body on the 303(d) list, however, in order for a parameter to be designated as "naturally occurring" there would need to be documentation of no anthropogenic sources to the pollutant.

Comment 13	Upper Grande Ronde: We support delisting of streams based on approved TMDL in this subbasin, and recommend ongoing support from DEQ in monitoring TMDL success. (2)
Response	DEQ has staff available to help with data analyses including the volunteer monitoring coordinator and the 303(d) list coordinator.

Comment 14	North Fork John Day, Middle Fork John Day, and Lower John Day: We are committed to participating in the development of TMDLs in the John Day Basin and will continue to provide data and technical assistance to support this effort. (2)
Response	Thank you

Comment 15	Willamette River Record ID 9215 (Aldrin), 9218 (DDT-fish tissue), 9219 (DDE), and 9217

	(Dieldrin): It is unclear why DEQ decided to list Aldrin, DDT, DDE, and Dieldrin based on the Oregon Health Division fish advisory issued on November 20, 2001. The fish advisory does not explicitly list any of the above mentioned organochlorine pesticides. The Listing Methodology for toxics requires that (1) at least two samples exist that are greater than the criterion (DEQ, 2002; Figure 9, Page 44) and (2) the fish consumption advisory issued by the Health Division specifically refers to the chemical to be listed (DEQ, 2002; Page 45). Neither of these listing criteria appears to be met and thus, listing of the above referenced organochlorine pesticides is inappropriate. (3)
Response	The fish advisory is based on a study prepared for DEQ entitled "Human Health Risk Assessment of Chemical Contaminants in Four Fish Species from the Middle Willamette River, Oregon", Prepared by EVS Environment Consultants, Inc. November 21, 2000. The report and the accompanying fact sheet (http://www.deq.state.or.us/wq/wqfact/MidWillFishStudy.pdf) specifically name the listed parameters.

Comment 16	Willamette River Record ID 7360 (Iron) and 6693 (Manganese): We question comparing the water and fish ingestion criteria for iron and manganese to protect human health (which are the same as the secondary drinking water standards) with raw water quality data. OAR 340-41 Table 6 indicates that the beneficial uses of public and private domestic water supply should be met **after** adequate pretreatment of the river water. Therefore, the water quality after pretreatment should be compared to the water and fish ingestion criterion. Pretreatment, such as filtration, is expected to remove large amounts of sediment-associated iron and manganese. (3)
Response	Criteria for fish ingestion and water are calculated using a fish consumption rate and a drinking water intake rate following EPA's methodology. EPA recommends the inclusion of the drinking water exposure pathway where drinking water is a designated use because "…, ambient waters should not be contaminated to a level where the burden of achieving health objectives is shifted away from those responsible for pollutant discharges and placed on downstream users to bear the costs of upgraded or supplemental water treatment." (Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004).

Comment 17	Willamette River: The listed beneficial uses (resident fish and aquatic life and anadromous fish passage) are unrelated to the listed criterion (water and fish ingestion to protect human health) and therefore, should be deleted. It may be more appropriate to compare the resident fish and aquatic life beneficial uses to the chronic freshwater criterion for protection of aquatic life, which is 1000 ug/L for iron. No such criterion exists for manganese. (3)
Response	The beneficial uses have been changed to drinking water and fishing.

Comment 18	Willamette River Record ID 7804 (DDT-water column) and 7186 (Polynuclear Aromatic Hydrocarbons): Utilizing estimated water column concentrations based on semipermeable

	membrane devices (SPMDs) does not meet the criteria in the Listing Methodology (DEQ, 2002, page 45) which indicates that 'peer reviewed methodologies used for the determination of contaminate levels in the water column" can be utilized. However, SPMD data collected by USGS only result in rough estimates of water column concentrations with an associated error of about one order of magnitude (USGS, 1999) and therefore cannot be considered a "determination of contaminant levels in the water column". (3)
Response	Record 7804 is based on water column data collected by USGS. The SPMD methodology was not used for the data collection. Record 7186 is based on the SPMD methodology. According to the USGS report the estimated error is one order of magnitude. If the sample result were dropped one order of magnitude to be conservative, the resulting concentration would be 5290 pg/L which is still above the applicable criterion of 2800 pg/L.

Comment 19	Willamette River Record ID 6228 (Chlorophyll a): The criterion listed for Chlorophyll *a* is incorrect. It should be 0.015 mg/L instead of 0.01 mg/L. It is unclear why the listing is based on data collected in 1996 and why Chlorophyll *a* has not been proposed for listing prior to 2002. Most recent data from the summer of 2001 and 2002 collected by the City of Portland at four different locations do not support this listing. In fact, not a single reading exceeded the criterion of 0.015 mg/L. Furthermore, data collected by DEQ since 1996 also did not exceed the three consecutive months average criterion of 0.015 mg/L. Even though using 1996 data meets the listing criteria (DEQ, 2002; page 24), it is unclear what the purpose of the proposed listing is in light of substantial reductions in Chlorophyll *a* concentrations over the past few years.(3)
Response	The criterion has been corrected to 0.015 mg/L. Data collected by DEQ from 1996 through October 10, 2002 at the Hawthorne Bridge were analyzed in response to this comment. Twenty one (21) separate 3 month average chlorophyll a values were calculated. Of these none exceed the 15 ug/L value. DEQ has removed the proposed chlorophyll a listing from the final 2002 303(d) list.

Comment 20	Columbia Slough Records ID 9276 (Iron), 9277 (Manganese), 9278 (Iron), and 9279 (Manganese): Two records each exist for a proposed iron and manganese listing with different river mile (RM) ranges and different Longitude/Latitude ID (LLID) but the same Hydrologic Unit Code (HUC). None of the RM ranges correspond to a standard segment of the Columbia Slough, such as the Lower Slough (RM 0 to 8.7) and part of the supporting data is outside the listed RM range (Record ID 9276 and 9277). These errors need to be corrected. (3)
Response	In 1998 all Columbia Slough records in the 303(d) database covered the mouth to Fairview Lake. DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. During the conversion stream boundaries were replaced by river miles in the Streamnet system. In Streamnet the Columbia Slough is covered by 2 segments: LLID 1227713456445, length 0 to 9.8 miles; LLID 1226470455820, length 0 to 8.5 miles. These two segments correspond to

	the Lower Slough and Upper Slough, respectively. Rather than enter duplicative listings for the two portions of the Slough, the 1998 listings were placed in the Upper Slough segments, although they apply from the mouth to Fairview Lake. New listings were placed in separate LLID segments, as indicated by the latitude and longitude of the sample site. The listings associated with LLID 1226470455820 have been changed to cover the full length of the Upper Slough (river mile 0 to 8.5) as well as to include the sampling points for the 2002 listings.

Comment 21	Columbia Slough: The use of the water and fish ingestion criteria for iron and manganese to protect human health (which are the same as the secondary drinking water standards) to compare with raw water quality data is inappropriate. OAR 340-41 Table 6 indicates that the beneficial uses of public and private domestic water supply should be met **after** adequate pretreatment of the river water. Therefore, the water quality after pretreatment should be compared to the water and fish ingestion criterion. Pretreatment, such as filtration, is expected to remove large amounts of sediment-associated iron and manganese. (3)
Response	Criteria for fish ingestion and water are calculated using a fish consumption rate and a drinking water intake rate following EPA's methodology. EPA recommends the inclusion of the drinking water exposure pathway where drinking water is a designated use because "…, ambient waters should not be contaminated to a level where the burden of achieving health objectives is shifted away from those responsible for pollutant discharges and placed on downstream users to bear the costs of upgraded or supplemental water treatment." (Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004).

Comment 22	Columbia Slough: The City of Portland has collected iron data throughout the Columbia slough since 1983. The most recent results that are available in our database are from 1994. All exceedances of the 300 ug/L criterion are more than 10 years old. (3)
Response	The City of Portland did not provide data to DEQ for review.

Comment 23	Johnson Creek Record ID 9294 (Dieldrin): Dieldrin was already listed on the 1998 303(d) list and a relisting using different data appears to be unnecessary. (3)
Response	This record has been noted as a duplicate to the 1998 303(d) listing.

Comment 24	Johnson Creek Record ID 9293 (Chlordane), 9294 (Dieldrin), 9292 (PCB), and 9295 (Polynuclear Aromatic): Utilizing estimated water column concentrations based on semipermeable membrane devices (SPMDs) does not meet the listing criteria (DEQ, 2002, page 45) which indicate that "peer reviewed methodologies used for the determination of contaminant levels in the water column" can be utilized. However, SPMD data collected by USGS in Johnson Creek only result in rough estimates of water column concentrations with an associated error of

	about one order of magnitude (USGS, 1999) and therefore cannot be considered a "determination of contaminant levels in the water column". (3)
Response	DEQ discussed the use of the semi permeable membrane device (SPMD) data with Kathleen McCarthy, the author of the study from USGS (phone conversation 10/28/2002). According to Ms. McCarthy, the SPMD results have an estimated error of an order of magnitude. Per Ms. McCarthy's recommendation, DEQ re-analyzed the SPMD results and removed from the 303(d) list those waters whose sample results, when decreased by an order of magnitude, were no longer greater than the applicable criterion. Record 9293 (chlordane): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 1600 pg/L is reduced by one order of magnitude to 160 pg/L, it does not exceed the applicable criterion of 460 pg/L. The record has been moved to the "potential concern" category of the integrated report. Record 9294 (dieldrin) has been noted as a duplicate to the 1998 listing of dieldrin based on grab water column data. The 1998 listing remains on the 2002 303(d) list. Record 9292 (PCB): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 20022 pg/L is reduced by one order of magnitude the result of 2002 pg/L still exceeds the applicable criterion of 79 pg/L. Record 9295 (polynuclear aromatic hydrocarbons): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 42300 pg/L is reduced by one order of magnitude the result of 4230 pg/L still exceeds the applicable criterion of 2800 pg/L.

Comment 25	Chlorophyll *a*: The 'Water Quality Limited Determination' and data requirements for Chlorophyll a are much more conservative than, for example, for the parameter "Nutrients". Basing the listing of Chlorophyll a on a single occurrence of the 3-month average being above the applicable criterion without allowance for extreme conditions does not appear very useful. Case in point is the proposed listing of the Willamette River. The vast majority (> 95 percent) of the 3-months averages are well below the criterion. Incorporating a listing qualifier which requires that more than 10 percent of the samples (averages) have to exceed the criterion would be more appropriate and in line with the listing qualifiers for nutrients and pH. (3)
Response	Data collected by DEQ from 1996 through October 10, 2002 at the Hawthorne Bridge were analyzed in response to this comment. Twenty one (21) separate 3 month average chlorophyll a values were calculated. Of these none exceed the 15 ug/L value. DEQ has removed the proposed chlorophyll a listing from the final 2002 303(d) list.

Comment 26	DEQ should remove waters located within Indian Country from the state's 303(d) list. (As defined in 18 U.S.C. Section 1151). Umatilla subbasin water within Indian Country that currently appear but should be removed from the draft 2002 303(d) list include the Umatilla River: approximately river mile 56-82 (Iron); Meacham Creek river mile 0 – approximately river mile 5 (Iron; McKay Creek approximately river mile 15-22 (Iron). The current proposal also lists an "Unnamed Waterbody." We request further discussion with DEQ

	to determine if this waterbody is within Indian Country. The above river mile approximations can be more firmly defined through follow up communication with tribal GIS staff. For your information the following tributaries of the Umatilla Rover are entirely within the boundaries of the Umatilla Indian Reservation; Mission Creek, Cottonwood Creek, Moonshine Creek, Coonskin Creek, and Buckaroo Creek. Tributaries of Wildhorse Creek that are entirely within the boundaries of the reservation include Eagle Creek and Saddle Hollow. (4)
Response	Waters within the boundaries of the Confederated Tribes of the Umatilla Indian Reservation have been removed from the 2002 303(d) list. These waters have also been removed from the "integrated report". DEQ only places those waters in the State's jurisdiction on the 303(d) list and develops TMDLs for them. Text has been added to the assessment methodology clarifying this.

Comment 27	Middle Fork Willamette, Record ID 8876: Upper extent of listing should only go as far as RM 28.8. Listed segment should be from RM 14.1 to 28.8. Rationale: Based on EPA guidance ("Establishing Site Specific Aquatic Life Criteria Equal to Natural Background" Nov. 5, 1997), there are situations where waters that do not meet State water quality standards do not have to be placed on the 303(d) list. One of these situations is based on a standard violation caused by natural conditions with no direct human caused influences. Waters that exceed standards but drain wilderness or similar areas meet EPA's guideline definition of natural background where it is well documented that there are no contributing human contributions. These water bodies can be removed from the list due to natural conditions provided this judgment made by the land management agency can be supported by documentation that no past or present human influences had or were occurring which might contribute to a standard exceedence. The watershed where the listed segment is located is entirely managed by the Willamette National Forest. The listed segment from RM 34.1 to RM 43.5 is all located within the Waldo Lake Wilderness Area. Immediately above RM 43.6 is Waldo Lake, a water body 2,548.8 hectares in size. Approximately 95 percent of the shoreline of the lake is managed as Dispersed Recreation – Semi-primitive non-motorized and most of the drainage area is managed by the same standards as the shoreline (similar to designated wilderness areas) or is in federally designated Wilderness. The listed segment from RM 28.8 to RM 34.1 is bordered by the Waldo Lake Wilderness on one side and the area immediately adjacent to the river o the opposite side is managed as Riparian Reserve. Although some land management activities have occurred on the up-slope non-wilderness side of the drainage area between RM 28.8 and RM 34.1, the majority of that area is also managed as Dispersed Recreation – Semi-primitive non-motorized. Above RM 28.8, current and past land management practices have likely had no measurable impact on the water temperature of the river and therefore the temperatures should be considered within the range of natural background conditions. (5)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the

	"naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have a well defined procedure to determine natural conditions prior to placing a water body on the 303(d) list, however, in order for a parameter to be designated as "naturally occurring" there would need to be documentation of no anthropogenic sources to the pollutant.

Comment 28	Middle Fork Willamette, Record ID 7113: The data supporting the 1998 listing was based on inaccurate data and does not reflect average conditions in the stream. Move the listed segment of this stream from the 303(d) List to the Potential Concern List. Rationale: The 1997 USFS data was collected in a pond on Monterica Creek which likely had warmer water temperatures than the stream. USFS data collected in Monterica Creek during the summer months for years 1999, 2000,and 2001 showed 7 day moving averages of the maximum daily temperatures of 60.9°F, 62.42°F, and 64.7°F respectively. This data suggests that this stream typically meets water quality standards except under unusual circumstances or the data available is inconclusive to justify the listing on the 303(d) List. (5)
Response	The record for the 1998 list does indicate that the sample was collected in the "chub pond at the mouth of Monterica Creek". DEQ staff received data on Monterica Creek from the USFS in early 2001; however, DEQ does not have the quality assurance information necessary to evaluate the data for the 2002 303(d) list. Monterica Creek has been moved to the "insufficient data category".

Comment 29	Record ID 9293 (Chlordane), 9297 (Dieldrin), 9292 (PCB), and 9295 (Polynuclear Aromatic Hydrocarbons): Utilizing estimated water column concentrations of these pollutants based on the use of semi-permeable membrane devices (SPMDs) does not appear to meet the DEQs listing criteria. Only "peer reviewed methodologies used for the determination of contaminant levels in the water column" can be utilized to support a listing (DEQ's draft 2002 Consolidated Assessment and Listing Methodology, page #45). Please note that these proposed 2002 303(d) listings for Johnson Creek appear to rely solely on SPMD data from a single study. The SPMD data used to support these proposed listings was collected by the US Geological Survey (WRIR 99-4051). This SPMD study yielded only a rough estimate of water column concentrations with an associated error of about one order of magnitude and therefore should not be considered a "determination of contaminant levels in the water column". (6)
Response	DEQ discussed the use of the semi permeable membrane device (SPMD) data with Kathleen McCarthy, the author of the study from USGS (phone conversation 10/28/2002). According to Ms. McCarthy, the SPMD results have an estimated error of an order of magnitude. Per Ms. McCarthy's recommendation, DEQ re-analyzed the SPMD results and removed from the 303(d) list those waters whose sample results, when decreased by an order of magnitude, were no longer greater than the applicable criterion. Record 9293 (chlordane): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 1600 pg/L is reduced by one order of magnitude to 160 pg/L, it does not exceed the applicable criterion of

	460 pg/L. The record has been moved to the "potential concern" category of the integrated report. Record 9297 is a listing for the Little Deschutes River. DEQ assumes that the comment is for Record 9294. Record 9294 (dieldrin) has been noted as a duplicate to the 1998 listing of dieldrin based on grab water column data. The 1998 listing remains on the 2002 303(d) list. Record 9292 (PCB): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 20022 pg/L is reduced by one order of magnitude the result of 2002 pg/L still exceeds the applicable criterion of 79 pg/L. Record 9295 (polynuclear aromatic hydrocarbons): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 42300 pg/L is reduced by one order of magnitude the result of 4230 pg/L still exceeds the applicable criterion of 2800 pg/L.

Comment 30	Review of the data shows that there were three occurrences at Camas Swale creek when the measure ammonia exceeded water quality standards. All three occurrences were in 1903 and all samples since that time are within the standard. This is significant because conditions have changed significantly since 1993. Review of your records will show that the Foster Farms chicken processing plant discharge was in violation of permit and significant improvements were constructed at this facility to improve treatment. Wastewater received little treatment and flowed overland into the creek prior to the improvements. It is instructive that the current 303(d) list does not include ammonia in Camas Swale Creek although the data used at this time was available in 1996. It is likely that the reviewers at that time were aware of the changed conditions. The most recent samples show that the in-stream ammonia levels are less than the chronic ammonia toxicity threshold by a factor of ten. Please review the basis for this listing and remove ammonia as a listed parameter. (7)
Response	According to DEQ staff, the Foster Farms chicken processing plant installed a new treatment plant since the high levels of ammonia were recorded. Data collected since the treatment plant was installed indicate attainment of the ammonia criteria. The water body has been moved to the "attaining criteria/uses" category for ammonia.

Comment 31	What does LASAR stand for? This acronym is not defined in the draft 2002 303(d) list or the Consolidated Assessment and Listing Methodology. (8)
Response	LASAR stands for "Laboratory Analytical Storage and Retrieval (database)". LASAR is the database where DEQ stores data. The LASAR code is a five digit code assigned to a sampling location based on the latitude/longitude and site description. Text has been added to the assessment methodology explaining the use of LASAR in the 2002 303(d) list.

Comment 32	The supporting data for the following waterbodies should include the agency/organization responsible for collecting the data. (8)
Response	The LASAR code is a five digit code assigned to a sampling location based on the latitude/longitude and site description. Because the LASAR ID is based on the sampling location, it is possible for a LASAR ID to be assigned to more than one organization. If the name of the agency/organization that

	collected a particular data set is required, DEQ staff can provide that information as requested.

Comment 33	The supporting data for the following waterbodies should include the year(s) monitored. (8)
Response	The supporting data for temperature listings does include the years of data collection. For all other parameters, data collected during the time period of 1990 – 2000 was evaluated for the 2002 303(d) list and integrated report.

Comment 34	The following waterbodies were included on the 1998 final 303(d) list, but do not show up on the draft 2002 303(d) list. There is no explanation for why they dropped off the list. Is there any way to track the decision-making process for de-listing these waterbodies? Dry Creek (Illinois Subbasin); Clark Creek, Rogue River (Lower Rogue Subbasin); Baldy Creek, Bee Creek, Rogue River (Middle Rogue River), Klamath River (Upper Klamath Subbasin). (8)
Response	DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. During the conversion some streams names were replaced with the names as they appear in the Streamnet map. Dry Creek is identified as Deer Creek in the 2002 303(d) list. The record number is 4043. Bee Creek is identified as Savage Creek in the 2002 303(d) list. Savage Creek has been noted as having duplicate records. The record numbers are 4462 and 4489. Clark Creek is in the integrated report as "attaining criteria/uses". The record number is 4461. Baldy Creek is in the integrated report as "attaining criteria/uses". The record number is 4444. The Rogue River and Klamath River are on the 2002 303(d) list. To view the records the 303(d) list must be searched by water body name, rather than by the subbasin map. These water bodies cross subbasins. The record ID is the unique identifier for each listing (water body, segment and parameter combination). The record ID can be used to search for water bodies in the 1998 and 2002 303(d) lists.

Comment 35	Will ODEQ publish a list of water quality limited streams that are not included on the 303(d) list? (8)
Response	Yes, water bodies that are water quality limited but not on the 303(d) list are included in the "Integrated Report" as a separate category. The "integrated report" can be viewed on DEQ's website or a hard copy may be requested.

Comment 36	Why are there different seasons listed under temperature for rearing? Most of the seasons are Summer, but some are Year Around and some are June 1 – Sept. 30. Shouldn't these be consistent? (8)
Response	The database has been updated so that summer is the season listed for rearing. The designation of the summer reflects the fact that most of the data that shows exceedance of the rearing criterion is collected during the summer.

Comment 37	Many of the narratives under supporting Data are truncated. The complete narrative is not available on the DEQ website. Where can it be found? (8)
Response	The narrative is available in the database, however the text was mistakenly

	truncated when it was posted on the DEQ website. The full narrative will be available when the final list is placed on the website.

Comment 38	Powell Creek, Applegate Subbasin, is on the 1998 303(d) list for temperature (rearing criteria) from the mouth to headwaters based on supporting BLM data in T38S-R5W-S15 (the BLM site code for this site is POWL). According to the draft 2002 303(d) list, Powell Creek is listed from RM 0 to 2. RM 2 is the approximate location of data site POWL. A letter regarding the 2002 call for data to DEQ from BLM, Medford District, Grants Pass Resource Area, dated November 1, 2001, included data for the POWL site and 4 upstream sites. 1999 data from PWLU (Powell Creek upstream from POWL at the T38S-R5W-S16/17 section line) indicates a seven-day moving average of the daily maximum temperatures of 65.3°F. 1999 and 2000 data from PL17 (Powell Creek upstream from PWLU above Wallow Creek) indicate seven-day moving averages of the daily maximum temperatures of 60.7 and 62.8°F respectfully. Given this data, it appears that the upper extent of the listing should be upstream of RM 2. (8)
Response	Data submitted for Powell Creek by the BLM was evaluated for the 2002 303(d) list. The sites were assigned LASAR IDs as follows: PWLU: LASAR 26551, RM 1.6 PL17: LASAR 26547, RM 4.2 PL19: LASAR 26548, RM 5.4 PL25: LASAR 26549, RM 6.7. Data collected in 2000 at LASAR sites 26547, 26548 and 26549 did not indicate exceedance of the criterion. The segment of the waterbody from river mile 2 to river mile 7.6 is in the “attaining criteria/uses” category of the integrated report. The 2000 data supports this delineation, however, the additional data was not summarized in the database because of time limitations.

Comment 39	Evans Creek, Middle Rogue Subbasin, has two listings for temperature that are identical except the river miles. One is for RM 0 to 19.1 and the other is for RM 19.1 to 19.1 Please review the 1999 list to straighten this out. (8)
Response	In the 1998 database (which includes categories other than the 303(d) list, there were the following stream segments: Evans Creek, mouth to West Fork Evans Creek; Evans Creek, West Fork Evans Creek to headwaters. Additionally, there were separate listings for West Fork Evans Creek. Based on the supporting data provided with the segment from West Fork Evans Creek to headwaters (record 3948), the segment should be under East Fork Evans Creek. The database has been corrected to reflect the correct water bodies.

Comment 40	Savage Creek, Middle Rogue Subbasin, has two listings for temperature that are identical except the supporting data. Couldn’t the supporting data be combined under one listing? (8)
Response	One of the records has been noted as a duplicate in the database.

Comment 41	West Fork Elk Valley Creek, South Umpqua Subbasin, was included on the 1998 303(d) list but now appears on the draft 2002 list with a 1998 Assessment Date. It appears that the “West Fork” portion of West Fork Elk

	Valley Creek was accidentally dropped in the draft 2002 list. (8)
Response	DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. During the conversion some streams names were replaced with the names as they appear in the Streamnet map. According to the Streamnet map, there is no West Fork Elk Valley Creek. West Fork Elk Valley Creek is now included as part of Elk Valley Creek. Directions to map segments as listed in the 2002 303(d) list can be found on the DEQ 303(d) website.

Comment 42	Unnamed Waterbody, Upper Rogue Subbasin, is included on the draft 2002 303(d) list for temperature. The Assessment Date is 1998; however this waterbody is not on the 1998 303(d) list. (8)
Response	The record ID for this water body is 3905. The record ID (for a given stream length, parameter and season combination) remains constant through updates to the 303(d) list. The water body name on the 1998 303(d) list was Dead Indian Creek, West Fork. DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. During the conversion some streams names were replaced with the names as they appear in the Streamnet map. According to the Streamnet map, there is no West Fork Indian Creek. West Fork Indian Creek is now identified as a tributary to Dead Indian Creek. Directions to map segments as listed in the 2002 303(d) list can be found on the DEQ 303(d) website.

Comment 43	Priority Ranking: The draft list methodology does not include a description of DEQ's prioritization process and the draft 303(d) list does not indicate the priority ranking of listed waters. EPA regulations codify and interpret the requirement in Section 303(d)(1)(A) of the Act that States establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See Section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that States establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and State or national policies and priorities. See 57 FR 33040, 33045 (July 24, 1992), and EPA's 1991 Guidance. (9)
Response	DEQ is including a prioritization and schedule for listed water bodies with the 2002 303(d) list submission.

Comment 44	Tribal Waters: Oregon's draft 2002 Integrated Report (including Category 5, the 303(d) list) does not indicate how Tribal waters will be distinguished from state waters.

	EPA's approval of a state's Section 303(d) list extends to all waterbodies on the list with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. On the 1998 303(d) list, DEQ identified certain segments which were fully or partially Tribal waters. EPA followed that with a similar statement in our approval letter stating that our approval did not cover any waters within Indian Country. Some waters in the Umatilla subbasin and Deschutes basin lie partially within the Umatilla and Warm Springs Reservations. Since the State has not clearly identified Tribal waters, it appears Tribal waters may be included in the State's Integrated Report. Additionally, there are a number of waterbodies in these basins that have been de-listed due to an EPA Approved TMDL. However, EPA's approval of the State's TMDL did not include any waters in Indian Country. (See Table 2 in Attachment 3 for Specific Waterbodies). (9)
Response	Only those waters that are under the State of Oregon's jurisdiction are subject to the State's 303(d) and 305(b) activities. Oregon's 303(d) list and "integrated report" does not include tribal waters. Oregon does not develop TMDLs for tribal waters. When a 303(d) listed waterbody is partially on Tribal lands and partially within State jurisdiction, EPA, the Tribe and State may work jointly to develop the TMDL. When a 303(d) listed waterbody is fully on Tribal lands, the Tribe may work directly with EPA to develop the TMDL.

Comment 45	Tribal Waters: The 2002 List Methodology does not address how Tribal waters will be distinguished from waters within State jurisdiction.(9)
Response	Only those waters that are under the State of Oregon's jurisdiction are subject to the State's 303(d) and 305(b) activities. Oregon's 303(d) list and "integrated report" does not include tribal waters. Text has been added to the assessment methodology clarifying this.

Comment 46	Waterbody-Specific Primary Comments: Delisting due to Insufficient/no data. According to the de-listing table, there are three waterbodies that were on Oregon's 1998 303(d) list, but are not included in Category 5 of Oregon's Draft Integrated Report (the 303(d) list) due to insufficient data or information. Crosses Subbasin: Columbia River (RM 35.2 – 98), pH; Deschutes River (RM 116 – 126.4), pH, seasons 2 and 16. Without additional information to

	clarify, EPA assumes if DEQ had data and information to list the waterbody in 1998, that information should suffice to retain the water on the 303(d) list for 2002. (9)
Response	The Columbia river segment has been de-listed due to data collected by DEQ in that segment. The complete data set was not available during the development of the draft list. The Deschutes River listing for pH for RM 116 to 126 in the spring/summer (record 601) was de-listed because the data used to list in 1998 was identical to the data used to list RM 126 to 163 (record 426). The data was collected at the upstream segment and should not have been used to list the lower segment. DEQ only uses data collected within the stated segment river miles for assessment determinations. DEQ has a site at river mile 121 (LASAR 12566), unfortunately there are only 3 samples available in the spring/summer season, so a determination of attainment of the criterion can not be made. The segment has been moved to the "insufficient data" category.

Comment 47	Waterbody-specific Primary Comments: De-listing due to Criterion change or error. Lower Columbia Subbasin, Skipanon River. The rationale DEQ gives for not including a listing for dissolved oxygen in the Skipanon River (LLID 1239211461664; RM 0 – 6.1, Sept. 15 – May 31) is "Attaining criteria/Uses." However, in the supporting data column of the Integrated Report, DEQ indicated the appropriate criterion is cold water DO of 8 mg/L. It seems the basis for not listing is due to a change in the applicable criterion. Either a mistake was made in 1998 or a new criterion is applied in 2002. (9)
Response	The status has been changed. The appropriate dissolved oxygen criteria to apply to the Skipanon River are the estuarine criterion in the lower reach and the cold water criterion in the upper reach.

Comment 48	Waterbody-Specific Primary Comments: Molalla-Pudding Subbasin, Zollner Creek. EPA's October 18, 1993 approval of the Pudding River TMDL addressed four parameters associated with the attainment of the dissolved oxygen criteria - biochemical oxygen demand, ammonia-nitrogen, total suspended solids and minimum effluent dissolved oxygen. The TMDL addressed impairments in the Pudding River (RM 0-30 and 30-50), Little Pudding River (RM 0-5) and Zollner Creek (RM 0-5) throughout the entire year. Oregon's draft Integrated Report indicates that a TMDL has only been approved for Pudding River (RM 0-35.4 and 35.4-61.7) (records 6183 and 6184). Little Pudding River (record 6158) is included in the "Insufficient/no data" column for dissolved oxygen and Zollner Creek (records 6187 and 8525) is included on the draft 303(d) List. These two determinations appear inconsistent with the TMDL. If the determination to include Zollner Creek on the 303(d) List is due to a change in the applicable DO criteria a note explaining this should be added to the detailed notes for the record. (9)
Response	Generally speaking, when a TMDL was approved, only those waters that had previously been on the 303(d) list were moved to the "TMDL Approved" category. Water bodies in the "insufficient data" category have been left in

	that category. DEQ will standardize this for the 2004 integrated report. Zollner Creek has been noted as "TMDL" approved in the integrated report.

Comment 49	Waterbody-Specific Primary Comments: It appears there are some waterbodies in the "TMDL approved" Category that do not yet have an approved TMDL for the listed parameter, segment and/or season. See the following table for specific waterbodies (9)
Response	**South Fork Coquille River**: The TMDL for the South Fork Coquille River includes those water bodies contained within the 5th field hydrologic unit code (1710030501). On the 1:100,000 scale map used in the 303(d) database, the South Fork Coquille River TMDL addressed river miles 42 to 62. On the 1:100,000 scale map the South Fork Coquille River ends at river mile 62. **Fairvew Lake/Osborn Creek and Fairview Creek:** Fairview Lake and Fairview Creek were originally listed as possible sources of phosphorus to the Columbia Slough. During development of the Columbia Slough TMDL it was noted that the phosphorus loading came from groundwater, not Fairview Lake or Fairview Creek (Columbia Slough TMDL, ODEQ, September 1998, Appendix E). DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. Osborn Creek was previously part of the Columbia Slough; it now is designated at the waterbody segment from Fairview Lake to the Columbia Slough. **Bear Creek:** Middle Rogue – Bear Creek was de-listed based on the TMDL EPA approved in 1992. EPA approved DEQ's 1998 303(d) list, including the non-inclusion of Bear Creek for summer period, aquatic weeds/algae or chlorophyll a. **Ashland Creek/Emigrant Creek:** Ashland Creek and Emigrant Creek were de-listed based on the TMDL EPA approved in 1992. The TMDL addressed BOD, ammonia and nutrients (phosphorus). EPA approved DEQ's 1998 303(d) list, including the non-inclusion of these water bodies. **Gales Creek:** As discussed in the Tualatin basin TMDL, the pH data collected on Gales Creek did not meet quality assurance standards. More recent data collected by Clean Water Services indicates that Gales Creek meets the pH criterion. The category has been changed to "attaining criteria/uses." **Fanno Creek:** As discussed in the Tualatin basin TMDL (Appendix), iron, arsenic and manganese are believed to be occurring naturally at levels above the applicable criteria. Oregon's water quality standards state "Where the naturally occurring quality parameters of the waters of the Willamette River basin are outside the numerical limits of the above assigned water quality standards, the naturally occurring water quality shall be the standard. (OAR 340-41-442 (3)). The water body has been moved to the "attaining criteria/uses" based on evaluation of this provision in the water quality standards and data collected during TMDL development. **State Ditch:** The original listing for State Ditch stated the season as "fall/winter/spring". However, the supporting data cites data collected and analyzed in the summer. The "season" should have been recorded as "summer" in the initial listing and has been changed in the 2002 integrated report.

Specific Waters Without an Approved TMDL for Certain Parameter, Segments or Season			
Subbasin	**Waterbody name**	**Record #s**	**Comment**
Coquille	South Fork Coquille River	4639	The TMDL addresses temperature above RM 70, not RM 42.1 to 61.9.
Lower Willamette	Fairview Creek	6469	EPA records do not indicate these waters are addressed by the Columbia Slough Phosphorous TMDL (11/98)
Lower Willamette	Fairview Lake/Osborn Creek	6476	EPA records do not indicate these waters are addressed by the Columbia Slough Phosphorous TMDL (11/98)
Middle Rogue	Bear Creek	4409, 4230	EPA records do not indicate the Bear Creek TMDL (3/16/88) addressed summer period, aquatic weeds/algae or chlorophyll a
Middle Rogue	Ashland Creek, Emigrant Creek	4411, 4412, 4512	EPA records do not indicate these waters were addressed by the 3/16/88 TMDL
Tualatin	Gales Creek	6990	EPA records indicate the approved TMDL applies only May 1 – Oct. 31, not for winter
Tualatin	Fanno Creek	7354, 7355, 7356	No TMDL was completed for arsenic, iron or manganese. Instead, the TMDL suggests a change to WQS should be made. That change has not yet been submitted to EPA.
Upper Grande Ronde	State Ditch	1033	EPA's May 3, 2000 approval only addressed pH between June 1 and October 31. The TMDL does not address pH between 11/ 1 and 5/ 31

Comment 50	Secondary Comments Season Identification: De-listing table appears to use codes for the different seasons. For example, in the Upper Crooked subbasin, Pine Creek (RM 0 - 7.4) is being de-listed for temperature due to "Attaining Criteria/Uses." The two listings appear to be identical, except one is for spawning (October 1 - June 30) and the other is for Rearing (Summer). The de-listing table has a "1" in the Season column. It is unclear whether Season 1 refers to summer or October – June. Thus, it is unclear which is being proposed for not listing. (9)
Response	The de-listing for Pine Creek covers the summer temperature listing.

Comment 51	Secondary Comments Season Identification:

	Some TMDLs are written for specific seasons. Examples include the Umatilla River Subbasin TMDL for Bacteria (McKay Creek (5248), April through October; McKay Creek (5083), November through March; Umatilla River (5084), April through October) and the May 9, 2001approval for turbidity, which applies year round. For seasonal TMDLs in the Integrated Report it would be helpful if the "Supporting Data" column identified which seasons the TMDLs were approved for. (9)
Response	The "season" field identified the season for which the TMDL was approved.

Comment 52	"Attaining Criteria/Uses" Evaluation of criteria attainment post-TMDL should be based on the water quality requirements identified in the TMDL. Therefore, when a narrative criterion is interpreted in a TMDL, or a more stringent criterion is necessary to meet downstream criteria, these more stringent values should be utilized in assessing attainment. a. Temperature Criteria. Some of the waters included in the "Attaining Criteria/Uses" Category may more appropriately be included in the "TMDL Approved" Category. Some waterbodies with temperature TMDLs have been written to meet the "no measurable increase from anthropogenic sources" clause of the temperature criteria and indicate that shade needs to be improved on each of the streams. The same criterion established in the TMDL needs to be used to assess attainment of the temperature standard for listing purposes. b. Bacteria criteria. Both the Nestucca Bay and Tillamook Bay TMDLs determined that, in order to support uses in the bay, bacteria levels in some tributaries were required to be at levels below the numeric criteria. Thus, all bacteria determinations in the Wilson-Trask-Nestucca subbasin should be evaluated against the levels allocated in the TMDL when those allocations are more stringent than the numeric criteria. If both the numeric criteria and the allocation required to meet downstream uses is attained, the segment may be listed as "attaining criteria/uses." Otherwise, it should be listed under "TMDL approved." All bacteria records noted in this category should be reevaluated to ensure they meet both of these criteria. c. Sediment: In the Umatilla subbasin, a TMDL has been developed for sedimentation. Thus, the watershed specific targets established by the TMDL should be utilized to assess attainment. It is unclear whether the following three waterbodies proposed for "Attaining Criteria/uses" Category have been evaluated against these subbasin specific targets: Calamity Creek (5294), East Birch Creek (5277) and Wood Hollow Creek (5302). (9)
Response	The category "attaining criteria/uses" is based on comparison of data with existing water quality standards. Although TMDLs may set more stringent targets at some locations in the watershed, these data are not re-evaluated after the TMDL is complete to update the 303(d) list.

Comment 53	"Insufficient/No Data Submitted" List Methodology, "No Data Submitted." For some parameters, such as Aquatic Weeds/Algae, Habitat Modification, Flow Modification, Total Dissolved Gas and Turbidity, DEQ indicates "No data was submitted for this parameter." EPA assumes DEQ plans to carry over waterbodies that were previously listed for these parameters in the

	absence of new data. EPA also assumes that data that was sufficient to list waters on the 1998 303(d) list will be sufficient to allow that waterbody to remain listed on the 2002 303(d) list (Category 5) in situations where newer data is not available to indicate otherwise. (9)
Response	The statement "No Data Submitted" was meant to indicate that no new data was provided to DEQ for evaluation under these parameters. Water bodies previously placed on the 303(d) list remain on the list until one of the reasons for de-listing, as described in the assessment methodology, are met.

Comment 54	Insufficient/No Data Submitted" Umatilla TMDL, Aquatic Weeds/Algae The Umatilla River Subbasin TMDL, approved May 9, 2001, notes that while algae and pH modeling was not conducted for the McKay watershed due to insufficient data, the application of the allocations applicable to the modeled reaches would likely lead to attainment of the algae and pH criteria in the McKay watershed (p. 145). Based on this, the TMDL approval action covered waters in this watershed. (9)
Response	Generally speaking, when a TMDL was approved, only those waters that had previously been on the 303(d) list were moved to the "TMDL Approved" category. Water bodies in the "insufficient data" category have been left in that category. DEQ will standardize this for the 2004 integrated report.

Comment 55	WQ Limited, Not Needing a TMDL List Methodology, Parameter Specific Discussion: Habitat Modification EPA supports DEQ's decision to not list waters impaired by non-pollutants. According to the Section 303(d) of the CWA and EPA's implementing regulations at 40 CFR 130.7(b), state's must list waters impaired by a pollutant, as defined at Section 502 of the CWA. EPA acknowledges that flow and habitat modification are not pollutants. However, in some instances, habitat modification can be exacerbated by human activities that contribute to excessive sediment. DEQ's listing methodology has a parameter discussion on "Sediment" and one for "Habitat modification." However, there is no cross-reference between the two. (9)
Response	Water bodies previously listed under the "habitat modification" category were based on evaluations such as "insufficient pool to riffle ratio" or "lack of large woody debris." There were no listings for sediment under the habitat modification parameter. Listings under the parameter sediment remain on the list until one of the reasons for de-listing, as described in the assessment methodology, are met.

Comment 56	WQ Limited, Not Needing a TMDL Wilson-Trask-Nestuca, Lake Lytle/spring Creek This is the only waterbody de-listed to the Category "Water Quality Limited, not needing a TMDL" for reasons other than habitat and flow modification. In the Integrated Report, the supporting data column says, "A study has been done that indicates that nutrients are not the limiting factor for controlling weed growth in Lake Lytle and that an aquatic weed management plan is needed to control Eurasian milfoil, a non native species. An aquatic vegetation manageme…" (sic).

	However, the explanation is cut short and it is unclear what the rationale is for not needing a TMDL. On first read, it seems the rationale might be that DEQ considers the aquatic management plan to be a more appropriate tool to address the impairment. If this is true, this would be Oregon's only use of the "Other Pollution Controls" mechanism (Category 4c). If it is DEQ's intent to not list due to "Other required controls," more information is needed. Consistent with 40 CFR 130.7(b)(3)(ii) and (iii), DEQ would need to demonstrate the aquatic management plan is "required by federal, state or local requirements" and will result in the attainment of water quality standards. EPA requests DEQ further describe and clarify its rationale for not including this water on the 303(d) list and the reason a TMDL is not needed. (9)
Response	The full text of the "supporting data" reads: "A study has been done that indicates that nutrients are not the limiting factor for controlling weed growth in Lake Lytle and that an aquatic weed management plan is needed to control Eurasian milfoil, a non native species. An aquatic vegetation management plan has been developed by Portland State University for the City of Rockaway Beach and is being implemented." The strategy has been to remove the milfoil with an herbicide. Allocations would not be successful in addressing this water quality impairment, as the impairment is not caused by a "pollutant".

Comment 57	TMDLs Approved Tribal Waters and TMDLs There appear to be a few Tribal waters that have been removed from the 303(d) list since 1998 due to "TMDL Approved." However, EPA's approval of the State's TMDL specifically excludes Tribal waters. We acknowledge this is an administrative clarification, since these waters were not ever a formal part of the State's 303(d). However, it is important that these waters are clearly identified as being Tribal waters. See Suggestion 1 for Primary Comment on Tribal Waters. Also, EPA requests DEQ clearly identify, in the "Supporting Data" column, when waters are excluded from the TMDL due to being partially or fully Tribal waters. (9)
Response	Only those waters that are under the State of Oregon's jurisdiction are subject to the State's 303(d) and 305(b) activities. Oregon's 303(d) list and "integrated report" does not intentionally include tribal waters. Text has been added to the assessment methodology clarifying this.

Comment 58	TMDLs Approved: Additionally, a number of waterbodies remain on Oregon's draft 303(d) List for which EPA has approved TMDLs. Table 3 identifies those waters for which TMDLs have been approved and DEQ may consider re-Categorizing as "TMDL Approved." (9)
Response	Generally speaking, when a TMDL was approved, only those waters that had previously been on the 303(d) list were moved to the "TMDL Approved" category. Water bodies in the "insufficient data", "potential concern" or "attaining criteria/uses" category have been left in that category. DEQ will standardize this for the 2004 integrated report. Where a TMDL has been approved for a previous 303(d) listed water body, the water body has been moved to the "TMDL approved" category.

Comment 59	TMDLs Approved TMDLs and Biological Criteria: Some waters were previously listed on the 1998 303(d) list for "Biological Criteria." In the draft 2002 Integrated Report, it appears these listings have been removed due to "TMDL Approved." Specifically, no TMDL has been approved for Biological criteria in the TUALATIN Subbasin. Instead, the TMDL document contained a section describing how the conditions leading to this impairment would be dealt with though other pollutant listings (temperature and nutrients) and measures put in place to address habitat modification. Since no TMDL was approved and the impairment is being addressed through other measures, we recommend these determinations be modified to "Water Quality Limited, Not Needing a TMDL". (9)
Response	Listings in the Tualatin subbasin under the biological criteria have been moved to the "Water Quality Limited, Not Needing a TMDL" category.

EPA's Table 3:"Additions to "TMDL Approved" Category

SUBBASIN	WATERBODY NAME	RIVER MILES	SEGMENT OR RECORD #	PARAMETER	SEASON	APPROVAL DATE	COMMENT	DEQ RESPONSE
Coquille	S.F. Coquille River	0 - 30	4736	DO	June	July 3, 1996		"TMDL Approved"
Illinois	Bolan Creek		4451	Temperature		May 4, 1999		"potential concern"
Illinois	Cave Creek		4457	Temperature		May 4, 1999		"potential concern"
Illinois	Fan Creek		4466	Temperature		May 4, 1999		"attaining criteria/uses"
Illinois	Grayback Creek		4048	Temperature		May 4, 1999		"attaining criteria/uses"
Illinois	Left Fork Sucker Creek		4075	Temperature		May 4, 1999		"attaining criteria/uses"
Illinois	Little Creek		4481	Temperature		May 4, 1999		"attaining criteria/uses
Illinois	Little Grayback Creek		4049	Temperature		May 30, 2002		"attaining criteria/uses
Illinois	Windy Creek		4509	Temperature		May 30, 2002		"potential concern"
Lower Willamette	Johnson Creek	0 – 23.7	7335, 9294	Dieldrin		November 25, 1998	Columbia Slough TMDL addressed Dieldrin	The Columbia Slough TMDL did not address Johnson Creek.
Middle Columbia-Hood	Hood River	1.5 – 4.6	1316	Temperature		January 30, 2002	Western Hood Subbasin TMDL addresses this segment	The database has been updated to include this de-listing.
Sprague	~ 24 Waterbody Segments			Temperature	Summer	August 7, 2002	Upper Klamath Lake Drainage TMDL	The Klamath Lake TMDL was approved after the draft list was sent out for public comment. Those

SUBBASIN	WATERBODY NAME	RIVER MILES	SEGMENT OR RECORD #	PARAMETER	SEASON	APPROVAL DATE	COMMENT	DEQ RESPONSE
								waters that were on the 303(d) list have been moved to the "TMDL Approved" category.
Sprague	Sprague River		2157	Dissolved Oxygen	Summer	August 7, 2002	Upper Klamath Lake Drainage TMDL	The Klamath Lake TMDL was approved after the draft list was sent out for public comment. This water body has been moved to the "TMDL Approved" category.
Sprague	Sprague River		2156	pH	Summer	August 7, 2002	Upper Klamath Lake Drainage TMDL	The Klamath Lake TMDL was approved after the draft list was sent out for public comment. This water body has been moved to the "TMDL Approved" category.
Tualatin	~ 18 waterbody segments			Fecal coliform and temperature		August 7, 2001	Tualatin River subbasin TMDL addressed temperature and bacteria on all perennial streams in the Tualatin subbasin	Water bodies are in either the "attaining criteria/uses" or "insufficient/no data" category.

EPA's Table 3:"Additions to "TMDL Approved" Category

SUBBASIN	WATERBODY NAME	RIVER MILES	SEGMENT OR RECORD #	PARAMETER	SEASON	APPROVAL DATE	COMMENT	DEQ RESPONSE
Tualatin				Nutrients		August 7, 2001	Tualatin River subbasin TMDL addressed phosphorous between May 1 and October 31 for all perennial streams in the Tualatin subbasin—would this parameter have been included?	There are no water bodies in the Tualatin subbasin on the 303(d) list for nutrients. These water bodies are in the "insufficient/no data category".
Umatilla	Waterbody segments in the "Insufficient/no data" Category			Aquatic weeds/algae, Bacteria, Sedimentation, temperature		May 9, 2001	Umatilla River subbasin TMDL covers all perennial streams in the subbasin, except for those in Indian Country	Water bodies are in the "insufficient/no data" category and have not been moved to the "TMDL Approved" category.
Upper Grande Ronde	Waters listed in "Potential concern" and "Insufficient/no data" Categories			Temperature, sedimentation, dissolved oxygen, nutrients, pH, aquatic		May 3, 2000	Upper Grande Ronde River Subbasin TMDL addresses all perennial streams in the Upper	Water bodies are in "Potential concern" and "Insufficient/no data" categories and have not

				weeds/algae			Grande Ronde subbasin	been moved to the "TMDL Approved" category.
Upper Klamath Lake	~ 8 waterbody segments			Temperature	Summer	August 7, 2002	Upper Klamath Lake Drainage TMDL	The Klamath Lake TMDL was approved after the draft list was sent out for public comment. Those waters that were on the 303(d) list have been moved to the "TMDL Approved" category.
Williamson	~ 3 Waterbody segments			Temperature	Summer	August 7, 2002	Upper Klamath Lake Drainage TMDL	The Klamath Lake TMDL was approved after the draft list was sent out for public comment. Those waters that were on the 303(d) list have been moved to the "TMDL Approved" category.
Wilson-Trask-Nestuccs	Waterbody segments in the "Insufficient/no		3034, 3175, 2988, 3176, 3029	Fecal coliform, sedimentation, temperature		July 31, 2001 and May 13, 2002	Tillamook Bay and Nestucca Bay Watershed	Water bodies are in the "insufficient/no

	data” Category						TMDLs	data” category and have not been moved to the “TMDL Approved” category.

Comment 60	TMDLs Approved Periodic Review of "Approved TMDLs Category: In 1996, ODEQ modified its dissolved oxygen criteria and changed the reporting units from percent saturation to mg/L, thus making it difficult to directly compare stringency of the two criteria. Some older TMDLs have been developed to meet the previous criteria and may not yet be updated to reflect criteria changes. As such, it is uncertain whether those TMDLs approved before the criteria change, namely Coast Fork Willamette TMDL, approved 5/17/96, Bear Creek TMDL, approved 3/16/88, Pudding River TMDL, approved 10/18/93 and Coquille River TMDL, approved 7/3/96, will lead to the attainment of the current criteria. EPA encourages DEQ to periodically evaluate whether waterbodies are appropriately included in the "TMDLs Approved" category. If the TMDLs are in need of revision, EPA requests DEQ discuss with EPA which category is most appropriate for reporting these waters. (9)
Response	DEQ will re-evaluate TMDLs as new information is developed or if the criterion changes, on a five year rotating basis, provided resources are available.

Comment 61	Parameter Specific Discussion: Toxics (List Methodology, page 45) There appear to be a minimum sample requirement of 5 with at least two exceedances. Recommendation: DEQ should also include these minimums under the subsection "Data Requirements" on this page. (9)
Response	The following text has been added to the assessment methodology under the toxics section: "WATER QUALITY LIMITED DETERMINATION (EPA CATEGORY 5): For water column data and bioassay data, a minimum sample set of two, with a minimum of two exceedances of the applicable criteria".

Comment 62	Coquille Subbasin, Coquille River, Records 4944, 4945 and 4977: These three records address fecal coliform on the Coquille River from RM 0 to 4.2. Record 4977 notes that this segment should be on the 303(d) list for the entire year. However, the other 2 records indicate that the same segment attains criteria/uses during all seasons. EPA requests DEQ correct this discrepancy. (9)
Response	Records 4944 and 4945 are for fecal coliform under the DEQ's previous bacteria criteria to protect the water contact recreation use. Record 4977 is for the bacteria criteria to protect the shellfish harvesting criteria. The shellfish harvesting criteria is more stringent than the previous water contact recreation criteria, so it is possible for a water body to support one use and not the other.

Comment 63	Lower Rogue Subbasin, East Fork Whisky Creek, Records 8147 and 8148: Both records cover temperature in East Fork Whisky Creek between October 1 - May 31. We suggest that the season for record 8147 be modified to only address the Summer season so that conflicting determinations are not made in the future. (9)
Response	Record 8147 documents exceedance of the rearing criterion and the applicable season is the summer. Record 8148 documents exceedance of

	the spawning criterion. The applicable season is October 1 –May 31.

Comment 64	Lower Rogue Subbasin; Miners Creek, Record 4483: Possible typographical error. River Mile says RM 0 to 0. (9)
Response	DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. This system assigns a latitude/longitude identifier (LLID) to each water body in the state (using a 1:100,000 scale). The LLID is the latitude and longitude at the mouth of each water body expressed as a thirteen digit code. Some water bodies on the 2002 303(d) list do not have a LLID and do not appear on the map created using the streamnet system. Where water bodies did not have an LLID, a "placeholder" LLID was created so that records may be retained in the database. Because these water bodies do not appear on the LLID map, there is no length assigned to them. The listing applies from the mouth to the headwaters.

Comment 65	Lower Rogue Subbasin; Twomile Creek, Records 4503 and 4029: Possible duplication. Both of these records appear to address temperature during the summer season from RM 0 – 2. (9)
Response	These two records are duplicates. Record 4503 has been noted as a duplicate in the database.

Comment 66	Lower Willamette Subbasin; Lake Oswego TMDLs, Spring Brook Creek. Please add the TMDL name and approval data in the "Supporting Data" column. (9)
Response	According to the 1998 303(d) list this water body was addressed by the Tualatin River TMDL Approved on 1/27/94. Additionally, this water body was de-listed prior to the draft 2002 303(d) list. EPA approved DEQ's 1998 303(d) list, including the non-inclusion of this water body.

Comment 67	Middle Columbia-Hood Subbasin, Hood River (RM 4.6 – 14.6), pH: In the submittal letter sent with the Western Hood Subbasin TMDL, DEQ indicated that data collected during 1999, 2000 and 2001 did not exceed the pH criteria. The "Supporting Data" column does not appear to reflect this more recent data. (9)
Response	The segment covering RM 4.6 to 14.6 is in the database as "attaining criteria/uses" (record number 1321). This segment was in the "attaining criteria/uses" in 1998. The segment covering RM 1.5 to 4.6 (record 1320) was de-listed in 2002 based on data collected by Pacific Corporation. The "supporting data" field summarizes the data. Both records 1321 and 1320 cover diversions from the Hood River.

Comment 68	Middle Willamette Subbasin, Rickreall Creek (Records 6167 and 7067), DO, TMDL Approved. River miles for these two records overlap, which could be confusing for future list actions. DEQ might consider a segment modification to avoid duplication. (9)
Response	The river miles for record 6167 were incorrect. According to the 1998 database, record 6167 covered the mouth of Rickreall Creek from the mouth to the City of Dallas WWTP. The corresponding river miles are 0 to 13.4. The database has been corrected to reflect the correct miles.

Comment 69	Molalla-Pudding Subbasin, Zollner Creek (Records 6187 and 8525): Both records address RM 0 – 7.8, one applying year round, the other between October 1 – May 31. Seasons for these two records overlap, which may contribute to future confusion. DEQ may consider modifying these two records so there is no overlap of seasons. (9)
Response	Although the seasons overlap, the applicable criteria are different. The spawning criterion applies to record 8525. For the 2002 303(d) list, DEQ applied the cold water criterion when the spawning criterion did not apply. In 1998, the cold water criterion was applied all year and the data was lumped together annually. ODFW has developed a draft periodicity chart that summarizes when fish uses occur. When finalized DEQ TMDL staff will utilize this periodicity information when developing the allocations.

Comment 70	Upper Grande Ronde Subbasin, Grande Ronde River, Records 929 and 1153: Both of these records address dissolved oxygen between RM 162.4 and 200.6 Since both records include the summer, seasons for these two records overlap. This may contribute to future confusion. DEQ may consider modifying one of the two records so there is no overlap of seasons. (9)
Response	The "supporting data" field clarifies that the period of August – February applies to the listing for record 929. The "supporting data" field clarifies that March – July applies to the listing for record 1153.

Comment 71	Upper Grande Ronde Subbasin, Grande Ronde River, Records 928 and 1152. Both of these records address dissolved oxygen in the Grande Ronde River between RM 80.7 and 162.4 during the fall season. However, one record is in the "Attaining Uses" Category and the other is in "TMDL Approved" Category. (9)
Response	The "supporting data" field clarifies that March – July applies to the listing for record 928. The "supporting data" field clarifies that the period of August – February applies to the listing for record 1152.

Comment 72	Wilson-Trask-Nestucca Subbasin, Moss Creek (record 3174): It is unclear whether Moss Creek is in Nestucca Bay or Tillamook Bay Watershed. If it is in Nestucca Bay, it may be categorized as "TMDL Approved," since it would then be covered under the May 13, 2002 approval. (9)
Response	Moss Creek (record 3174) is in the Wilson-Trask-Nestucca watershed and would be included in the Tillamook Bay TMDLs if TMDLs were developed for sediment. This record is in the "insufficient data" category so the listing status remains.

Comment 73	Middle Columbia-Hood Subbasin, Hood River, Temperature, RM 1.5 - 4.6: Potential typographical error. The Integrated Report seems to indicate a TMDL has been approved for river miles 4.6 to 14.6 instead. (9)
Response	The database has been updated to include this de-listing.

Comment 74	Umatilla Subbasin: It is unclear whether North Hermiston Drain is the same waterbody as Hermiston Ditch. Please clarify whether these waterbodies are one in the same. If they are, we concur "TMDL Approved" Category is the appropriate one for both waterbodies, since EPA's May 9, 2001 approval

	action covered the Lower Umatilla River and North Hermiston Drain. (9)
Response	Yes Hermiston Ditch is the same water body as North Hermiston Drain. The water body is identified by record number 5265 (listing for ammonia) in both the 1998 and 2002 databases.

Comment 75	Miller Creek: A stream temperature data collection program near the mouth of Miller Creek (River Mile 0.5) I Northwest Oregon, a tributary to the Luckiamute River, was begun in 2000 and has continued through 2002. Stream temperature data was collected each year from early summer and through early fall. The data shows that Miller Creek should not be listed as a 303(d) water temperature quality limited stream. (10)
Response	Data collected at the mouth of Miller Creek in 2001 indicated exceedance of the 17.8 C rearing criterion. The LASAR ID is 25492. Data collected in 2000 and 2001 by Boise indicated attainment of the 17.8 C criterion. The water body has been moved to the "attaining criteria/uses" category.

Comment 76	Luckiamute River: A stream temperature data collection program on the Luckiamute River at River Mile 53.9 was begun in 2001 and has continued through 2002. Stream temperature data was collected each year from early summer and through early fall. The data shows that the Luckiamute River upstream of River Mile 53.9 should not be listed as a 303(d) water temperature quality limited stream. In addition, a similar conclusion can be made from ODEQ stream temperature data collected at this site (referenced as Luckiamute River 1430 xing) (10)
Response	The database has been changed to reflect this comment. The LASAR ID for the site is 25494.

Comment 77	The issues I have with the new 303(d) list are both philosophical and some technically based differences. Some of them may not be best to talk about right now so I am going to go through this in the order that I think is important. The first question that I brought up earlier about water quality standards that aren't being met that don't require a TMDL, was based on the latest addition to the South Umpqua River, which was for arsenic and cadmium. Both of those parameters are clearly sourced-based, and therefore shouldn't be included in the list. There is no way around it; that is simple logic. And also not exactly what you guys just said there, I believe that my reading of the rules say that that's part of your obligation to do the assessment and determine which one of those is source-based and which one of those aren't. Also along that same line - again this is about my philosophical issues that I have here - is that everything that I have seen for this region is based on doing something with point sources and ignoring the rest of the problem. If all we are going to do with this process is deal with point sources then there is no sense listing the water because you can do that by writing us a new district. It is just that simple. In addition to the cadmium-based, the cadmium arsenic being what I believe to be clearly source problems that can be dealt with an effluent limitation, either current or more stringent one, as in the

	Federal Rules call for. There are several other problems with the cadmium and the arsenic. With cadmium, the first problem is that the criterion that was used was chronic criteria. That is supposed to be a four-day moving average. All the data is based on grab samples that were taken a month apart and clearly the sampling type is not right to support the listing based on that data. Arsenic is basically the same way. It's is based on fish ingestion and water consumption in a portion of the river at the time the samples were taken that there is no water in the river and there is no fish in the river at that same point also. It is down near the mouth where the South Umpqua goes into the main stem. Quite frankly, the data is flawed, and has really abysmal detections limits. The only samples that showed up positive are the ones that showed up as being detected. When you have a detection limit that high, and I think it was 1.1 mg per liter, (I don't have the date right here in front of me), your margin of error is so high that when you are talking about those lower numbers in there, the list based on that, clearly again, I don't think that it is a good listing for either one of those two. It is going to be a problem later on. Like I said, there is no water in that section of the river at that time of the year. It is down near the mouth. There were temperatures done in 1999 in that stretch of the river and it was described as the river was 150 feet wide and 8 inches deep. And the other problem is that your assessment manual says that you are only using data from 1990 plus - all this data goes back from 1986. Clearly if you throw out all the stuff that was taken after 1990, this listing is probably going to go away also, in addition to all the other problems. The main problem is, especially with cadmium, and to the same extent arsenic, there is not enough data to support either one of those listings. Next big point: I want to make is most of the pre-2002 listings (the ones before this one) were based on the 1992 USGS study that was done. There is no data that I am aware of to support those listings, even though samples have been taken past the year 1995. DEQ was out there in 1997 and they found ph problems in the lower stretch of the river up to mile 15.9 (that is where we are). From mile 15.9 to the rest of the river, they couldn't find any ph violations and they couldn't find any deal violations on the whole river, but that is because they were taking grab samples in the daytime and they couldn't do it. If you are going to do follow-up sampling, you need to take the appropriate samples so you can determine whether you got compliance. There is no sense in wasting the money. We got two treatment plants up there that are spending close to twenty million dollars right now and it is highly likely that they didn't have to spend the money, because there are a lot of parameters that change with a lot more water let out of Galesville, a local reservoir, and some other things out there and it is really unfortunate that we got this far down the list, and there was data taken but it didn't support it so since it didn't support it, but we weren't really sure if it did it, so we just kept the thing on the list. Myrtle Creek, a little town, is spending twelve million dollars and the sewer rates going at $50.00 a month because of that listing right now. My final point is, and I'm speaking for myself and for Doug Zeener, who is a

	general manager of Rusa (I am not his employee). We are extremely disappointed that you guys have taken full modification off the list. It is real simple, everybody has heard us day it before, but in this river, that is the main problem and if you are not going to look at the rest of the TMDL. If you use the definitions in the TMDL, of the TMDL that were issued in July of 2000 that may take affect or may not, TMDL is a plan that will attain and maintain water quality. If you are not going to address full modification in this region, your TMDL is going to fail, period. It is just that simple in my opinion. (11) **Follow-up Email from Steve Witbeck, dated November 1, 2002:** I am the manager of the Roseburg WWTP. I attended the 303(d) list hearing that was held in Roseburg and commented at that time. The comments I made at that time were in reference to the South Umpqua listings. I wish to add the following comments about the 303(d) list update. During the meeting in Roseburg you stipulated that DEQ did not consider whether water quality standards could be attained through effluent discharge permits even though the 303 (d) list is only supposed to include those water body water quality standards that **cannot** be attained through effluent discharge permits. DEQ's failure to make this determination has resulted in unnecessary expense for all the users of the water bodies and has also increased DEQ's workload unnecessarily by requiring TMDL's for pollutants that could be addressed through discharge permits. *I am requesting that DEQ review the 303(d) list to identify those water quality standard parameters that can be addressed through discharge permits and remove them from the 303(d) list.* There are several water quality limited determinations for toxics that are based on grab samples and chronic criteria. Since chronic standards are supposed to be a maximum 4 day average, grab samples are inappropriate data to make such a determination*. I am requesting that all data used to make water quality listings for toxics be reviewed for sample type and that all non-acute criteria listings that were based on grab samples be removed.* DEQ has removed Flow Modification from the 303(d) listings. *I am requesting that Flow Modification be returned to the listings because when water is pumped it warmed. Anything that warms water contributes heat which is a pollutant. I would also like to note that pumping water is pollution.* Many rivers within the state do not meet in-stream water rights during the summer months and by definition do not have enough flow to sustain a healthy fish population during this time. If there is not enough water to sustain a healthy fish population then we no longer can consider fish passage and fish rearing a beneficial use. *I am requesting that DEQ remove fish passage and fish rearing as a beneficial uses when in-stream water rights are not being met. (11)*
Response	The chronic criteria are based on EPA's Gold Book. The chronic criteria are expressed as a four day average concentration. In order to calculate a four day average concentration, DEQ would have to collect either continuous data

	or a series of measurements per day. Because of the high cost of analysis of metals and organics, DEQ typically does not collect this much data. DEQ uses a conservative approach that assumes that grab samples represent a long term average concentration in the water body. During development of the TMDL additional data and source analysis may be conducted to determine if the water quality exceedance is a chronic condition. The cadmium and arsenic listings are based on US Geological (USGS) data. The data was collected from 1990 -2000. USGS recently adopted an analytical method to calculate a long term detection limit and laboratory reporting level (USGS Open File Report 99-193). Use of these methods is expected to address the issue of high minimum reporting limits (MRLs) in USGS data and decrease the reporting of both false positive and false negative results. pH: DEQ data collected at river mile 4.9 (LASAR 10442) in the summer indicated violation of the pH criteria in 23/24 samples collected from 1990-2000. DEQ data collected at river mile 9.9 (LASAR 11522) in the summer indicated violation of the pH criteria in 6/23 samples collected from 1990 – 2000. This data confirms the previous 303(d) listing. DEQ data collected at river mile 9.9 (LASAR 11522) does not indicate exceedance of the criteria in the fall/winter/spring. The 303(d) list segments have been modified to reflect this data. Flow modification: EPA guidance has indicated that flow is not a pollutant and not subject to allocations. DEQ may address flow in the water quality management plans developed with TMDLs. Beneficial Uses: Beneficial uses are goals for a water body and are described for each basin in the state within the water quality standards. DEQ will not remove beneficial uses from a water body until a Use Attainability Analysis (UAA) has determined that the beneficial uses can not be attained.

Comment 78	As an integral part of the development of the Greater Harney Basin Ag Water Quality Management plan the Harney SWCD asks the DEQ to reconsider their proposed 55-degree spawning criterion and for the 303(d) list in our closed basin ecosystem. The Board would like to take this opportunity to invite DEQ's policy makers to Harney County. During the DEQ's decision process it is imperative to interact with the inhabitants of this unique area to discuss lahontan and redband trout needs. Our directors feel there needs to be more specific studies, proof to substantiate the 55 degree spawning criteria applied to water bodies within our basin. The SWCD is committed to riparian enhancement along all streams in 2002 and 2003 annual district work plan. We will emphasize our efforts on 303(d) listed streams, not forgetting to compliment stewards on the proper functioning conditions. Continual regulatory changes make education outreach efforts by the district virtually impossible. The Harney Soil and Water Conservation District strongly opposes placing a "west side" spawning criterion on our "east side" fish population. (12)
Response	DEQ recognizes that there are fish, such as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different

	temperature tolerances. DEQ has identified the potential for warmer criteria for lahontan and redband trout and intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may result in de-listing of waters in the 2004 303(d) list.

Comment 79	The majority of the points that I wanted to make in the comment period have already been made addressed and answered in the question and answer period, but I will reiterate a few of them. All of my comments (with the exception of the last one) apply specifically to the Greater Harney Basin. First, regarding the 55 degree temperature standard for spawning, the draft 303(d) list in question introduces a 55 degree temperature standard for spawning habitat. I would encourage DEQ to work more closely with ODFW in delineating specifically what is spawning habitat. I have spoken with some of the folks at ODFW regarding where habitat is if there is a specific data set that we could go to our map for. So far I haven't received a positive response on that. I think that is an area were DEQ and ODFW could do some positive work in delineating specifically where these fish are spawning, realizing that that can at times be a moving target. Secondly, in my opinion there is a copious lack of information concerning basic ecology of redband trout in southeastern Oregon. For instance, to know where they spawn, when they spawn, and what are the thermal requirements for spawning. In a question that was answered previously, regarding does the Clean Water Act require that regulations of these specific natures be set, and if not, why set the regulations prior to the collection of data necessary for setting a "database regulation". Thirdly, I strongly suspect that the 55 degree standard is not likely to be attainable in June for at least some of the streams are listed in the Greater Harney Basin. If there is no reason to believe that it is going to be attainable, I would argue against setting it in the first place for several reasons. First it could divert time and attention from monitoring and management efforts that are beneficial to the resource. Secondly, I think that it reduces the credibility of the DEQ, at least regionally. And third and most important, I think it drives a wedge between the regulatory agency, or DEQ, and the people on the ground who are affected by the regulation. Lastly the content of the current draft came as a surprise to almost everyone I've spoken with. This includes the respective heads of the local SB1010 Watershed Council. I think this is an area where some positive work could be done by DEQ. I think it indicates a problem. I strongly encourage DEQ to find ways to improve communication between themselves and the people who may be affected, realistic or perceived by the list. With a process of this type, the lack of knowledge on the part of the constituency brings suspicion and distrust of DEQ. The content of the list should not be a surprise to the constituency. To sum up on that point, the 303(d) list is a big deal in the Greater Harney Basin. That is not necessarily a realistic impact but it is a perceived impact, and for that reason I would strongly encourage DEQ to do what it can to work more closely with people affected by the list or perceived affects by the list. Thank you. (13)
Response	As stated in the previous response, DEQ recognizes that there are fish, such

	as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different temperature tolerances. DEQ has identified the potential for warmer criteria for lahontan and redband trout and intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may result in de-listing of waters in the 2004 303(d) list.

Comment 80	My primary concerns that I want to address this evening are on the Burnt River. The concerns that I want to address tonight are those streams that are listed as not reaching their potential on the opinion of the Forest Service personnel. That is a real concern to the ranching community in the Burnt River, because these people are not familiar with the history of the Burnt River or what the potential natural conditions of these kinds of things are. We have real concerns to have these streams listed as not reaching their potential just because some Forest Service personnel goes up there and looks at the situation and thinks it should be different that then what they are observing. So that is my primary concern. My other concern in the Burnt, a number of these streams that are listed are intermittent. They dry up in the summertime. The North Fork is one of those that have almost no flow during the summertime and a number of the smaller streams as well. I could go through here and try and list them, but I don't think that is necessary at this time. One of the concerns I have is that we are listing these streams that don't flow a lot of the summer. Those are the comments that I wanted to put on the record. (14)
Response	The sediment listings in Burnt River basin were based on a watershed analysis conducted by the US Forest Service (North Fork Burnt River, Watershed Analysis Report, July 1995, Wallowa-Whitman National Forest). The stream survey method uses a visual estimation of cobble embeddedness. The document states that the "standard" for cobble embeddedness is 35% cobble embeddedness on 50% of the river. According to US Forest Service (Trish Carroll, e-mail communication, 12/6/2002) the standard comes from: Rhodes, Jonathon et al, 1994. "A Coarse Screening Process for Evaluation of the Effects of Land Management Activities on Salmon Spawning and Rearing Habitat in ESA Consultations". Tech Report 94-4. Columbia River Inter-Tribal Fish Commission. DEQ reviewed the report and determined that the following water bodies do not meet the standard of 35% cobble embeddedness in 50% of the river: China Creek; Gimlet Creek; North Fork Burnt River; West Fork Burnt river. These listings have been moved to the "insufficient/no data" category. DEQ realizes that the method used to estimate cobble embeddedness was a visual estimate. The US Forest Service no longer uses the method and the method was not intended to be used to determine compliance with water quality standards (Trish Carroll, e-mail communication, 12/6/2002 and 12/9/2002). However, in order to de-list the water bodies, DEQ would either need to determine that the listings were incorrect, or ideally, re-evaluate the sites based on a quantitative method. DEQ will evaluate sediment assessment methods prior to the development of the 2004 303(d) list, as resources allow. DEQ will then re-evaluate previous sediment listings based on the adopted sediment assessment method. When water is present, standards apply to intermittent streams as well as

	perennial.

Comment 81	The Harney County Watershed Council (HCWC) would like to go on record as being opposed to and alarmed at the new listings added to the Draft 2002 303(d) list for Water Quality Limited Streams. The HCWC is a diverse group of local citizens that understand the complexity of water issues to our local basins. Included in our membership are individuals representing all aspects of the Basin, with representatives from the Isaak Walton League, the Burns Paiute Tribe, the Burns Sportsmen's Club, Burns BLM, USFS, Harney SWCD, Harney County Court, the Education Community, concerned citizens, and landowners. Supporting the Council with technical advice are representatives from Oregon Dept. Fish & Wildlife, Farm Services Agency, Natural Resources Conservation Service, USDA Agricultural Research Service, and US Fish & Wildlife. Our Council members became very alarmed upon receipt of Table 3, Violations of Oregon's Water Quality Criteria in the Greater Harney Basin, updated Draft 2002 303(d) listing. We question the process for expanding the 303(d) list; this proposal seems to have circumvented any communication and data verification with local scientists, fish biologists, and technicians. We believe that for you to arrive at water quality standards that are applicable to the Greater Harney Basin watersheds, it is imperative that you use and include data analysis conducted locally. The Harney County Watershed Council is committed to fostering a spirit of cooperation among all who have a vested interest in maintaining and enhancing our watershed. We believe that unreachable goals and unmanageable water quality standards will not promote the necessary cooperation to accomplish this task. (15)
Response	As stated in previous responses, DEQ recognizes that there are fish, such as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different temperature tolerances. DEQ has identified the potential for warmer criteria for lahontan and redband trout and intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may result in de-listing of waters in the 2004 303(d) list.

Comment 82	In general, Weyerhaeuser is concerned with what appears to be a predilection by DEQ to default water bodies to the "impaired" category rather than the other available alternative categories. EPA in their November 2001 guidance*, 2002 Integrated Water quality Monitoring and Assessment Report Guidance* laid out five strategically sound water body categories. This guidance clearly lays out other water category alternatives rather than just "impaired" or "attaining". The use of the other categories, i.e., "waters of concern" would better allocate resources to further study and analyze rather than trigger the formal, burdensome and resource intensive TMDL process.

	As an example, consider the proposed "impaired" listing for iron on the Willamette River from river mile 108 to 119.7. DEQ is proposing to list this stream segment based on two of five samples failing the water quality standard. In other states (e.g., WA and FL) this would not be statistically valid evidence to list (note the comment on "Data Set Statistics" shown below). A more appropriate designation would be "waters of concern". Iron is a natural constituent of ground and surface water and is a "natural pollutant". It's unclear what process DEQ used to assess the affect of natural conditions. Given a total of five samples were used and the fact that iron is found naturally, is it wise to trigger the TMDL process at this location? (16) (17)
Response	DEQ has adopted the multi-part assessment at described in the assessment methodology provided with the 2002 303(d) list. DEQ does include a category of "potential concern". Included in this category are water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion. While Washington state has adopted a statistical approach for evaluating compliance with water quality criteria, Washington acknowledges that "toxic pollutants have significant potential to adversely affect characteristic water uses..." Washington state will place a segment on the 303(d) list due to toxic pollutants in the water column when two or more samples in a three year period exceed the numeric criteria. DEQ uses the same two sample minimum to place a water body on the 303(d) list, although data is evaluated over ten year time periods.

Comment 83	Designated Uses - DEQ's 303(d) list as presented would seem to only represent water bodies qualifying as "impaired" when to compared to water quality numeric criteria. This approach is inconsistent with EPA's *"2002 Integrated Water Quality Monitoring and Assessment Report Guidance,"* November 2001. This guidance identifies a decision point for water body categorization on a more fundamental judgment on whether "designated uses" are achieved. This distinction could be significant. There likely may be water bodies which otherwise exceed the data information criteria to support listing, but for which a credible case can be made that the most limiting characteristic use is achieved. Improperly listing a water body as "impaired" when it's designated uses are being met is arguably worse than not listed a truly impaired water body because an improper listing wastes resources – a missed listing does not. (16) & (17)
Response	DEQ utilizes the "independent applicability" approach to evaluation of water quality standards attainment; that is DEQ evaluates each portion of water quality standards independently. Additionally, DEQ is not aware of any protocols that would allow for determination that all human health uses (water contact recreation, domestic water supply and fishing) are protected, other than evaluation of all applicable criteria.

Comment 84	Water Body Categories – The current 303(d) has two implicit water body categories – unlisted or "attaining" water quality standards and listed as "impaired". This model seems too simplistic to characterize Oregon water

	bodies. EPA's more robust characterization in the November 2001 guidance which includes five categories ranging from "attaining" to "impaired requiring a TMDL" would allow for better characterization of Oregon water bodies. We also suspect that landowners may be more willing to conduct additional monitoring and better characterize water quality if the regulatory "stigma" associated with an impaired listing was de-emphasized. (16) & (17)
Response	DEQ has adopted a multi-part assessment as recommended by EPA guidance. The DEQ 2002 assessment methodology provides a description of these categories. The categories used for the "integrated report" include: 303(d) list; water quality limited, but a TMDL is not required; TMDL approved; attaining criteria/uses; insufficient/no data and potential concern. The "potential concern" category includes water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion.

Comment 85	<u>"Impaired" by a Non-Pollutant</u> - Natural sunlight can cause substantial biological and physical changes to water quality and aquatic communities; e.g., algae blooms, dissolved oxygen and diurnal temperature fluctuations. Although various management measures can be used to minimize and mitigate these effects, a 303(d) listing and TMDL process generally is not an efficient or effective means to identify and implement these measures. Even where sunlight produces "pollutants" through biological or physical processes, e.g., toxins associated with red tides or heat from solar radiation, the sunlight itself is not a pollutant. Note that EPA recent temperature TMDL modeling on the Columbia River main stem showed temperature water quality "violations" occurred under natural conditions approximately 30 percent of years modeled. A water quality criteria assessment associated with "natural" pollutants (temperature, dissolved oxygen, Fe, Al, etc) must include a determination of the impact from natural conditions. A water quality standard that is violated naturally must not cause a 303(d) listing. This is particularly important aspect given the relationship between temperature and dissolved oxygen. (16)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed.

Comment 86	<u>Data Set Statistics</u> – Given the gravity of a 303(d) listing of impairment, Weyerhaeuser is concerned about the comparative simplicity of DEQ approach to the statistical validity of a particular data set. We urge DEQ to consider adopting a more formal approach to data set statistical validity. Please note Attachment 1. It is Weyerhaeuser's understanding that Washington and Florida have received EPA approval to use the statistical approach as characterized in Attachment 1. (16) & (17)

Response	DEQ will consider statistical approaches for the 2004 303(d) assessment methodology. EPA currently provides comment on state's assessment methodologies and EPA Region X staff reviewed DEQ's 2002 assessment methodology. EPA does not have authority to approve or disapprove assessment methodologies, EPA can only approve or disapprove listing decisions.

Comment 87	Data Quality Assurance - Sampling and analytical methods associated with 303(d) listings must be consistent with the latest revisions of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR 136, or to the latest revision of *Standard Methods for the Examination of Water and Wastewater.* Data sets consistent with these guidelines should yield very acceptable information to evaluate water quality. (16) & (17)
Response	Data submitted to DEQ for the 2002 303(d) assessment was subject to quality assurance requirements. DEQ required documentation of the methodology and equipment used in data collection and analysis. Data that did not meet the quality assurance requirements as described in the assessment methodology were not used for development of the 303(d) list.

Comment 88	Data Age – Listing a waterbody on the 303(d) list should not be based on data older than 10 years. Waterbodies with obvious impairment would presumably have been the subject of continuing agency assessment sometime in the last 10 years. The listing evaluation should be based on the most recent information. (16) & (17)
Response	Data collected from 1990-2001 was analyzed for the 2002 303(d) list. Water bodies placed on previous 303(d) lists remain on the 2002 303(d) list until one of the de-listing options (as defined in the assessment methodology) are met. Listings are not removed simply because data used in the original listings is now more than 10 years old.

Comment 89	Data Requirements – Reliance upon sample data which is reported as below the quantification level for any pollutant, to support a 303(d) impairment listing, is scientifically not justified. (16) & (17)
Response	Many of the "toxics" listings are based on US Geological (USGS) data. The data was collected from 1990 -2000. USGS recently adopted an analytical method to calculate a long term detection limit and laboratory reporting level (USGS Open File Report 99-193). Use of these methods is expected to address the issue of high minimum reporting limits (MRLs) in USGS data and decrease the reporting of both false positive and false negative results. The DEQ laboratory uses a minimum reporting limit (MRL) for inorganic analytes. The MRL is defined as 10 times the standard deviation of the measurements taken to calculate the method detection limit. For organic analytes, the DEQ laboratory uses MDL (minimum detection limit) as defined in 40 CFR 136 Appendix B as the MRL.

Comment 90	Grab Samples – The allowance of grab sample data results to be representative of acute and chronic exposures, and to be matched against those water quality criteria (typically specified as 24 hour or 4-day averaging periods) is unacceptable.

	A grab sample is a snap shot and may not accurately characterize water column pollutant concentrations for the 24-hour or multi-day averaging periods. Many physical, chemical or biological factors could and do effect water quality over these time periods. If grab sample data suggests an exceedance of a water quality criterion, the department certainly has the ability to design a more thorough water sampling program to directly assess the acute and chronic criterion compliance status. Important regulatory decisions should not be short-circuited due to the presumed inconvenience of collecting information directly relevant to making that regulatory decision. (16) & (17)
Response	The chronic criteria are based on EPA's Gold Book. The chronic criteria are expressed as a four day average concentration. In order to calculate a four day average concentration, DEQ would have to collect either continuous data or a series of measurements per day. Because of the high cost of analysis of metals and organics, DEQ typically does not collect this much data. DEQ uses a conservative approach that assumes that grab samples represent a long term average concentration in the water body. During development of the TMDL additional data and source analysis may be conducted to determine if the water quality exceedance is a chronic condition.

Comment 91	River Mile 108 to 119.7- Impairment for Iron – Five samples with two failing associated with a naturally occurring pollutant should not be enough to list as water body as "impaired". (16) & (17)
Response	The chronic criteria are based on EPA's Gold Book. The chronic criteria are expressed as a four day average concentration. In order to calculate a four day average concentration, DEQ would have to collect either continuous data or a series of measurements per day. Because of the high cost of analysis of metals and organics, DEQ typically does not collect this much data. DEQ uses a conservative approach that assumes that grab samples represent a long term average concentration in the water body. During development of the TMDL additional data and source analysis may be conducted to determine if the water quality exceedance is a chronic condition.

Comment 92	Temperature effects on listings - A snapshot look at does not properly reflect the seasonal or diurnal relationship between and temperature. Temperature and dissolved oxygen vary on an annual cycle and cause impairment only when there is too much or too little in the water body. The water quality standards should be designed to address the highest temperatures of the year and the lowest dissolved oxygen levels of the year. These generally occur during the summer months or sometimes during the fall months for dissolved oxygen. Since both these parameters are interdependent, Weyerhaeuser recommends amending the standard as follows: ***Recommendation:*** *Revise the listing requirement for dissolved oxygen to read…"Similar to temperature, place a water body on the impaired 303(d) list for dissolved oxygen when at least one-seven day average shows a violation of the water quality standard. When data are available from fewer than seven days in any 30-day period, DEQ will assess the lowest dissolved oxygen measurement within that period. A water body segment will be placed on the 303(d) list for dissolved oxygen when the data show a violation of the water quality standard on at least one day in at least three different*

	years. Before categorization, DEQ will consider all relevant natural conditions issues relating to temperature and dissolved oxygen for which data or other evidence are available (i.e., peak hourly temperature increases and extreme air temperatures)". (16) & (17)
Response	DEQ's water quality criteria clearly state that dissolved oxygen levels "shall not be less than … as an absolute minimum". The criteria do not include an assessment of the duration or frequency of the exceedance of the criterion.

Comment 93	Water bodies that attain the temperature standard but are erroneously listed as impaired – Weyerhaeuser is submitting the results of continuously monitored temperature data for Youngs River, Mill Creek, Pine Creek and Upper Little Lobster Creek. The data is provided in an auditmaster form as required by DEQ and the attached auditmaster spreadsheet has a separate sheet for each site and year. The data was collected according to DEQ protocols. Maryanne Reiter has already provided you with this data but is included here for completeness. Technical questions should be directed to Maryann at (541) 741-5627. Based on the enclosed data, Weyerhaeuser urges DEQ to exclude these stream segments from the 303(d) list for temperature listed streams. (16)
Response	DEQ reviewed the data collected on the Young's river at river 7.6. The Weyerhaeuser data shows that in 2000, there were 0 days with the 7 day moving average of the daily maximums (7 DMA) greater than the rearing criterion of 17.8 C. The data also indicated that the spawning criterion of 12.8 C was exceeded at the same site. DEQ has moved previous 303(d) temperature listings in estuarine waters to the "potential concern" category because there is a narrative criterion for estuarine waters that is separate from the spawning and rearing criteria. This criterion says "no significant increase above natural background temperatures shall be allowed(North Coast Lower Columbia basin OAR 340-41-205 (2)(b)(D)." DEQ reviewed the data collected on Mill Creek. The segment lengths have been modified to reflect the data submitted. River miles 1 to 17 are "303(d)" based on the data used for the 1998 listing. River miles 17 to 22.2 are "attaining" based on the new data. The site is LASAR ID 29456. DEQ reviewed the data collected on Pine Creek (LASAR 29457, RM 1.7). Based on the data, the 303(d) listed segment has been modified. River mile 0 to 1 is "303(d)" based on the BLM data used for the original listing. River mile 1 to 7.2 has been moved to the "attaining" category. Data collected on Little Lobster Creek was reviewed (LASAR 29458 RM 5.1). Segment lengths were modified based on the data. River miles 0 to 2.1 are "303(d)" based on the data used for the 1998 listing. River mile 2.1 to 6.6 are "attaining."

Comment 94	NWPPA believes the 303(d) listing process is an extremely important activity for the State of Oregon. The need for a strategic, science-based assessment and listing processes is essential. Water bodies assessed against Oregon's Assessment and Listing Methodology Criteria will be categorized and then multi-year department activity plans developed to address water quality needs. Significant public and private resources will be committed based on DEQ's assessment process. Water bodies placed on the 303(d) list will have

	a changed legal status and the significant regulatory process for Total Maximum Daily Loads (TMDLs) will be triggered to improve water quality. Given the legal and cost ramifications, it is essential that Oregon have listing decisions that reflect the best available scientific information and consistent application of listing criteria. (17)
Response	DEQ makes assessment decisions based on the best information available during the development of the list. DEQ's assessment methodology outlines the process used to evaluate data for the 2002 303(d) list.

Comment 95	<u>Create additional categories of waters such as "waters of concern"</u> Oregon has conducted several cycles of listing of impaired waters over the past decade that resulted in the addition of over a thousand water bodies listed as impaired. Clearly, our thinking regarding listing decisions has evolved over this time period based on federal and state guidance. Consequently, today some of these older listing decisions might be viewed differently if more contemporary criteria is applied. NWPPA highly recommends that DEQ create additional categories based on EPA's guidance; alternately, at a minimum, create one additional category for "waters of concern." "Waters of concern" could include those for which some uncertainty exists in the original listing decision (quality of data, completeness of analysis, etc.) or for which compelling evidence of impairment is lacking. (17)
Response	DEQ has adopted a multi-part assessment as recommended by EPA guidance. The DEQ 2002 assessment methodology provides a description of these categories. The categories used for the "integrated report" include: 303(d) list; water quality limited, but a TMDL is not required; TMDL approved; attaining criteria/uses; insufficient/no data and potential concern. The "potential concern" category includes water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion.

Comment 96	<u>Clarification is needed regarding waters listed as impaired for temperature</u> Oregon has numerous river segments listed as impaired for temperature. Oregon water quality regulations specify that water bodies which exceed the applicable numeric criteria for temperature will be included on the 303(d) list. A typical temperature listing might provide the information to the effect that a certain number of days had been recorded with 7-day maximum averages over a particular numeric criteria. Yet Oregon water quality standards for temperature contain additional components relevant to a determination of whether the temperature criteria is exceeded. These include: the air temperature exemption and the natural conditions proviso. (a) The air temperature exemption, OAR 340-41-*basin*(2)(b)(B) specifies that "an exceedance of the numeric criteria identified in subparagraph (A) …of this section will not be deemed a temperature standard violation if it occurs when the air temperature during the warmest seven-day period of the year exceeds the 90th percentile of the seven-day average daily maximum air temperature calculated in a yearly series over the historic record. However, during such periods, the anthropogenic sources must

	still continue to comply with their surface water temperature management plans developed under OAR 340-41-026(3)(a)(D)." DEQ correspondence dated June 22, 1998 to EPA makes the following statement regarding this provision: "This (policy) interpretation would be applied for the purposes of enforcement of the standard and the 303(d) listing determinations. …In the 1994/6 303(d) list, no water bodies were excluded for this reason." It appears that DEQ has never analyzed any of its 303(d) temperature listings in light of this component of its regulation. This type of analysis should be performed for all temperature listings before inclusion in the category of "impaired waters." (b) Oregon water quality regulations contain policies and provisions applicable in all basins addressing naturally high water temperatures. OAR 340-041-0120(c) states "…Natural surface water temperatures at times exceed the numeric criteria due to naturally high ambient air temperatures, naturally heated discharges, naturally low flows or other natural conditions. These exceedances are not water quality standards violations when the natural conditions themselves cause water temperatures to exceed the numeric criteria. In these situations, the natural surface water temperatures become the criteria." Questions have been raised in a number of Oregon regulatory proceedings regarding waters that may naturally exceed water quality criterion. For example, this issue was raised by several commentators during the last (1992-4) Triennial Review process. Yet, despite these concerns, the proposed 303(d) list does not contain a mechanism for reflecting this situation. (c) Oregon water quality regulations contain similar provisions for dissolved oxygen that if natural water quality is outside of the applicable criterion, then the natural water quality becomes the criteria. (17)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed. The goal of temperature TMDLs in to ensure adequate shading riparian areas.

Comment 97	Temperature listings for the Lower Willamette River The Willamette River is listed as impaired for temperature (P. 61 of 260) based on the 1998 assessment. The Willamette below river mile 54.8 exceeds the temperature criteria of 68°F and above river mile 54.8 exceeds the 64°F criteria. The supporting data indicates high temperature values above 80°F in both the lower and upper river with summertime values in the 70s for weeks at a time are not uncommon.

	It should be noted for the record that although the DEQ has listed the Willamette River as impaired for temperature, the supporting data is not dissimilar from the data over the past seventy years when temperature recordings were reported: • "A Sanitary Survey of the Willamette Valley," by Rogers et al. Engineering Experiment Station Oregon State Agricultural College Bulletin Series, No. 2 (June 1930) citing 1929 data for August showing 7 days of averages over 22°C; 6 days of averages of 21.1°-21.9°C; etc. • "A Sanitary Survey of the Willamette River from Sellwood Bridge to the Willamette River," by Gleeson Engineering Experiment Station Oregon State Agricultural College (1936) found similar values in September. • "Report on Water Quality and Waste Treatment Needs for the Willamette River," Oregon State Sanitary Authority (May 1964) cites temperature data for the period 1953-1963 showing monthly averages routinely exceeding 20°C and monthly averages reaching as high as 23°C. • *The Return of a River – The Willamette River,"* by Gleeson, Advisory Committee on Environmental Science and Technology and Water Resources Research Institute, Oregon State University (June 1972) p. 36-37 notes: "Over the years, the average temperature of the river has not changed in an amount that is significant when compared to the large fluctuations which occur between maximum and minimum…with temperatures being somewhat less in the upper reaches and somewhat higher in the lower reaches…River sampling data were reviewed for thirteen different years covering the period from 1929 through 1970. In all of the thirteen years and at river flows as high as 9,900 cfs Salem gauge, temperatures in excess of 70°F were encountered at one or more river stations. Records indicate that periods as long as 2.0 days above 70°F may be expected at some locations on the mainstem of the river. Higher temperatures are encountered in the tributaries…Under conditions of regulated flow and with a flow of 8,000 cfs Salem gauge (9,470 cfs Portland Harbor) for the month of July, the river may be expected to reach 70°F as a mean temperature in the Portland Harbor and may reach a maximum of 78°F. under the same conditions, the mean temperature of the river will exceed 65°F as far upstream as the Long tom tributary, at approximately 147 miles from the mouth." • Numerous other publications of this nature can be found in DEQ archives. (17)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed. The goal of temperature

	TMDLs in to ensure adequate shading in riparian areas.

Comment 98	In general, NWPPA is concerned with what appears an inclination by DEQ to default water bodies to the "impaired" category rather than the other available alternative categories. EPA in their November 2001 guidance*, 2002 Integrated Water quality Monitoring and Assessment Report Guidance* laid out five strategically sound water body categories. This guidance clearly lays out other water category alternatives rather than "impaired" or "attaining." The use of the other categories; i.e., "waters of concern" would better allocate resources to further study and analyze rather than trigger the resource intensive TMDL process. As an example, consider the proposed "impaired" listing for iron on the Willamette River from river mile 108 to 119.7. DEQ is proposing to list this stream segment based on two of five samples failing the water quality standard. In other states (e.g., Washington and Florida) this would not be statistically valid evidence to list (note the comment on "Data Set Statistics" shown below). A more appropriate designation would be "waters of concern." Iron is a natural constituent of ground and surface water and is a "natural pollutant." It's unclear what process DEQ used to assess the affect of natural conditions. Given a total of five samples were used and the fact that iron is found naturally, is it wise to trigger the TMDL process at this location? (17) **General Recommendation**: Prudent public policy would be to only list those water waters with certain impairment rather than risk public and private resources based on data sets without regulatory efficacy. NWPPA urges DEQ to review the specific comments offered below and revise the 303(d) listing process to better reflect statistical validity of data sets, the impact of natural conditions and variability, and account for attainment of designated uses.
Response	DEQ has adopted a multi-part assessment as recommended by EPA guidance. The DEQ 2002 assessment methodology provides a description of these categories. The categories used for the "integrated report" include: 303(d) list; water quality limited, but a TMDL is not required; TMDL approved; attaining criteria/uses; insufficient/no data and potential concern. The "potential concern" category includes water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion.

Comment 99	Designated Uses – DEQ's 303(d) list as presented would seem to only represent water bodies qualifying as "impaired" when to compared to water quality numeric criteria. This approach is inconsistent with EPA's *2002 Integrated Water Quality Monitoring and Assessment Report Guidance,* November 2001. This guidance identifies a decision point for waterbody categorization on a more fundamental judgment on whether "designated uses" are achieved. This distinction could be significant. There likely may be water bodies which otherwise exceed the data information criteria to support listing, but for which a credible case can be made that the most limiting characteristic use is achieved.

	Improperly listing a water body as "impaired" when its designated uses are being met is arguably worse than not listing a truly impaired water body because an improper listing wastes resources – a missed listing does not. (17) ***Recommendation***: *Review EPA's November 2001 guidance and modify DEQ's 303(d) decision model to enhance the "designated uses" test to make certain that impairment does exist .* ***Data Request****: Please provide additional information on how the "designated use" question was addressed for the draft 303(d) list.*
Response	DEQ has adopted a multi-part assessment as recommended by EPA guidance. The DEQ 2002 assessment methodology provides a description of these categories. The categories used for the "integrated report" include: 303(d) list; water quality limited, but a TMDL is not required; TMDL approved; attaining criteria/uses; insufficient/no data and potential concern. The "potential concern" category includes water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion. DEQ utilizes the "independent applicability" approach to evaluation of water quality standards attainment; that is DEQ evaluates each portion of water quality standards independently. Additionally, DEQ is not aware of any protocols that would allow for determination that all human health uses (water contact recreation, domestic water supply and fishing) are protected, other than evaluation of all applicable criteria.

Comment 100	Water Body Categories – The current 303(d) has two implicit water body categories – unlisted or "attaining" water quality standards and listed as "impaired". This model seems too simplistic to characterize Oregon water bodies. EPA's more robust characterization in the November 2001 guidance which includes five categories ranging from "attaining" to "impaired requiring a TMDL" would allow for better characterization of Oregon water bodies. The references in the Assessment and Listing Methodology could be clearer by referencing a table in the background section that explains EPA's categories. (17) ***Recommendation****: Review the draft 303(d) and move water bodies without compelling evidence of impairment to more categories better reflecting the uncertainty associated with their data sets (i.e., "waters of concern").*
Response	DEQ has adopted a multi-part assessment as recommended by EPA guidance. The DEQ 2002 assessment methodology provides a description of these categories. The categories used for the "integrated report" include: 303(d) list; water quality limited, but a TMDL is not required; TMDL approved; attaining criteria/uses; insufficient/no data and potential concern. The "potential concern" category includes water bodies for which the available data set does not meet the minimum sample set requirements, but available data indicates exceedance of the criterion. Figure 3 in the assessment methodology compares DEQ's categories to EPA's recommended categories.

Comment 101	Impaired by a Non-Pollutant – Natural sunlight can cause substantial biological and physical changes to water quality and aquatic communities; e.g., algae blooms, dissolved oxygen and diurnal temperature fluctuations. Although various management measures can be used to minimize and mitigate these effects, a 303(d) listing and TMDL process generally is not an efficient or effective means to identify and implement these measures. Even where sunlight produces "pollutants" through biological or physical processes; e.g., toxins associated with red tides or heat from solar radiation, the sunlight itself is not a pollutant. Note that EPA recent temperature TMDL modeling on the Columbia River main stem showed temperature water quality "violations" occurred under natural conditions approximately 30 percent of years modeled. A water quality criteria assessment associated with "natural" pollutants (temperature, dissolved oxygen, Fe, Al, etc) must include a determination of the impact from natural conditions. A water quality standard that is violated naturally must not cause a 303(d) listing. This is particularly important aspect with relationship between temperature and dissolved oxygen. (17) **Data Request**: For the Willamette basin 303(d) temperature listings, please provide the analysis as defined in DEQ's draft 303(d) [page 38]: "except when the air temperature during the warmest seven-day period of the year exceeds the 90th percentile of the 7-day average daily maximum air temperature calculated in a yearly series over the historic record." NWPPA requests details of this assessment for Willamette basin temperature listings. (16 & 17)
Response	DEQ conducted an analysis of air temperature for weather stations in the Willamette basin. The data was retrieved from Oregon Climatological Services website at: http://www.ocs.orst.edu/pub_ftp/climate_data/daily/temp/temp_filesz2.html The data analysis was conducted as follows: 1. The 7 day moving average (DMA) of the daily maximum air temperature was calculated for each site 2. The maximum value of the 7 day moving average was calculated for each year in the period of record 3. The 90th percentile of the yearly maximums was calculated for each site 4. The 90th percentile was compared to the 7 day moving average of the daily maximum air temperatures of each site. Days with a 7 DMA greater than the 90th percentile were noted. The time period that encompassed the high 7 DMA was noted. 5. The 7 days time period that resulted in the 7 DMA air temperature that was greater than the 90th percentile was compared to time periods when water temperature data was collected. In the Willamette basin, only three sites had days in which the 7 DMA was greater than the 90th percentile after 1995. (During the development of the 1996 list, DEQ evaluated air temperature). The sites were: Silver Creek Falls (site # 357809); St. Helens – RFD (site # 357466) and Beaverton 2SSW (site # 350595). All of the warm air temperature occurred during 1998. There are

	no listings in the Willamette basin based on data collected in 1998. The air exemption was not applicable.

Comment 102	Data Set Statistics – Given the gravity of a 303(d) listing of impairment, NWPPA is concerned about the comparative simplicity of DEQ approach to the statistical validity of a particular data set. We urge DEQ to consider adopting a more formal approach to data set statistical validity. Please note Attachment 1. It is NWPPA's understanding that Washington and Florida have received EPA approval to use the statistical approach as characterized in Attachment 1. (17) Recommendation: Adopt the statistical approach approved by EPA for Washington and Florida for use in Oregon's 303(d) process.
Response	DEQ will consider statistical approaches for the 2004 303(d) assessment methodology. EPA currently provides comment on state's assessment methodologies and EPA Region X staff reviewed DEQ's 2002 assessment methodology. EPA does not have authority to approve or disapprove assessment methodologies, EPA can only approve or disapprove listing decisions.

Comment 103	Data Quality Assurance – Sampling and analytical methods associated with 303(d) listings must be consistent with the latest revisions of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR 136, or to the latest revision of *Standard Methods for the Examination of Water and Wastewater.* Data sets consistent with these guidelines should yield very acceptable information to evaluate water quality. (17) Recommendation: Clarify the requirements for acceptable data sets to reflect acceptable Federal protocols.
Response	Data submitted to DEQ for the 2002 303(d) assessment was subject to quality assurance requirements. DEQ required documentation of the methodology and equipment used in data collection and analysis. Data that did not meet the quality assurance requirements as described in the assessment methodology were not used for development of the 303(d) list.

Comment 104	Data Age Data older than 10 years generally should not be used to add waterbodies to the 303(d) list. Waterbodies with obvious impairment would presumably have been the subject of continuing agency assessment sometime in the last 12 years. Generally, the listing evaluation should be based on the most recent information. For water quality criteria that reference natural conditions or require analysis over a historic period, historic data should be considered in decisions to exclude a waterbody from the 303(d) list. Recommendation: Data sets older twelve years in the 303(d) process should be subject to a more rigorous QA/QC examination.
Response	Data collected from 1990-2001 was analyzed for the 2002 303(d) list. Water bodies placed on previous 303(d) lists remain on the 2002 303(d) list until one of the de-listing options (as defined in the assessment methodology) are

	met. Listings are not removed simply because data used in the original listings is now more than 10 years old.

Comment 105	Data Requirements – Reliance upon sample data which is reported as below the quantification level for any pollutant, to support a 303(d) impairment listing, is scientifically not justified. ***Recommendation***: *DEQ listing methodology should be revised to include the following:* ❑ *Data below the quantification limit should not be reported numerically since, by definition, they are not quantifiable. The data should be reported only as "present" or "absent." Replicate data results below the quantification limit does not improve the quality of the information for making regulatory decisions.* ❑ *The department should also understand that the method detection level (MDLs) and quantification level are not static numbers. (Note: we assume the use of the term "detection level" is a reference to the regulatory term Method Detection Level) The EPA has done MDLs and published them for most of the analytical methods presented in 40 CFR 136. However, these are nearly always done on distilled water. Detection limits can vary with time for various reasons. Detection levels developed with the analysis of most environmental samples will not reach EPA detection levels. Detection levels can vary from sample to sample, and between laboratories.* ❑ *The Practical Quantification Level is defined and accepted by EPA as the lowest concentration for which a pollutant can be assessed with statistical confidence.*
Response	Many of the "toxics" listings are based on US Geological (USGS) data. The data was collected from 1990 -2000. USGS recently adopted an analytical method to calculate a long term detection limit and laboratory reporting level (USGS Open File Report 99-193). Use of these methods is expected to address the issue of high minimum reporting limits (MRLs) in USGS data and decrease the reporting of both false positive and false negative results. The DEQ laboratory uses a minimum reporting limit (MRL) for inorganic analytes. The MRL is defined as 10 times the standard deviation of the measurements taken to calculate the method detection limit. For organic analytes, the DEQ laboratory use MDL as defined in 40 CFR 136 Appendix B as the MRL.

Comment 106	Grab Samples – The allowance of grab sample data results to be representative of acute and chronic exposures, and to be matched against those water quality criteria (typically specified as 24 hour or 4-day averaging periods) is unacceptable. A grab sample is a snap shot and may not accurately characterize water

	column pollutant concentrations for the 24-hour or multi-day averaging periods. Many physical, chemical or biological factors could and do effect water quality over these time periods. If grab sample data suggests an exceedance of a water quality criterion, the department certainly has the ability to design a more thorough water sampling program to directly assess the acute and chronic criterion compliance status. Important regulatory decisions should not be short-circuited due to the presumed inconvenience of collecting information directly relevant to making that regulatory decision. (17)
Response	The chronic criteria are based on EPA's Gold Book. The chronic criteria are expressed as a four day average concentration. In order to calculate a four day average concentration, DEQ would have to collect either continuous data or a series of measurements per day. Because of the high cost of analysis of metals and organics, DEQ typically does not collect this much data. DEQ uses a conservative approach that assumes that grab samples represent a long term average concentration in the water body. During development of the TMDL additional data and source analysis may be conducted to determine if the water quality exceedance is a chronic condition.

Comment 107	River Mile 108 to 119.7- Impairment for Iron – Five samples with two failing associated with a naturally occurring pollutant should not be enough to list as water body as "impaired." (17) ***Recommendation:*** *Adopt the EPA approved statically valid approach for data sets (Attachment 1) and move this listing to a "waters of concern" category.*
Response	DEQ will consider statistical approaches for the 2004 303(d) assessment methodology. EPA currently provides comment on state's assessment methodologies and EPA Region X staff reviewed DEQ's 2002 assessment methodology. EPA does not have authority to approve or disapprove assessment methodologies, EPA can only approve or disapprove listing decisions.

Comment 108	Temperature effects on listings – A snapshot look at does not properly reflect the seasonal or diurnal relationship between and temperature. Temperature and dissolved oxygen vary on an annual cycle and cause impairment only when there is too much or too little in the water body. The water quality standards should be designed to address the highest temperatures of the year and the lowest dissolved oxygen levels of the year. These generally occur during the summer months or sometimes during the fall months for dissolved oxygen. Since both these parameters are interdependent, NWPPA recommends amending the standard as follows: (17) ***Recommendation:*** *Revise the listing requirement for dissolved oxygen to read…"Similar to temperature, place a water body on the impaired 303(d) list for dissolved oxygen when at least one seven-day average shows a violation of the water quality standard. When data are available from fewer than seven days in any 30-day period, DEQ will assess the lowest dissolved oxygen measurement within that period. A water body segment will be placed on the 303(d) list for dissolved oxygen when the data show a violation*

	of the water quality standard on at least one day in at least three different years. Before categorization, DEQ will consider all relevant natural conditions issues relating to temperature and dissolved oxygen for which data or other evidence are available (i.e., peak hourly temperature increases and extreme air temperatures)." *NWPPA urges DEQ to review all new proposed listings for dissolved oxygen in the context of the revised listing criteria as proposed above.*
Response	DEQ's water quality criteria clearly state that dissolved oxygen levels "shall not be less than … as an absolute minimum". The criteria do not include an assessment of the duration or frequency of the exceedance of the criterion.

Comment 109	My name is Gordon Ross. I am a dairy farmer and I have lived in Coos County for over 70 years. I have served on the Coos SWCD board for over 30 years. As a County Commissioner, I helped to appoint the Coos and Coquille Watershed Associations, and served on the Governor's Salmon Strategy Team. In all these years we have promoted the "bottom up" and "non regulatory" approach to water quality improvement. Now, the new Triennial water standards for temperature has placed most of our streams on the 303(d) list because of temperature. In our county are the three highest spawning Coho streams in the state, and 55% of all returning Coho come to Coos County streams, and yet we are out of compliance for temperature. I am here to testify that the temperature standards are unrealistic. September 18th in Coos County it was raining 69° water. My concern is, how will these standards be used when TMDLs are implemented? My over-riding concern is – are we going to be treated as citizens or subjects? As citizens we've made great progress in the area of water quality. As subjects we can't get through your permit process. As citizens we advance through cooperation. As subjects the watchword will be simply be "compliance". (18)
Response	Once a water body is placed on the 303(d) list, a TMDL is developed for the water body. The TMDL contains a water quality management plan which is developed with local input. For example, the Oregon Department of Agriculture develops water quality management plans for agricultural areas with the assistance of local advisory committees.

Comment 110	**Lakeview District – Lakeview Resource Area** Twelvemile, Fifteenmile, and Twentymile creeks are included on the 2002 303(d) list for silver, and Twentymile Creek is included on the list for arsenic. These segments were included based on data from two (2) sample efforts

	and registered levels of silver and arsenic that exceeded the numeric water quality criteria. While there has been mining in the area, the size and the type of operations are not such that would produce silver and arsenic in amounts that would cause impairment. Further, the areas are geothermally active, and these constituents (silver and arsenic) occur in the creeks as natural background. The BLM believes that Twelvemile, Fifteenmile, and Twentymile creeks should not be included on the 2002 303(d) list for impairment due to silver or arsenic. The BLM believes that the listing is inappropriate and misrepresents an impaired condition for these parameters. (19)
Response	For the draft 2002 303(d) list DEQ did not determine background conditions. DEQ directly compared data to the "toxics" criteria contained in the State's water quality standards. DEQ determines background conditions during TMDL development. If DEQ determines that background levels are higher than the criteria the TMDL document will contain an assessment of the background conditions. Allocations are not developed for that parameter in the TMDL.

Comment 111	Lakeview District – Lakeview Resource Area The Goose Lake, Summer Lake, Lake Abert, and Warner Lakes subbasins are listed for anadromous fish passage. The BLM is not aware of any record of anadromous fish in these subbasins. The BLM believes that anadromous fish passage should not be included among the beneficial uses for any segment therein (19).
Response	Per the beneficial use table for Goose and Summer Lakes Basin (OAR 340-41-922) anadromous fish passage has been removed as a beneficial use from these subbasins.

Comment 112	B urns District: The BLM recognizes the importance of the listing process for identifying impaired waters and waters in need of restoration, particularly where anthropogenic influences are contributing to degraded water quality condition. That stated, we maintain that the uniqueness of certain areas, e.g., the Great Basin Desert, warrants careful consideration of regional characteristics that drive certain systems when developing the 303(d) list. For example, desert systems such as those typical of southeastern Oregon are highly dependant on moisture from snow pack, are influenced by bedforms that cause water to flow subsurface, or are intermittent with water disappearing and reappearing again as surface waters. The BLM has management responsibility in many of these areas and believes careful consideration of factors such as water availability, geology, hydrology, and aridity should precede development of recommendations for listing or further for prioritizing restoration. Such an approach would allow for consideration of the natural range of variability that influences certain systems. The BLM believes that ODEQ can accomplish this through legal and/or administrative mechanisms within the Clean Water Act that would allow the agency to legitimately address the need for water quality improvement throughout the

[1] The Use Attainability Analysis detailed under Subpart B 131.10 (g) (2) is appropriate for delineating ephemeral, intermittent streams. The Seasonal Use Designation under Subpart B 131.10 (f) could be applied to intermittent segments with partially perennial streams.

	state.[1] (19)
Response	The beneficial uses apply when flow is present in the system. Use Attainability Analyses (UAA) are a separate activity from the 303(d) list. UAAs would be performed once the TMDL is complete and DEQ has documented that the criteria to support the use can not be achieved. 40 CFR 131.1 describes the requirements of an UAA.

Comment 113	Vale District: The BLM questions the 2002 listings that were included based on one year of data, collected during a drought year. There are multiple streams in the subbasins of both the Powder and Burnt rivers of the Baker Resource Area that were added to the 2002 Draft 303(d) list based on limited data collected during 2000 or 2001. Consequently, a number of segments were included on the Draft list for exceeding the summer rearing temperature criterion of 64 degrees. (19)
Response	DEQ has revised the "2002 Consolidated Assessment and Listing Methodology" regarding the use of temperature data collected during drought years. Water bodies that exceed the numeric temperature criteria based only on data collected during drought years are placed in the "potential concern" category until additional data, collected during non-drought years is collected. If additional data indicates an exceedance of the criteria, the water body will be moved to the 303(d) list.

Comment 114	Vale District: The BLM found that the process of commenting on the proposed 303(d) list was made difficult by lack of access to ODEQ's database. Supporting data for each record gives a unique LASAR number for each stream, but specific information or data for these sites cannot be obtained without calling or contacting ODEQ directly. (19)
Response	LASAR may be accessed via DEQ's website at: http://www.deq.state.or.us/wq/ However, the continuous temperature data is not yet available at the website. DEQ acknowledges that contacting DEQ directly for data may be inconvenient, but DEQ's ability to provide immediate access via the web is limited due to staff and budgetary constraints.

Comment 115	Vale District: The BLM is concerned about the Alvord Basin listings in Whitehorse and Willow creeks for spawning criteria for Lahontan cutthroat trout. Insufficient life history data exists on when peak spawning occurs for Lahontan cutthroat trout in this closed basin, or where spawning occurs within these stream systems. Although ODEQ and the Oregon Department of Fish and Wildlife (ODFW) have assembled an extensive temperature database for Willow Creek, timing and location of spawning have not been studied, and information is largely anecdotal. Much less information is available for Whitehorse Creek, where the listing for spawning and rearing criteria for that creek is based on one ODEQ LASAR site that was placed in a culvert under a county road. Before Whitehorse Creek reaches the LASAR site, the stream has been diverted into a private irrigation system, and the thermograph is recording temperature in one of the irrigation ditches. This record in no way

	represents temperature in potential spawning or rearing habitat and should not be used as a vehicle to list Whitehorse Creek. (19) Vale District and ODFW are pursuing 2003 funding for research on cutthroat spawning in Willow and Whitehorse creeks. BLM suggests postponing listing on these streams until sufficient data are available.
Response	ODFW has developed distribution and use information for anadromous fish. However, as noted in the comment, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Willow Creek and Whitehorse Creek. According to Raymond Perkins, the assistant district fisheries biologist in the Malheur Watershed District, spawning occurs in both Willow and Whitehorse Creeks, probably from April in the lower elevations to July in the headwaters (e-mail communication with documentation 11/20/2002). Additional information provided by Raymond Perkins (letter, 12/13/2002) indicated that the LASAR site 12264 (on Whitehorse Creek) does not represent temperature in potential spawning and rearing habitat. The temperature listings for Whitehorse Creek have been removed from the 2002 303(d) list. DEQ recognizes that information regarding the geographic extent and peak times for spawning on Willow Creek may be refined pending available resources and future 303(d) lists will reflect the information.

Comment 116	Vale District: POWDER and BURNT subbasins Beneficial Uses: anadromous fish passage All streams in these subbasins that are listed for exceeding the summer rearing temperature criteria have anadromous fish passage listed as a beneficial use. However, no anadromous fish exist in these sub-basins. (19)
Response	Per OAR the beneficial use table for the Powder Basin (Table 14 OAR 340-41-762) anadromous fish passage has been removed as a beneficial use.

Comment 117	Vale District: WHITEHORSE CREEK Record ID 9082 Subbasin: Alvord Lake List Date: 2002 River Mile: 0 to 33.1 Whitehorse Creek does not flow for 33.1 miles. It flows approximately 15 miles before entering an irrigation system on private land and then sinking into a closed basin. Trout may spawn in the upper 10 miles, but few life history data are available. (19)
Response	ODFW has developed distribution and use information for anadromous fish. However, as noted in the comment, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Willow Creek and Whitehorse Creek. According to Raymond Perkins, the assistant district fisheries biologist in the Malheur Watershed District, spawning occurs in both Willow and Whitehorse Creeks, probably from April in the lower elevations to July in the headwaters (e-mail communication with documentation 11/20/2002). Additional information provided by Raymond Perkins (letter, 12/13/2002) indicated that the LASAR site 12264 (on

	Whitehorse Creek) does not represent temperature in potential spawning and rearing habitat. The temperature listings for Whitehorse Creek have been removed from the 2002 303(d) list.

Comment 118	Vale District: WHITEHORSE CREEK: The LASAR 12264 RM 9.5 site is under a county road in an irrigation ditch on private land. The data collected from this location has no relevance to Lahontan cutthroat trout spawning or rearing habitat in Whitehorse Creek. (19)
Response	Information provided by Raymond Perkins (letter, 12/13/2002) indicated that the LASAR site 12264 (on Whitehorse Creek) does not represent temperature in potential spawning and rearing habitat. The temperature listings for Whitehorse Creek have been removed from the 2002 303(d) list.

Comment 119	Vale District: WILLOW CREEK Record ID 2530 Subbasin : Alvord Lake List Date: 1998 Parameter: Temperature Criteria: Rearing: 17.8 ^{o}C Beneficial Uses: anadromous fish passage No anadromous fish exist in this subbasin. Willow Creek does not flow for 33.5 miles. It flows approximately 20 miles before becoming intermittent and subsurface in a closed basin. Trout may spawn in the upper 12 miles, but few life history data are yet available. (19)
Response	Per the beneficial use table for the Malheur Lake Basin (Table 17 OAR 340-41-882) anadromous fish passage has been removed as a beneficial use for this water body. ODFW has developed distribution and use information for anadromous fish. However, as noted in the comment, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Willow Creek. According to Raymond Perkins, the assistant district fisheries biologist in the Malheur Watershed District, spawning occurs in Willow Creek, probably from April in the lower elevations to July in the headwaters (e-mail communication with documentation 11/20/2002). DEQ recognizes that information regarding the geographic extent and peak times for spawning may be refined pending available resources and future 303(d) lists will reflect the information.

Comment 120	Vale District: Upper Quinn Subbasin: No anadromous fish exist in this subbasin. (19)
Response	Per the beneficial use table for the Owyhee Basin (Table 16 OAR 340-41-842) anadromous fish passage has been removed as a beneficial use for this subbasin.

Comment 121	Vale District: Lower Malheur Subbasin: No anadromous fish exist in this subbasin. (19)
Response	Per the beneficial use table for the Malheur River Basin (Table 15 OAR 340-41-802) anadromous fish passage has been removed as a beneficial use for

	this subbasin.

Comment 122	Vale District: Alder Creek is intermittent. It does not support salmonid or anadromous species and should not be listed for the salmonid temperature criteria. (19)
Response	Per the beneficial use table for the Malheur Lake Basin (Table 17 OAR 340-41-882) anadromous fish passage has been removed as a beneficial use for this water body. According to Raymond Perkins, the assistant district fisheries biologist in the Malheur Watershed District, Alder Creek is an ephemeral stream. There is no specific information about Alder Creek. (e-mail communication with documentation 11/20/2002). DEQ assumes that the beneficial use occurs until information is provided that indicates otherwise.

Comment 123	Vale District: Upper Malheur Subbasin: No anadromous fish exist in this subbasin. (19)
Response	Per the beneficial use table for the Malheur River Basin (Table 15 OAR 340-41-802) anadromous fish passage has been removed as a beneficial use for this subbasin.

Comment 124	Vale District: Willow Subbasin: No anadromous fish exist in this subbasin. (19)
Response	Per the beneficial use table for the Malheur River Basin (Table 15 OAR 340-41-802) anadromous fish passage has been removed as a beneficial use for this subbasin.

Comment 125	Vale District: No BLM site or data exist in Middle Fork Owyhee R. This river was listed in error and should be removed from the list for temperature until data are obtained (19)
Response	It appears that the original listing was in error. DEQ has moved the water body to the “insufficient data” category pending the collection of data to determine compliance with the applicable criteria.

Comment 126	Vale District: Middle Owyhee Subbasin: No anadromous fish exist in this subbasin. (19)
Response	Per the beneficial use table for the Owyhee Basin (Table 16 OAR 340-41-842) anadromous fish passage has been removed as a beneficial use for this subbasin.

Comment 127	Vale District: WEST LITTLE OWYHEE RIVER Record ID 3337 Supporting Data: BLM site at Anderson Crossing in 1995/96, 7 day ave. max. temperature was 69.9/71.8°F, exceeded temperature standard of 64°F. BLM mistakenly recorded temperatures in an intermittent pool, not within perennial flow, and these data have no relation to the upper reaches of the river. These reaches should be removed from the list for temperature until accurate data are obtained. (19)

Response	It appears that the original listing was in error. DEQ has moved the water body to the "potential concern" category pending the collection of data to determine compliance with the applicable criteria.

Comment 128	Roseburg District: In addition to comments submitted previously by the Roseburg District, the BLM would like ODEQ to reconsider the South Umpqua River listing for sediment from Days Creek to Elk Creek because the BLM believes the listing is not warranted. Data used to list the South Umpqua River from Days Creek to Castle Rock/Black Rock Forks were obtained from the U.S. Forest Service's Jackson Creek Watershed Analysis (USDA 1995).[2] The confluence of Jackson Creek with the South Umpqua River is approximately 5.5 miles upstream of the area of the South Umpqua River that is listed. Core samples (i.e., 42% of sampled sites) from Jackson, Dumont, and Beaver creeks and from the South Umpqua River upstream of Jackson Creek contained more than 20 percent fine sediments, justifying a listing for sediment based on criteria which establishes "that more than 20% fine sediment may impede egg to fry survival in the South Umpqua River." However, based on the 2002 Draft list, it appears that the listing process did not discriminate between reaches, and a decision was made to extend impairment 22 miles downstream of Jackson Creek to Day Creek. The BLM believes that the listing for sediment should apply only to the reaches sampled as other sediment data from the South Umpqua River do not confer ODEQ's conclusions. This information follows. In order to establish a measure of aquatic community health or condition, BLM measured macroinvertebrates and stream substrate embeddedness in the South Umpqua River during the summer of 2000. Documentation of macroinvertebrate community status has been determined to be acceptable for determining water quality impairment due to sediment, and aquatic communities (primarily macroinvertebrates) are considered impaired when the expected reference community multi-metric and multivariate model scores are 60 percent or less (ODEQ 1998).[3] Results of macroinvertebrate monitoring at five sites in the listed segment of the South Umpqua River do not support a listing for impairment as defined by ODEQ. In fact, when compared to reference sites established on the North Umpqua River, one site should be designated as a stream of concern and prioritized for further investigation, while the other four sites should be considered unimpaired. The macroinvertebrate and substrate embeddedness monitoring also assessed sedimentation and aquatic life use in major tributaries of the South Umpqua River that flow off of BLM administered lands in the South Umpqua

[2] USDA Forest Service. 1995. *Jackson Creek Watershed Analysis*. Tiller Ranger District. Umpqua National Forest.

[3] Oregon Department of Environmental Quality. 1998. *Listing Criteria for Oregon's 1998 303(d) List of Water Quality Limited Water Bodies*. "Streams with either multimetric or multivariate model scores between 61 and 75 percent of expected reference communities are considered to be streams of concern. Streams greater than 75 percent or expected reference communities using either multimetric or multivariate models are considered unimpaired."

	Watershed. Three of ten sites were “moderately impaired” from sedimentation as defined by ODEQ. Sites in Stouts, Coffee, and St. John creeks had high levels of substrate embeddedness and low species diversity of macroinvertebrates compared to reference sites in the watershed. Additional monitoring may be necessary to determine the extent of sedimentation on these streams in order to determine whether these reaches should be included on the 303(d) list for sediment impairment in the future. (19) The Roseburg District is committed to improving water quality on BLM-administered lands and will continue to work with ODEQ to monitor water quality. However, data in the Jackson Creek Watershed Analysis should not have been used to include the South Umpqua River inside this watershed on the 303(d) list for sediment. More recent and relevant macroinvertebrate data collected by BLM in 2000 indicate the segment of the South Umpqua River in this watershed is not impaired by sedimentation. The BLM requests ODEQ’s consideration for removing this segment of the South Umpqua River in this watershed from the 303(d) list for sediment (19).
Response	DEQ reviewed the Jackson Creek Watershed Analysis, Umpqua National Forest, March 1995. According to the analysis, the main stem of the South Umpqua River was analyzed above Jackson Creek (Appendix T). The river miles on the 2002 303(d) list have been adjusted to reflect where the samples were collected.

Comment 129	Pope & Talbot: On behalf of Pope & Talbot, Inc., I would like to offer the following comments on the proposed listing of the Willamette River for dissolved oxygen (DO) for river miles 119.7-148.8. In reviewing the database, it appears that the site furthest upstream showing DO levels high enough to potentially justify a listing are those at the Highway 34 bridge in Corvallis. The readings at Harrisburg are high enough to avoid listing. There is no data between those sites, yet river mile 148.8 is between them. It seems appropriate to only list the river sections where data indicates the standards are not being met. In this case, the listing should stop at the Highway 34 bridge in Corvallis, rather than continue to river mile 148.8. In addition, the data at Highway 34 in Corvallis as well as the data for the Highway 20 site in Albany and the two sites in Salem barely support a listing. A small error in measurement could show compliance with the standard. It would seem appropriate for DEQ to collect additional data before placing waterbodies on the 303 d list if the data indicates the waterbody is almost in compliance with the standard. Placing waterbodies marginally in or out of compliance on the 303 d list will only limit DEQ's ability to concentrate on the areas which need the most cleanup because they are obviously not in compliance with the standard. Following this argument, the listing would probably stop at Canby. While this might be a good policy to follow, it is only a recommendation. On the other hand, there is no data to support a listing upstream of the Highway 34 bridge in Corvallis and Pope & Talbot requests that DEQ change the listing accordingly. To assist us in review of the proposed listing, I requested NCASI in Corvallis to review the data. Their review is attached and we would like it incorporated

	into our comments. (20)
Response	DEQ determines the length of segments as follows (Consolidated Assessment and Listing Methodology, ODEQ, December 2002): SEGMENTATION: Waterbody segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. The segment from river mile 119.7 to 148.8 follows the segment length used for previous listings. During TMDL development DEQ collects additional instream data. If additional data indicate that the portions of the listed segment are in compliance with the criteria, the TMDL analysis would summarize the information. DEQ would propose de-listing the segment that attains the criterion on the next 303(d) cycle.

Comment 130	Willamette River Dissolved Oxygen: While reviewing these data we observed, and later confirmed through Greg Pettit of ODEQ, that temperature measurements between 1990 and about December 1995 at these sites were made using a portable temperature probe and recorded only to the nearest 0.5 or 1.0°C. After about late 1995, most measurements were made using more accurate and precise instruments and recorded to the nearest 0.1°C. The accuracy of temperature measurements is important because these data are used in the calculation of percent DO saturation, where temperature differences of 0.5°C can change saturation values by 0.1 mg/L and lead to errors in calculated percent saturation values of around 1%. This is potentially significant for some specific monitoring results that were originally calculated to have 94% saturation but for which values could have easily been 95% and thus judged to meet the water quality standard. (21)
Response	As part of TMDL development, DEQ collects additional instream data. New percent saturation values would be calculated using the more precise temperature measurements. If additional data indicate that the water body is in compliance with the criteria, the TMDL analysis would summarize the information. DEQ would propose de-listing the water body on the next 303(d) cycle.

Comment 131	Willamette River Dissolved Oxygen: In a related assessment, we recalculated the percent saturation values for

	several of the values listed as just below the 95% saturation criteria using a procedure published in Standard Methods[4] and found that some would have met or exceeded the 95% saturation value if calculated using this method. While the number of such values was insufficient to result in less than 10% of all values occurring below the water quality standard, it does suggest that some additional evaluation of these data is warranted before mandating the sometimes onerous activity associated with a 303(d) listing. (21)
Response	As part of TMDL development, DEQ collects additional instream data. If additional data indicates that the water body is in compliance with the criteria, the TMDL analysis would summarize the information. DEQ would propose de-listing the water body on the next 303(d) cycle.

Comment 132	Willamette River Dissolved Oxygen: Further, we noted in the data for many stations the occurrence of percent saturation values in excess of 100%. For example, at river mile 119.1, the percent saturation values averaged 95.9% but ranged from 85% to 111%. While this can occur in nature, particularly in streams with high algae activity, it is not a common occurrence in riverine systems and may be suggestive of some inaccuracy in the data. Again, while this observation does not, by itself, suggest that the stream is actually attaining the water quality standard for DO under all circumstances, it does suggest that closer evaluation of the data may be warranted prior to including these stream segments on the Oregon 303(d) list for DO. (21)
Response	All data used for the 2002 303(d) list was subject to quality assurance review. Only data that was collected with field duplicates was considered for inclusion on the list. Duplicates must meet the precision requirements described in the "Consolidated Assessment and Listing Methodology".

Comment 133	Willamette River Dissolved Oxygen: As a final point, it should be noted that the proposed 303(d) list identifies the Willamette River segment between River Mile 119.7 and 148.8 as impaired for DO. Given the lack of measured values above River Mile 131.6, it may be inappropriate to include reaches above this location on the 303(d) list. (21)
Response	DEQ determines the length of segments as follows (Consolidated Assessment and Listing Methodology, ODEQ, December 2002): SEGMENTATION: Waterbody segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the

[4] Clesceri, L.S., Greenberg, A.E., and Eaton, A.D., eds. 1998. Standard Methods for the Examination of Water and Wastewater, 20th edition. Method 4500-O. Washington: American Public Health Association.

	point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. The segment from river mile 119.7 to 148.8 follows the segment length used for previous listings. During TMDL development DEQ collects additional instream data. If additional data indicate that the portions of the listed segment are in compliance with the criteria, the TMDL analysis would summarize the information. DEQ would propose de-listing the segment that attains the criterion on the next 303(d) cycle.

Comment 134	The 'toxics' water quality parameter is largely avoided in 303d listing, and in water quality monitoring by the State. This strong bias toward not monitoring adequately for the toxics parameter is greatly lessening the Oregon Plans' ability to function effectively. (22)
Response	DEQ acknowledges that it conducts limited monitoring of "toxics". This is primarily because of the high costs of sampling and analyses for "toxics" and the many demands on limited monitoring resources. DEQ relies on data colleted by third parties such as the USGS and municipalities to address data gaps in the State's monitoring program. Currently extensive monitoring of sediments and fish tissue for a variety of toxic contaminants is being conducted under the Coastal Environmental Monitoring and Assessment program which is federally funded. Limited state resources for toxics monitoring are being used for sediment, water column, and tissue sampling in the Willamette Basin in support of the development of a TMDL for mercury. In addition to toxics, monitoring resources must also meet the needs for TMDL development, status and trend monitoring for conventional contaminants, and biological integrity monitoring conducted as part of the Oregon Plan for Salmon and Watersheds. These needs receive the majority of the state monitoring resources.

Comment 135	For whatever reason, ODEQ has not been assessing their field and lab data, for hardness-dependent metals, at proper Table 20 criteria specifications, or at EPA Ambient Freshwater Criteria. DEQ has been using minimum detection levels (MDLs) that are very significantly higher than the criteria stipulate as levels of concern. Also, it appears that ODEQ does not use the 'hardness factor' in hardness-dependent metals criteria assessment for the Clean Water Act. This appears to have resulted in misleading databases and water quality assessments that form the basis for the 303d listings for the Clean Water Act, insipid 303d listings have resulted. This condition misinforms resource management agency decision-making processes. These agencies cannot then claim to have a 'best available science' basis for their BMPs; and may even result in ESA 'Takings'. Does this not violate federal law, and Oregon law as well? (22)
Response	Several of the metals contained in Table 20 are hardness dependent, that is the applicable criterion varies with the hardness collected with the data. All data analyzed for the 2002 303(d) list was reviewed against the hardness dependent criteria.

Comment 136	Aquatic health of many portions of western Oregon streams and rivers is showing signs of being degraded. Species diversity is declining, and adequate water quality data to assess this degradation is woefully lacking. There are huge data gaps for both "baseline" WQ information, and truly "investigative" WQ testing. (22)
Response	DEQ conducts water quality monitoring for several purposes. DEQ maintains a network of ambient sites (about 140 locations) around the state. Some of these sites have 40 years worth of data. DEQ uses the data collected at these sites to determine if water quality is improving or declining. Details about this analysis may be found at: http://www.deq.state.or.us/lab/WQM/wqimain.htm DEQ uses probabilistic monitoring to assess water quality at a basin scale. The major basins assessed are the North Coast, South Coast, Umpqua, Rogue, and Willamette basins. Macroinvertebrate and fish and amphibian community assessments are compared to results from reference conditions. These assessments will allow DEQ to determine whether water quality is improving over time. Additional information about these water quality studies is available at: http://www.deq.state.or.us/lab/Biomon/bio_rpt.htm Finally, DEQ conducts extensive monitoring during TMDL development. The results of the monitoring are included with the TMDLs. DEQ's approved TMDLs may be viewed at: http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm

Comment 137	Funding for WQ testing has been totally inadequate to the task of assessing watershed health. What funds that have been allocated are often used for baseline information gathering; to the detriment of pointedly investigative testing that is urgently needed for the salmonid decline issue. Investigative testing that has been done, has often been done at levels of detection that are not good enough to take advantage of the "best available science" research for aquatic toxicology. Funding practices for CWA 303d compliance has resulted in a strong political bias for not finding any additional WQ problems that would then require going to the State legislature for further funding. (22)
Response	DEQ acknowledges that it conducts limited monitoring of "toxics". This is primarily because of the high costs of sampling and analyses for "toxics" and the many demands on limited monitoring resources. DEQ relies on data colleted by third parties such as the USGS and municipalities to address data gaps in the State's monitoring program. Currently extensive monitoring of sediments and fish tissue for a variety of toxic contaminants is being conducted under the Coastal Environmental Monitoring and Assessment program which is federally funded. Limited state resources for toxics monitoring are being used for sediment, water column, and tissue sampling in the Willamette Basin in support of the development of a TMDL for mercury. In addition to toxics, monitoring resources must also meet the needs for

	TMDL development, status and trend monitoring for conventional contaminants, and biological integrity monitoring conducted as part of the Oregon Plan for Salmon and Watersheds. These needs receive the majority of the state monitoring resources.

Comment 138	With all of the funding being spent on salmonid population recovery, certainly there should be funds for pointed investigation of many aquatic toxicologic questions relevant to fisheries decline in coastal watersheds. Ignorance of chronic low-dose toxics research combined with a political climate that does not promote sustainability of many resources could easily doom the fisheries recovery effort. (22)
Response	As stated in the previous response, DEQ acknowledges that it conducts limited monitoring of "toxics". Currently monitoring resources support TMDL development and maintenance of the ambient network. DEQ relies on data collected by third parties such as the US Geological Survey and municipalities to address the data gaps in the State's monitoring program. Additionally, DEQ does not rely solely on conventional water quality data to determine watershed health. DEQ participates in probabilistic monitoring as part of the Oregon Plan to determine if large scale basins are in good condition, compared to reference watersheds.

Comment 139	Lost fishing sinkers from recreational angling on Lake Creek, a major Siuslaw tributary, probably constitutes an ESA "taking", certainly violates the CWA antidegradation provisions, and violates the intent of the Magnuson-Stevens Fishery Conservation and Management Act; yet, dissolved lead does not show up on the 303d list so it is not going to be part of the states' SB 1010 process on the Siuslaw to establish TMDLs. Since it does not have 303d status, and is not an agriculturally generated pollutant problem, it has much lower priority status in the States' pollution monitoring and control process. (22)
Response	DEQ conducted limited sampling on Lake Creek in 1998. The hardness results were about 11 mg/L. When the hardness is less than 25 mg/L, a default hardness of 25 mg/L is used to determine compliance with the applicable criterion (for the 2002 303(d) list). The resulting acute criterion is 14 ug/L and the chronic criterion is 0.54 ug/L. The data results were < 0.003 mg/L for each sample. The results indicate that the acute criterion is not exceeded in Lake Creek. However, the detection limit is too high to determine whether the chronic criterion is exceeded. The commenter is correct that there are no listings for metals in Lake Creek. He is also correct that the 303(d) list determines priorities in the TMDL program. In this case, the ability to determine compliance with the chronic criterion is limited by the detection limit. This is a limitation with many parameters, because the criteria are often below DEQ's (or other laboratories) ability to detect the parameter.

Comment 140	…. is the hardness factor ever used in determining criteria exceedance for hardness-dependent metal aquatic NPS fieldwork in low hardness waters of the State of Oregon? Does the States' 303d listing reflect this accurately? (22)
Response	Several of the metals contained in Table 20 are hardness dependent, that is the applicable criterion varies with the hardness collected with the data. All

	data analyzed for the 2002 303(d) list was reviewed against the hardness dependent criteria.

Comment 141	ODEQ's current approach to water temperature standards fails to consider the most pertinent information: the heat load (thermal potential) experienced by eastern Oregon streams. ODEQ's systematic failure to take an objective and scientifically sound approach has been pointed out numerous times during the last decade. (23)
Response	DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303(d) and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish. The Department recognizes that there are fish, such as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different temperature tolerances. DEQ intends to address the redband and Lahontan issues in the next revision of our temperature standard which is now in progress.

Comment 142	ODEQ must reexamine and change the current numeric water standards and rewrite them to better reflect what can be tied to physical laws and natural conditions rather than relying on fish temperature responses for water temperature standards. (23)
Response	DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303(d) and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish. DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST …"The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to

	name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis.

Comment 143	ODEQ's failure to make the link between physical processes and water temperature is imposing arbitrary and erroneous regulation on Oregon's citizens. I opine that ODEQ and the state should be held legally liable for losses and damages that the agency causes to Oregonians through junk science and flawed approaches to water quality. (23)
Response	As stated previously, DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303(d) and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish.

Comment 144	All 303(d) listings based on the current temperature standard should be reconsidered. These 303(d) listings must be withdrawn until which time ODEQ adopts objective criteria. Standards should be based on the thermal potential of the environment of the particular stream. (23)
Response	As stated in response to comment 142, DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303(d) and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish. DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State or Oregon to review the science used for decisions on salmon recovery. Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 145	The primary issue with the new draft 303d) list is the appearance that DEQ is "stacking the deck" against various water users in the county by adding additional criteria and standards. The addition of the spawning temperature standard and the dissolved oxygen standard has caught many off guard, especially private landowners. This, in my opinion, not only reduces the credibility of DEQ staffers, but all government biologists addressing the complex ecological and socioeconomic issues revolving around riparian health, water quality and fishery restoration. An unfortunate result of adding more streams to the 303(d) list and additional numerical criteria, that may or may not be appropriate to this area, is the derailment of pro-active attempt to address watershed health and water quality. (24)
Response	The spawning criteria for dissolved oxygen and temperature are not new criteria. These criteria were developed by DEQ in 1994. Many new listings, particularly in the east side of the State, are the result of new data collection, not the creation of new criteria.

Comment 146	Issue 1: It was a general understanding that the 64° water temperature for salmonids rearing was to be amended (increased) to reflect the results of the DEQ recent research on temperature tolerances of Great Basin redband trout. When does DEQ expect this standard to be in effect? The implementation of the new and scientifically established standard will likely reduce the number of streams listed as impaired due to temperature. The adoption of the new standard would also acknowledge that native aquatic species have adapted to the harsh conditions present in the high desert ecosystem. (24)
Response	DEQ has identified the potential for warmer criteria for lahontan trout and redband trout and intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may result in de-listing of waters in the 2004 303(d) list

Comment 147	Issue 2: Although Bridge Creek has been altered in lower reaches, the listing of Bridge Creek as impaired for temperature (fish rearing) does not fully take into account that it is also a "warm" spring driven system and the recent DEQ research indicating that redband trout in this system can tolerate and thrive at higher temperatures. (24)
Response	As stated in previous responses, DEQ recognizes that there are fish, such as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different temperature tolerances. DEQ has identified the potential for warmer criteria for lahontan and redband trout. DEQ intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may result in de-listing of waters in the 2004 303(d) list.

Comment 148	Issue 3: DEQ is attempting to regulate "eastside" streams with a blanket 55° spawning standard without taking into account the high desert ecosystem or redband trout. For example, depending upon stream and elevation, redband trout may spawn from late winter to late summer in the Donner and Blitzen

	watershed. The adoption of a blanket conservative numerical criteria to protect spawning trout is the identical approach that DEQ used to establish the 64° salmonids rearing standard that was eventually found to be too conservative. (24)
Response	As stated in response to comments 146 and 147 DEQ recognizes that there are fish, such as the redband trout and Lahontan cutthroat trout, that reside east of the Cascades and that may have different temperature tolerances. DEQ has identified the potential for warmer criteria for lahontan and redband trout. DEQ intends to revise the existing temperature criteria with this data in 2003. If DEQ adopts new temperature criteria, this may results in de-listing of waters in the 2004 303(d) list.

Comment 149	Issue 4: It is highly doubtful that the Silvies River from mile 0 – 20 supports any salmonids spawning. This reach of the Silvies River is low gradient and the substrate is silt/sand dominated. Therefore, this reach of the Silvies would be removed from the draft 303(d) list for exceeding the 55° standard for salmonid spawning. (24)
Response	ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for the Silvies River. According to Ray Perkins, the assistant district fisheries biologist in the Malheur Watershed District, spawning occurs in the Silvies basin, probably from April in the lower elevations to July in the headwaters (e-mail communication with documentation 11/20/2002). DEQ recognizes that information regarding the geographic extent and peak times for spawning may be refined pending available resources and future 303(d) lists will reflect the information.

Comment 150	Battle Creek (Record ID 6325). This is listed for "habitat modification" with an associated status of "water quality limited not needing a TMDL." What does this listing status really mean and what are its implications? In addition, the stream's listed beneficial uses include "salmon fish spawning and rearing". We agree with the designated uses of "resident fish and aquatic life," but not the salmonid uses for the identified 9.1 miles of stream. The Oregon Division of State Lands (DSL) has identified the very lower portion of Battle Creek (actually McKinney Creek downstream from its confluence with Battle Creek) as essential salmon habitat. The City is just completing a Historic Salmon Distribution Study; and preliminary maps indicate that only the lower portion of Battle Creek (Battle Creek Road/Delaney Road intersection downstream to McKinney Creek) is "migration and rearing." The upstream portion to I-5 is designated "possible habitat," while the urban area upstream of I-5 is "previous/historic." (25)
Response	In 1998, DEQ included water bodies affected by habitat modification and flow modification on the 303(d) list. In 2002, DEQ has de-listed these water bodies. Water bodies that are water quality limited due to habitat or flow modification are not subject to allocation in TMDLs, however, the modifications may be addressed in the water quality management plans that accompany the TMDLs.

Comment 151	Clark Creek (Record ID 7279). We do not disagree with the listing of Clark Creek for E.coli. However, your listing information and analyses should be updated to reflect the monitoring data provided with this letter. (25)
Response	DEQ realizes that water bodies are on the 2002 303(d) list based on data collected under criteria which have been revised. Due to time limitations, DEQ focused on those water bodies where data indicated that the status should change, i.e. the water body should be moved to the 303(d) list or de-listed. DEQ will update the records with new criteria and data for the 2004 303(d) list. DEQ will review data submitted during the comment period on the 2002 303(d) list in this effort.

Comment 152	Croisan Creek (Record ID 6323). See Battle Creek comments above relative to habitat modification. According to the Historic Salmon Distribution Study, only the lower portion of the Croisan Creek drainage (Willamette Slough) is shown to have salmonid significance ("possible habitat"). The stream itself above the slough is identified as "previous/historic." During a October 30, 2002, field visit along Croisan Creek, ODFW's Wayne Hunt verbally indicated to me that while resident cutthroat trout are evident, he has no knowledge of any salmonid presence in this stream. (25)
Response	In 1998, DEQ included water bodies affected by habitat modification and flow modification on the 303(d) list. In 2002, DEQ has de-listed these water bodies. Water bodies that are water quality limited due to habitat or flow modification are not subject to allocation in TMDLs, however, the modifications may be addressed in the water quality management plans that accompany the TMDLs.

Comment 153	Gibson Gulch (Record ID 8549). Listed for Dissolved Oxygen (D.O.) from October 1 to May 31, based on Glenn and Gibson Watershed Council data. While we do not necessarily question the validity of the independently collected data, we do want to stress our expectation that it has received the appropriate DEQ quality assurance/quality control scrutiny with respect to proper sample collection, preservation, transport and analyses. We do question the designated beneficial use of "salmonid fish spawning" for the 2.8 miles of stream. DSL has only designated the very lowest portion (Wallace Road/Hwy 221 downstream to the Willamette River) as essential salmon habitat. The Historical Salmon Distribution Study identifies the stream as "migration and rearing" from Brush College Road down to the Willamette; and as "previous/historic" further upstream. Thus, the cold water/rearing standard (8.0/6.5/6.0 mg/l) should apply, not the 11 mg/l or 95 percent saturation standard. The City's data provided herewith should be analyzed and reflected in DEQ's reevaluation of this stream under the cold water standard. (25)
Response	All data used for the 2002 303(d) list was subject to quality assurance review. Data must have been collected with field duplicates to assess the precision of the data. The data quality levels are described in the Consolidated Assessment and Listing Methodology, DEQ, December 2002. ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Gibson Gulch.

	According to Steve Mayomac, the district biologist for the South Willamette watershed district #3, Cutthroat trout spawn throughout system (e-mail communication with documentation, 12/02/02). DEQ will continue to apply the spawning criteria to this water body.

Comment 154	Glenn Creek (Record ID 8542 and 6328). See comments for Gibson Gulch (sample QA/QC, beneficial uses, appropriate standards, etc.). DSL only designates that portion of the stream as essential salmon habitat from its confluence with Gibson Gulch down to the Willamette. That's similarly true for the Historic Salmon Distribution Study - migration and rearing from the Willamette up to Gibson/Glenn confluence, then "previous/historic" the rest of the way up Glenn. Also, it seems inconsistent to have D.O. being limited during the winter, yet "attaining criteria/uses" during the summer. The stream is also listed for "habitat modification" with an associated status of "water quality limited not needing a TMDL." What does this listing status really mean and what are its implications? (25)
Response	All data used for the 2002 303(d) list was subject to quality assurance review. Data must have been collected with field duplicates to assess the precision of the data. The data quality levels are described in the Consolidated Assessment and Listing Methodology, DEQ, December 2002. ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Glenn Creek. According to Steve Mayomac, the district biologist for the South Willamette watershed district #3, Cutthroat trout spawn throughout system (e-mail communication with documentation, 12/02/02). DEQ will continue to apply the spawning criteria to this water body.

Comment 155	Mill Creek (Record ID 6066, 6329, and 68928). Why is this stream listed for fecal coliform when the standard is for E.coli? While our data suggests that the stream should indeed be listed for bacteria (E.coli), the correct parameter should be the listing criteria. Please include our data provided with this letter in making that determination. The stream is also listed for "flow modification" and "habitat modification", but with an associated status for each being "water quality limited not needing a TMDL." What does this listing status really mean and what are the implications? (25)
Response	DEQ realizes that water bodies are on the 2002 303(d) list based on data collected under criteria which have been revised. Due to time limitations, DEQ focused on those water bodies where data indicated that the status should change, i.e. the water body should be moved to the 303(d) list or de-listed. DEQ will update the records with new criteria and data for the 2004 303(d) list. DEQ will review data submitted during the comment period on the 2002 303(d) list in this effort. In 1998, DEQ included water bodies affected by habitat modification and flow modification on the 303(d) list. In 2002, DEQ has de-listed these water bodies. Water bodies that are water quality limited due to habitat or flow modification are not subject to allocation in TMDLs, however, the modifications may be addressed in the water quality management plans that accompany the TMDLs.

Comment 156	Pringle Creek (Record ID 7489, 6790, 6067, 7143, 7269, 7938, 7320, 8595, and 6330). This is listed for "habitat modification" with an associated status of "water quality limited not needing a TMDL." What does this listing status really mean and what are its implications? Please review our data submitted with this letter and update your analyses and listing narratives for temperature and E.coli. Regarding the listings for copper, lead and zinc, we have very little data. However, sampling done on August 23, 2001 at three locations along Pringle Creek resulted in all "non detectibles" for mercury and copper; one "hit" for zinc at 0.017 mg/l (below the acute and chronic standard); and two "hits" for lead at 0.0041 and 0.0052 mg/l (below the acute standard but above the chronic standard). The supporting data for the copper, lead, and zinc listings is cited as being USGS, but there is no specific reference to a published report, sample locations, and dates. We would like to know such information. The USGS paper cited in our General Comments and Data Submittal section earlier appears to focus on sediment data as opposed to water column data. DEQ's temperature analyses should be updated to reflect our additional data provided with this letter, particularly those for the time period July 2001 through September 2002. Regarding the stream's beneficial uses, we agree that resident fish and aquatic life are appropriate for the identified 6.2 miles of stream length. However, the designation of anadromous fish passage and salmon fish spawning and rearing are not appropriate for that same entire length. DSL designates only that portion of the creek from about its confluence with Clark Creek downstream to the Willamette as "essential salmon habitat." Our Historic Salmon Distribution Study only identifies that portion of the stream downstream from its confluence with Shelton Ditch as "migration and rearing," while only the lower portions of East and West Pringle above Shelton Ditch were identified as "possible habitat." The upper reaches are identified as "previous/historic." In addition, we believe that the designation of "drinking water" as a beneficial use is inappropriate. This is essentially a completely urban watershed (within Salem's Urban Growth Boundary), with drinking water provided by the City's municipal system. There are known water rights and historic points of withdrawal within the Pringle system, but to the best of our knowledge they are not for drinking water, but rather for landscape irrigation or perhaps some remaining small agricultural use. (25)
Response	In 1998, DEQ included water bodies affected by habitat modification and flow modification on the 303(d) list. In 2002, DEQ has de-listed these water bodies. Water bodies that are water quality limited due to habitat or flow modification are not subject to allocation in TMDLs, however, the modifications may be addressed in the water quality management plans that accompany the TMDLs. DEQ realizes that water bodies are on the 2002 303(d) list based on data collected under criteria which have been revised. Due to time limitations, DEQ focused on those water bodies where data indicated that the status should change, i.e. the water body should be moved to the 303(d) list or de-listed. DEQ will update the records with new criteria and data for the 2004 303(d) list. DEQ will review data submitted during the comment period on the 2002 303(d) list in this effort. The "supporting data" field states that the copper and lead data is from USGS site 14190970. The data can be reviewed at the USGS website at:

	DEQ did not ask ODFW if spawning occurs in Pringle Creek because there are no listings based on evaluation of spawning criteria.

Comment 157	Winslow Gulch (Record ID 8545). See comments under Gibson Gulch and Glenn Creek, all of which apply to Winslow Gulch which flows into Gibson Gulch at least two miles upstream from the latter's confluence with the Willamette River. The stream's proposed designated beneficial use of "salmonid fish spawning" appears to be highly inappropriate. The Historic Salmon Distribution Study identifies all of Winslow Gulch, as well as the receiving portion of Gibson Gulch downstream to the Doaks Ferry/Brush College Road intersection, as "previous/historic." In addition, the DSL identifies only the very lowest portion of Gibson Gulch (downstream from Wallace Road to the Willamette River) as essential salmon habitat. (25)
Response	ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Winslow Gulch. According to Steve Mayomac, the district biologist for the South Willamette watershed district #3, Cutthroat trout spawn throughout system (e-mail communication with documentation, 12/02/02). DEQ will continue to apply the spawning criteria to this water body.

Comment 158	None of our drainage ditches or small seasonal tributaries to the Little Pudding system are actually listed. However, the listings for the Pudding River could have some long-term implications for our stormwater system and management program. Consequently, we recommended that you review the listings for fecal coliform (Record ID 6884 and 6091) and revise them to reflect the standard for E.coli and your analyses of all available data for that latter parameter. (25)
Response	DEQ realizes that water bodies are on the 2002 303(d) list based on data collected under criteria which have been revised. Due to time limitations, DEQ focused on those water bodies where data indicated that the status should change, i.e. the water body should be moved to the 303(d) list or de-listed. DEQ will update the records with new criteria and data for the 2004 303(d) list. DEQ will use data submitted during the comment period on the 2002 303(d) list in this effort.

Comment 159	I am worried about Johnson Creek. The toxins are getting into the Johnson Creek and ruining the food chain. Please watch the companies near Johnson Creek. The toxins are being carried in the food chain. Fishes all over the world that live in fresh or salt water will die. I would like you to stop letting the companies near Johnson Creek pollute the water. Please build a building to store the car parts or close the oil and engine companies. Please make Johnson Creek healthy again. Because the toxins, algae, PCBs are spreading around the world. Please stop it. (26)
Response	DEQ is currently working with several other agencies to identify and correct water quality problems in Johnson Creek.

Comment 160	I am writing to you because of Johnson Creek. It is polluted because of businesses and companies. People are throwing car parts outside or in

	Johnson Creek. The poisons are getting into our food chain and fish are dying. So would you think about going to the companies and getting them to put plastic next to the creek. The plastic should stop the runoff. Please have the companies keep the parts inside. I hope you do what I told you to do and have a nice time reading it. (27)
Response	DEQ is currently working with several other agencies to identify and correct water quality problems in Johnson Creek.

Comment 161	Roseburg District: ODEQ does not identify, in all cases, the entities collecting the data that were used for listing. This makes it difficult to determine why a segment has been listed and/or whether there are data to substantiate the listing. The information was included in the 1998 list. (28)
Response	DEQ has begun to assign sampling locations LASAR IDs. LASAR stands for "Laboratory Analytical Storage and Retrieval (database)". LASAR is the database where DEQ stores data. The LASAR code is a five digit code assigned to a sampling location based on the latitude/longitude and site description. Text has been added to the assessment methodology explaining the use of LASAR in the 2002 303(d) list. Because the LASAR ID is based on the sampling location, it is possible for a LASAR ID to be assigned to more than one organization. The supporting data identifies the river mile where the sampling occurred. DEQ should be contacted for more information about specific data sets.

Comment 162	Roseburg District: The District seeks clarification of the term "attaining criteria/uses." Likewise, the District seeks clarification of the phrase "water quality limited, not needing a TMDL," and has a question why the 2002 list includes this reference when the 1998 list did not. The District also questions why "biological criteria" was not included as a parameter with flow modification and habitat modification, other parameters that render a segment "water quality limited not needing a TMDL." (28)
Response	These terms are defined in the Consolidated Assessment and Listing Methodology, DEQ, December 2002. A water body is considered attaining (for grab samples) when 90% of the samples meet the applicable criterion. For continuous temperature, data collected during critical months is reviewed. If there are no exceedances of the applicable temperature criterion (i.e. zero days > 17.8C) the water body is "attaining". "Water quality limited, not needing a TMDL," applies to water bodies that are impaired, but not by a pollutant. Water bodies that were on the 1998 list for flow modification and habitat modification were moved to this category in 2002. Water bodies that are in the "biological criteria" category can be moved to the "Water quality limited, not needing a TMDL" category once it has been determined that the impairment is not caused by a pollutant.

Comment 163	Roseburg District: The District is concerned with DEQ's proposed new listings that are based solely on 2001 data because 2002 was a drought year. This affects listings for the Buck Fork, Canyon, Doe and Letitia creeks in the South Umpqua. Although the proposed listings may be valid, the BLM is unaware of any data

	for the areas proposed for listing that extend beyond two to three days or that include a period of record outside the 2001 drought year. Do the data upon which DEQ has based the proposed listings constitute "best information?" (28)
Response	DEQ has revised the "2002 Consolidated Assessment and Listing Methodology" regarding the use of temperature data collected during drought years. Water bodies that exceed the numeric temperature criteria based only on data collected during drought years are placed in the "potential concern" category until additional data, collected during non-drought years is collected. If additional data indicates an exceedance of the criteria, the water body will be moved to the 303(d) list. Buck Fork, Doe Creek and Letitia Creeks have been moved to the "potential concern" category. The Canyon Creek listing under the rearing criterion from river mile 0 to 4.3 has been moved to the "potential concern" category.

Comment 164	Roseburg District: The District is also concerned about the listings for chlorine and other parameters on Cow Creek. The listing extends from RM – to RM 26.3 but shows chlorine toxicity associated with the Riddle discharge that is located near RM 0. The proposed listing that extends to RM 26.3 may not be substantiated given best information. (28)
Response	The database has been corrected to reflect the river miles associated with the original listing, which covered the mouth to Riddle. The river miles are now 0 to 2.

Comment 165	Roseburg District: The Martin and Northeast rock creek listings are duplicated in both the 1998 and 2002 lists. However, in both cases different RMs are noted. (28)
Response	Data was reviewed in 2002 that indicated that Martin Creek above river mile 2 is attaining the rearing criteria. The water body is listed for exceeding the rearing criteria from river mile 0 to 2 and for exceeding the spawning criteria from river mile 0 to 2 and river mile 2 to 3.3. Data was reviewed in 2002 that indicated that Northeast Rock Creek above river mile 3 is attaining the rearing criteria. The segment from river mile 0 to 3 is in the "potential concern" category because the data was collected during a drought year. The final list on the DEQ website will reflect this correction.

Comment 166	Roseburg District: The District has a question about the North Myrtle Creek listing for ammonia that extends from RM 0 to RM 18.3. Likewise, the District had a question about the appropriate listing for arsenic from RM 0 to RM 15.9 in the South Umpqua and RM 0 to RM 52.3 in the North Umpqua. (28)
Response	Data collected at river mile 0.5 (LASAR 12244) does not indicate violation of the ammonia criteria. The listing for ammonia North Myrtle Creek has been changed to river 0 to 0.5 to reflect data collected at the mouth of North Myrtle Creek which indicates violation of the ammonia criteria. Waterbody segment length was determined by a succession of steps (Consolidated Assessment and Listing Methodology, DEQ, December 2002): • The segment lengths used for previous 303(d) lists were used as a starting point.

	• If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. The South Umpqua River segment from river mile 0 to 15.9 covers a segment that was delineated for previous 303(d) lists. During TMDL development, DEQ collects additional instream data. If additional data indicate that the portions of the listed segment are in compliance with the criteria, the TMDL analysis would summarize the information. DEQ would propose de-listing the segment that attains the criterion on the next 303(d) cycle. The North Umpqua River segment for arsenic has been modified to cover the 5th field water shed where the sample is located. The segment length is now river mile 35 to 52.

Comment 167	Roseburg District: Eggleston Creek has been proposed for listing for temperature. This stream is within the Little River Watershed where a TMDL is in place. The District has a question regarding why this new listing is included in a watershed where a TMDL has just been put into place and whether delisting isn't warranted? (28)
Response	The record for this water body has been moved to the "TMDL Approved" category.

Comment 168	Roseburg District: In 1998, coffee Creek was listed for temperature from mouth to headwaters based on data from two BLM monitoring sites, located at RM 1.8 and RM 4.7. The 2002 list has been revised to include that segment for which data have been compiled. The listing now appropriately includes the segment from RM 1.8 to RM 4.7. This said, the District is confused by the omission of the segment from RM 0 to RM 1.8 and questions whether ODEQ had data for this segment or whether the omission is an oversight. (28)
Response	Coffee Creek was in the "attaining" category for temperature in 1998 from the mouth to headwaters. Additional data analyzed in 2002 indicated that not all of the water body was attaining the criteria. The segment from the mouth to headwaters has been modified. From the mouth to river mile 1.8 is "attaining", river mile 1.8 to 4.7 is "303(d)" and river mile 4.7 to 9.4 is "attaining". The records have been corrected in the database to reflect the new segment lengths.

Comment 169	Lakeview District. Lakeview Resource Area: The area specialist is concerned about the data that were used for listing segments and whether they constitute best information. Although the specialist concurs with the updated list, they have questions about the data used to support various listings for biological criteria. Specifically, two

	segments were listed for biological criteria based on macro-invertebrate surveys that were conducted by that specialist (then employed by the forest Service). The specialist in this case believes that the data ODEQ is using as the basis for listing are insufficient for drawing conclusions about impairment for biological criteria, because the data collection and monitoring were discontinuous. The 2002 list includes segments listed for biological criteria based on this limited data set. Because activities on BLM-administered lands could be affected by this listing, the question of data adequacy needs to be addressed.(28)
Response	DEQ did not add any listings for biological criteria in 2002.

Comment 170	Klamath Falls Resource Area: The area specialist is concerned about streams listed for water temperature. The first concern relates to streams listed for violations of "rearing" and "spawning" criteria for trout. The 1998 list included segments listed for rearing criteria. The specialist questions first whether there are data to demonstrate that these segments support spawning and second whether a listing for spawning is warranted. Another concern relates to the "mouth to headwaters" listings and is raised as a point of philosophical debate. Although the "mouth to headwaters" listing approach may work for perennial streams, the specialist has suggested that it may not be defensible for intermittent streams if (1) fish don't occur in these segments and (2) these streams go dry. Is ODEQ's listing designed to address cumulative effects along the length of the system or are data being interpreted inappropriately? (28)
Response	ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to comments on the draft list, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses specific water bodies. Unless the ODFW biologist stated that spawning was not a use for specific water bodies, the spawning criteria were evaluated during data review. DEQ's water quality standards are designed to protect the beneficial uses for the State's waters. These uses apply when there is water in the stream.

Comment 171	Prineville District: The District is concerned that within the Upper Deschutes subbasin, only tributaries to the mainstem Deschutes River were included on the 2002 list. The 1998 list includes many listings for the mainstem, leading to the question of whether the mainstem was left off intentionally? ODEQ clarified that the mainstem remains on the list and that a search by "crosses subbasins" will yield the information we are looking for. Is this the case? (28)
Response	Yes, larger water bodies in the state that cross subbasins do not show up when the map tool is used on the website. The water bodies may be found by searching the list under "water body name".

Comment 172	Vale District: The District is concerned about the listing of two Trout Creek Mountain streams for spawning criteria and is developing data to substantiate probable spawning times in the Coyote Lake Basin in order to challenge ODEQ's

	listing as inapplicable. This issue will be discussed at the Lahontan cutthroat trout in the Trout Creek system. (28)
Response	ODFW has developed distribution and use information for anadromous fish. However, information on resident fish is limited. In response to comments on the draft list, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses specific water bodies. However, this comment did not identify a specific water body for review. Unless the ODFW biologist stated that spawning was not a use for specific water bodies, the spawning criteria were evaluated during data review. DEQ recognizes that information regarding the geographic extent and peak times for spawning may be refined pending available resources and future 303(d) lists will reflect the information.

Comment 173	Vale District: ODEQ has agreed that at times the listing process can be more 'administrative" than 'biological" and that listings can be challenged on the basis of insufficient data. Again, on a point of philosophical debate, the District questions ODEQs administrative approach and will seek reconciliation of some of the listings based on best biological information. (28)
Response	To develop the 303(d) list, DEQ utilizes all "existing and readily available information". Water bodies that exceed criteria as defined in the state's water quality standards are placed on the 303(d) list and are subject to TMDL development.

Comment 174	Burns District: The District is concerned about several new listings for flow and habitat modification in the District. Upon examination it appears that several of the proposed listings for flow and habitat modification are unsubstantiated as the listings are not backed by supporting data. ODEQ concluded that a listing for flow and habitat modification was warranted based on conclusions drawn about temperature, e.g., if a segment is not meeting the temperature standard, it is also impaired for flow and habitat modification. There are no data to substantiate such a listing for flow and habitat modification, and as a matter of fact, some of the segments are located within the newly designated Steens Mountain Wilderness where there are no proposals for out-of-stream use of the water, so the listing for flow and habitat modification may not be defensible. (28)
Response	In 1998, DEQ included water bodies affected by habitat modification and flow modification on the 303(d) list. In 2002, DEQ de-listed these water bodies. DEQ did not add any water bodies to the 2002 303(d) list based on either habitat modification or flow modification. Water bodies that are water quality limited due to habitat or flow modification are not subject to allocation in TMDLs, however, the modifications may be addressed in the water quality management plans that accompany the TMDLs.

Comment 175	Comments of school children: How can we help detour contaminates and protect our watershed? (29)
Response	DEQ has information about reducing the use of "toxics" in the home. This information can be found on DEQ's website at:

	http://www.deq.state.or.us/wmc/solwaste/hhwoverview.html

Comment 176	Comments of Jeff Uebel: I am writing to provide input on the need to add another contaminant to the list for which Johnson Creek is considered as "Water Quality Impaired" (303d). I am a member of the Johnson Creek Watershed Council, but submit this request as a private citizen, not as representative of the group. I am currently working as a representative of the Watershed Council on the Lower Willamette Agricultural Water Quality Improvement Plan Technical Advisory Committee. I have had several recurring frustrations in working on this committee- one being that elevated fine sediment/turbidity levels are not listed as a contaminant. The Ag committee is dealing only indirectly with this significant pollutant, and I am very concerned that it will not be adequately addressed in water quality improvement plans from jurisdictions and other "user" groups as water quality and salmon recovery planning and implementation unfold in the future. I have measured turbidity levels of over 1,500 NTU's on the mainstem Johnson Creek during small rain events, and have frequently observed apparently higher levels during large flow events and after long drought periods. Very high turbidity levels remain for long periods in the stream following flood events- the stream has only a few inches visibility for 6-9 months of the year. Many different efforts monitoring and assessing conditions on Johnson Creek over the last decade have shown high levels of fine sediment and "cementing" of the substrate by transported sediment. My own occasional sampling of macroinvertebrates on the stream show very limited production, primarily of sediment adapted forms (although there are obviously many other reasons for limited production). From what I have observed in my 10 years living beside, working on, and watching this stream system, elevated stream temperature and extremely high erosion/sedimentation rates are two of the most significant water quality impacts limiting recovery of this aquatic ecosystem. We are dealing with some of the sources of this sediment through the Ag plan (because of the relationship between sediment and chemical pesticide contaminants) but I am concerned that other large contributors of sediment (runoff from building sites; road surfaces, cut and fills; channel erosion from increased runoff due to growth in impervious surface area, etc.) will never be adequately addressed in the current TMDL allocation and recovery process. Also, the amount of resources directed to controlling this pollutant will likely be moderated depending on whether it is considered a serious contaminant, or merely the "vector"/carrier of other contaminants. (This includes funding for monitoring and enforcement of any regs/practices that do end up in place from TMDL process.) I am aware that there are currently no state standards for fine sediment, and that stream systems have unique "budgets" for production/storage/transport of sediment. However, Johnson Creek is obviously well outside its own range of natural values for production/transport of sediment. Storage of this elevated load of sediment in pools, point bars and in the substrate of the stream is significantly impacting channel and habitat attributes. Resultant

	erosion of streambanks, wider shallower channels, lack of pools (and especially deep pools), "cemented" spawning gravels and high flow refugia in rocky substrates for salmonids, reduced beneficial aquatic insect production and ability of fish to see to forage for food- all presently occur in Johnson Creek, they are a result of elevated erosion processes, and they are directly impacting many of the "beneficial uses" of the stream, including the production of Federally Threatened Lower Columbia Winter Steelhead. I believe that we need to acknowledge this impact directly, and develop comprehensive and integrated plans by all users of the watershed to address it. Please let me know if DEQ can consider adding sediment as a pollutant, and whether you need more information. I can work with the Council and partner organizations to supply historic assessments with supporting information if needed. Thanks for considering this request. (30)
Response	The state's turbidity criterion states that there can't be "more than a 10% cumulative increase …as measured relative to a control point immediately upstream of the turbidity causing activity." The criterion requires upstream data to make a determination of impairment. DEQ is currently reviewing the turbidity criterion and plans to propose adoption of new criterion in 2003. Data will be evaluated relative to the new criterion for the 2004 303(d) list.

Comment 177	Comments of Ronald Brandt: I wanted to provide some basic feedback on water quality in southern Douglas County. One item that greatly impacts stream flow, stream temperature and overall quality is the annual rainfall. I've included my excel spreadsheet showing monthly rainfalls by year since 1970 for Glendale, Oregon. The measurements are taken at Glendale close to the 1500 ft. elevation. Please note the large range over this period. Since I live along and closely view the stream quality of Cow Creek which is tributary to the South Umpqua River, I've been able to daily view the changes in water flow, the presence or absence of algae, vegetation growth and fishery changes during the open season. Before the later 1980's when Douglas County constructed the Galesville Dam, water quality was definitely affected by the rainfall levels, however, since they now release water June-October the quality is more uniform, less algae, lower temperatures and larger numbers of trout and fewer trash fish. This has helped the Beaver, Mink and River Otter population and Osprey. We have now found temperatures so cold in Cow Creek during July swimming days that you have to tighten swim trunk draw strings especially tight. The downside of all this may be the plugging of the "high water" channel with vegetation so that if a couple of very high rainfall months arrive there could be severe flooding. The reservoir has reduced high winter flows allowing the buildup of willows and cottonwood species. Previous to the reservoir, high velocity water removed superficial streambed growth which in more recent years has built up to provide shade which complements the release of cold reservoir water through the summer. The benefits should also extend to quality in the ground water downstream for human usage. Not sure if this information is anything new, but I do believe it provides insight to the improvement in our local stream and it may strengthen reasons to spend money for fish passage around impoundment structures versus removal.

	(31)
Response	Comment noted.

Comment 178	Willamette River: Record ID 9215, 9218, 9219, 9217, and 9214: It is unclear how DEQ decided to list Aldrin, DDT, DDE, and dieldrin based on the Oregon Health Division fish advisory issued 11/20/01. The fish advisory does not explicitly list any of the above mentioned organochlorine pesticides. Please explain how this fish advisory meets the listing criteria. (32)
Response	The fish advisory is based on a study prepared for DEQ entitled "Human Health Risk Assessment of Chemical Contaminants in Four Fish Species from the Middle Willamette River, Oregon", Prepared by EVS Environment Consultants, Inc. November 21, 2000. The report and the accompanying fact sheet (http://www.deq.state.or.us/wq/wqfact/MidWillFishStudy.pdf) specifically name the listed parameters.

Comment 179	Willamette River: Record ID 7360 and 7693: Please explain why secondary drinking water standards for iron and manganese (which are the same as water and fish ingestion criteria to protect human health) are used to compare with raw water quality data. In addition, the listed beneficial uses for iron do not seem to support the criterion used. (32)
Response	Criteria for fish ingestion and water are calculated using a fish consumption rate and a drinking water intake rate following EPA's methodology. EPA recommends the inclusion of the drinking water exposure pathway where drinking water is a designated use because "…, ambient waters should not be contaminated to a level where the burden of achieving health objectives is shifted away from those responsible for pollutant discharges and placed on downstream users to bear the costs of upgraded or supplemental water treatment." (Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004).

Comment 180	Willamette River: Record ID 7804 and 7186: The error associated with estimates of water column concentrations based on SPMD data collected by USGS is about one order of magnitude. Please explain how estimates of water column concentrations based on SPMD data collected by USGS can be used to satisfy the listing criteria. (32)
Response	Record 7804 is based on water column data collected by USGS. The SPMD methodology was not used for the data collection. Record 7186 is based on the SPMD methodology. According to the USGS report the estimated error is one order of magnitude. If the sample result were dropped one order of magnitude to be conservative, the resulting concentration would be 5290 pg/L which is still above the applicable criterion of 2800 pg/L.

Comment 181	Columbia Slough: Two records each exist for the iron and manganese with different RM ranges and different LLIDs but the same HUC. None of the RM ranges correspond

	to a standard segment of the Columbia Slough, such as the Lower Slough (RM 0 to 8.7) and part of the supporting data is outside the listed RM range (Record ID 9276 and 9277). Please explain these discrepancies and also explain why secondary drinking water standards for iron and manganese (which are the same as water and fish ingestion criteria to protect human health) are used to compare with raw water quality data. (32)
Response	In 1998 all Columbia Slough records in the 303(d) database covered the mouth to Fairview Lake. DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. During the conversion stream boundaries were replaced by river miles in the Streamnet system. In Streamnet the Columbia Slough is covered by 2 segments: LLID 1227713456445, length 0 to 9.8 miles; LLID 1226470455820, length 0 to 8.5 miles. These two segments correspond to the Lower Slough and Upper Slough, respectively. Rather than enter duplicative listings for the two portions of the Slough, the 1998 listings were placed in the Upper Slough segments, although they apply from the mouth to Fairview Lake. New listings were placed in separate LLID segments, as indicated by the latitude and longitude of the sample site. The listings associated with LLID 1226470455820 have been changed to cover the full length of the Upper Slough (river mile 0 to 8.5) as well as to include the sampling points for the 2002 listings. Criteria for fish ingestion and water are calculated using a fish consumption rate and a drinking water intake rate following EPA's methodology. EPA recommends the inclusion of the drinking water exposure pathway where drinking water is a designated use because "…, ambient waters should not be contaminated to a level where the burden of achieving health objectives is shifted away from those responsible for pollutant discharges and placed on downstream users to bear the costs of upgraded or supplemental water treatment." (Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004).

Comment 182	Johnson Creek: Record ID 9294: Dieldrin was already listed on the 1998 303(d) list. Please explain why it is relisted even though efforts to prepare a TMDL are already under way. The error associated with estimates of water column concentrations based on SPMD data collected by USGS is about one order of magnitude. Please explain how estimates of water column concentrations based on SPMD data collected by USGS can be used to satisfy the listing criteria. (32)
Response	This record has been noted as a duplicate to the 1998 303(d) listing.

Comment 183	Johnson Creek: Record ID 9293, 9292, and 9295: The error associated with estimates of water column concentrations based on SPMD data collected by USGS is about one order of magnitude. Please explain how estimates of water column concentrations based on SPMD data collected by USGS can be used to satisfy the listing criteria. (32)
Response	DEQ discussed the use of the semi permeable membrane device (SPMD) data with Kathleen McCarthy, the author of the study from USGS (phone conversation 10/28/2002). According to Ms. McCarthy, the SPMD results

	have an estimated error of an order of magnitude. Per Ms. McCarthy's recommendation, DEQ re-analyzed the SPMD results and removed from the 303(d) list those waters whose sample results, when decreased by an order of magnitude, were no longer greater than the applicable criterion. Record 9293 (chlordane): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 1600 pg/L is reduced by one order of magnitude to 160 pg/L, it does not exceed the applicable criterion of 460 pg/L. The record has been moved to the "potential concern" category of the integrated report. Record 9292 (PCB): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 20022 pg/L is reduced by one order of magnitude the result of 2002 pg/L still exceeds the applicable criterion of 79 pg/L. Record 9295 (polynuclear aromatic hydrocarbons): The SPMD methodology has an estimated error of one order of magnitude. If the sample result of 42300 pg/L is reduced by one order of magnitude the result of 4230 pg/L still exceeds the applicable criterion of 2800 pg/L.

Comment 184	Under section 303(c)(2)(B), emphasis is placed on the adoption of criteria for toxic pollutants in waterbodies when the discharge or presence could be expected to interfere with those designated uses adopted by the state. (33 U.S.C. § 1313(c)(2)(B)). Many of Oregon's monitored waters have elevated levels of toxic pollutants that impact beneficial uses on those waterways. Elevated levels of toxic pollutants in fish result in fish advisories for human health consumption and reproductive failure and physical anomalies in fish. (33)
Response	DEQ agrees that "toxics" in the water column and sediment can cause risk to human health and aquatic life. DEQ acknowledges that it conducts limited monitoring of "toxics". This is primarily because of the high costs of sampling and analyses for "toxics" and the many demands on limited monitoring resources. DEQ relies on data colleted by third parties such as the USGS and municipalities to address data gaps in the State's monitoring program. Currently extensive monitoring of sediments and fish tissue for a variety of toxic contaminants is being conducted under the Coastal Environmental Monitoring and Assessment program which is federally funded. Limited state resources for toxics monitoring are being used for sediment, water column, and tissue sampling in the Willamette Basin in support of the development of a TMDL for mercury. In addition to toxics, monitoring resources must also meet the needs for TMDL development, status and trend monitoring for conventional contaminants, and biological integrity monitoring conducted as part of the Oregon Plan for Salmon and Watersheds. These needs receive the majority of the state monitoring resources.

Comment 185	MRL Levels Set Too High: The MRL, or minimum reporting level, is defined by the USGS to be "the smallest measurable concentration of a parameter." MRL's are used to establish a "standard" level which is used to determine if data is reliable. We find that in many cases, the MRL that the DEQ uses to establish their 303(d) list **is set above what truly can be measured by today's technical capabilities**. In fact, sometimes the criteria for the protection of human

	health is lower, or set at a more stringent standard than the levels at which the DEQ tests. When Oregon Toxics Alliance met with Charles, Fonseca and Rinella, Mr. Rinella of the USGS suggested to us that the MRL used by the DEQ are outdated. He stated that there is newer, more sensitive equipment available to the DEQ that can measure below what is now called the MRL, or minimum reporting level. Oregon Toxics Alliance recommends that the DEQ conduct a comprehensive revision of the MRL criteria to reflect what is scientifically achievable. We can and should measure accurately and our criteria for determining water quality impairments should reflect our improved measurement equipment and techniques. We ask that the ODEQ adopt state of the art technology to track these deadly compounds. (33)
Response	Laboratories establish minimum reporting limits by running a series of replicate analysis and demonstrating the ability to analyze samples within specified limits for accuracy and precision. The DEQ Laboratory follows procedures established by EPA in 40 CFR part 136 Appendix B for establishing minimum detection limits. The reporting limits are then based upon these detection limits as specified by the EPA. The detection limits and reporting levels have generally been going down as a result of better analytical equipment and methods. The DEQ Laboratory has been and will continue to improve reporting limits to the extent possible with the equipment and resources they have available.

Comment 186	Table 20 List Needs Updating: The parameters on the 303(d) list are all important to water quality; however, many more toxic chemicals are being emitted into our environment. Also new measurement standards, as well as updated information about the safety levels of many toxins, have become more refined. The ODEQ should work closely with the USEPA to conduct a thorough updating of the Table 20 list to bring it into alignment with contemporary toxicology and technical accuracy. (33)
Response	DEQ is currently updating the table or numeric criteria for the protection of human health and aquatic life. DEQ anticipates adoption of the criteria changes by the Environmental Quality Commission in May 2003.

Comment 187	For example, the USEPA has found atrazine to negatively impact aquatic life. However, atrazine is not on Table 20 and the ODEQ has not included atrazine in any part of the 2002 303(d) draft. In a USGS study published in 1998, atrazine in Zollner Creek exceeded the maximum contaminant levels as established by the USEPA for protection of drinking water. (see USGS publication *Water Quality in the Willamette Basin, Oregon 1991-1995*, p. 14) Atrazine has recently been suspected of contributing to life-threatening physical deformities in frogs. The ODEQ must test for atrazine because of the new data about its' impact on aquatic life. This is but one example, and there are other examples of toxic substances that are not being analyzed simply because they have not yet been incorporated into Table 20. (33)
Response	DEQ has not proposed adoption of criteria for atrazine because EPA criteria

	for atrazine are under development. EPA has a draft ambient water quality criteria document for atrazine available at: http://www.epa.gov/waterscience/criteria/atrazine/atrazref.html When EPA finalizes the criteria, DEQ will review the new criteria in a triennial review of the water quality standards.

Comment 188	Sediment Data and Biologic Data/ Fish Tissue Samples: Sediment data and fish tissue sampling are essential to any study of water quality. The ODEQ has not implemented a program of testing for toxic substances in sediment and fish tissue. Yet there is every indication that fish tissue sampling will yield essential data on the ability of Oregon's waterways to attain beneficial uses. According the USGS in their study of water quality in the Willamette Basin, "Organochlorine pesticides, PCB's, and trace elements are more likely to be associated with sediment or incorporated into tissue than to be dissolved in water. Thus, bed sediment and aquatic biota were used to evaluate general levels of occurrence and spatial distribution of these constituents." (see USGS publication *Water Quality in the Willamette Basin, Oregon 1991-1995*, p. 18). (33)
Response	DEQ acknowledges that it conducts limited monitoring of "toxics". This is primarily because of the high costs of sampling and analyses for "toxics" and the many demands on limited monitoring resources. DEQ relies on data colleted by third parties such as the USGS and municipalities to address data gaps in the State's monitoring program. Consistent with the USGS recommendations cited DEQ has targeted fish tissue and sediments in much of the toxics monitoring we have done. Currently extensive monitoring of sediments and fish tissue for a variety of toxic contaminants is being conducted under the Coastal Environmental Monitoring and Assessment program which is federally funded. Limited state resources for toxics monitoring are being used for sediment, water column, and tissue sampling in the Willamette Basin in support of the development of a TMDL for mercury. In addition to toxics, monitoring resources must also meet the needs for TMDL development, status and trend monitoring for conventional contaminants, and biological integrity monitoring conducted as part of the Oregon Plan for Salmon and Watersheds. These needs receive the majority of the state monitoring resources.

Comment 189	Data not Included in 2002 Draft of the 303(d) List: The 2002 draft is incomplete and omits some reliable data sources that provide relevant measurement data for water quality. A random cross check of the 2002 draft list and various USGS reports turns up a number data sets where toxic parameters exceed the standards for protection of freshwater aquatic life and yet were not included on the 2002 draft list. We can use just one example, but there are many more. The DEQ compiled a list of various parameter pollutants in the Willamette River using USGS data that was collected over a period of time during the 1990's. This list was printed in 1998. The data shows that cadmium is present in the Columbia Slough at levels exceeding Table 20 criteria for protection of drinking water. In ¾ of the tests cadmium was found to exceed standards to protect human health. Cadmium was measured at 2.1 mg/kg where the safe drinking water

	criteria is .010 mg. (33)
Response	The data in the "Willamette Project" was collected by ODEQ and US Geological Survey (USGS). As part of the 2002 303(d) list development, DEQ reviewed all DEQ water quality data collected from 1990-2000. DEQ also review all USGS water quality data collected from 1990-2000.

<table>
<tr><td>Comment 190</td><td>
<table>
<tr><th>Subbasin</th><th>Water body</th><th>Segment</th><th>Criteria</th><th>Listing/Supporting Data</th></tr>
<tr><td>Tualatin</td><td>Tualatin River</td><td>Mouth to Dairy Creek</td><td>Lead
3.2 ug/l</td><td>3 out of 16 samples - 50ug/l
1988,1991 DEQ data</td></tr>
<tr><td>Tualatin</td><td>Tualatin River</td><td>Mouth to Dairy Creek</td><td>Arsenic
.0022 ug/l</td><td>13 out of 13 samples – 1735 ug/l
1988, 1991 DEQ data</td></tr>
</table>
Please attach these two data examples to the testimony that I previously sent today form the Oregon Toxics Alliance. They illustrate sites where there is toxic contamination that has been documented but is not on the draft 2002 303(d) list. Thank you. (33)
</td></tr>
<tr><td>Response</td><td>For the 2002 303(d) list, DEQ reviewed water column data collected from 1990-2000. In response to this comment, DEQ downloaded data available from LASAR, DEQ's data storage database. LASAR may be accessed at: http://www.deq.state.or.us/wq/lasar/LasarHome.htm
In LASAR there are 24 sites on the Tualatin River. Available arsenic data from each site was reviewed. Most sites did not have any arsenic data. Several sites had data recorded as < 0.001 mg/L or < 0.005 mg/L. DEQ did not find data at levels cited in the comment (1735 ug/L).
Most sites had lead data reported as "less than", that is the sample result was less than the detection limit. When the detection limit is above the applicable criterion, DEQ can not make a determination as to if the criterion is exceeded. One site, LASAR 10456, had a reported values of 0.03 mg/L, however, the duplicate result was <0.005 mg/L.
DEQ also reviewed data collected by Clean Water Services on the Tualatin River. The data results are typically < 8 ug/L. The values are less than the hardness dependent acute criterion, but the detection limit is greater than the hardness dependent chronic criterion. When the detection limit is above the applicable criterion, DEQ can not make a determination as to if the criterion is exceeded.</td></tr>
</table>

Comment 191	Comments of Bob Hawthorne: After several meetings with DEQ urging them to change the science regarding the 303(d) list on the NF-MF John Day River we have not seen proof that this science has been deleted. The Oregon Cattlemen's Association after scrutinizing this basin possesses the true valid science in this basin. The DEQ 303(d) list must be excluded from the SB 1010 and DEQ TMDL plan because it is not correct. After years of water quality monitoring our basin alongside Cattlemen Water Resource Advisors the citizens of this basin feel DEQ has grossly misstated the science findings of the list. (34)
Response	DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link:

	http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST …"The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 192	DEQ's policy of "listing from the headwaters to the mouth" of a particular waterbody would benefit from clarification. *Listing beyond the extent of the data used for listing can be misconstrued as meaning the entire stream is not supporting beneficial uses. The policy should explain the approach in more depth, and clarify that" the benefit of the doubt goes to the listing in the absence of data". The policy should also offer, or explain, mechanisms to demonstrate the scope and extent of the impairment through the listing or TMDL process.* (35)
Response	Text has been added to the Consolidated Assessment and Listing Methodology (DEQ, December 2002) explaining that segment lengths may be modified when data is submitted which indicates attainment of the applicable criterion.

Comment 193	The 305(b) section of the report could be bolstered and emphasized. *We recognize that there are no legal requirements for CWA section 305(b), and there are for section 303(d). Since both DEQ and the Forest Service use a watershed-systems- approach to developing TMDLs and WQRPs, it would be beneficial to emphasis the status of all waters and how those waters work as a system. Emphasis on a holistic approach to water quality, and how water quality conditions are juxtaposed within and across watersheds, will help us understand our watershed, and therefore protect, restore, and maintain water quality. (35)*
Response	DEQ has an "integrated report" which includes categories other than the 303(d) list, such as water bodies "attaining criteria" and "potential concern."

Comment 194	As a private landowner on the Middle Fork of the John Day River, Grant County, Oregon, I hope those receiving comments will carefully consider what is submitted by individuals. We, rather than the special interest entities, are the ones who suffer under unintended misuse of rules imposed under these listings. I am a member of the Watershed Council and served on the North Fork Middle Fork SB1010 Committee. From the beginning of this process, I have heard valid questions regarding the original listings and believe those questions have been ignored and remain unanswered. Many feel there was no scientific basis for the original listings and the process used for establishing the list was flawed. Visual determinations, one time measurements nor personal opinion should never replace scientific study and evaluation in deciding policies with such far reaching consequences as those based on the 303(d) lists. Scientific facts have not been adequately addressed. Having been involved with monitoring on my river, I agree with the Oregon Cattlemen's comments and urge you to recognize the science behind those comments. I believe the Middle Fork John Day River should be removed from the list until the "science" has been properly interpreted. (36)
Response	As stated previously, DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303d and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish. DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST … "The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions

	change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 195	Comments from Glenda Christian: We live near Ukiah, Oregon and Camas Creek is dry from the end of August until mid September most years. This is app. a 1 to 2 mile stretch through the town of Ukiah and up the drainage from Ukiah. As of this writing there are pools here and there, but it is not running. So the temperatures of this creek can not be anything but high in these pools of water. I was looking at your map and as near as I can tell you have included Camas Creek in the water quality control program. WHY? I realize it is part of the John Day system, but makes no sense to me why you would include a stream that has areas that dry up. This creek was completely dry one week ago crossing the bridge in Ukiah on FS Road 52. Now there is a pool of water. (37)
Response	DEQ's water quality standards are designed to protect the beneficial uses for the State's waters. Beneficial uses include salmonid spawning, salmonid rearing, fishing, water contact recreation, among others. These uses apply when there is water in the stream and the use can be supported.

Comment 196	To my knowledge the Ochoco has no fall spawners of importance (with the exception of brook trout, but the last time I checked we're not trying to manage non-natives anyway) and it seems that DEQ did not try and involve the district fish bio's during this process. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for specific water bodies in the Ochoco National Forest. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in many water bodies in the Forest from March – July (e-mail communication with documentation, 11/25/02). The data used for the Ochoco listings was collected during June, during the time period when spawning occurs, according to ODFW.

Comment 197	Dipping Vat Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Dipping Vat Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Dipping Vat Creek from March – July (e-mail communication with documentation,

	11/25/02). Data used for the listing was collected from 6/18/97 – 6/30/97 (LASAR 12892), covering the time period for spawning per ODFW.

Comment 198	Dry Paulina Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Dry Paulina Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Dry Paulina Creek from March – July (e-mail communication with documentation, 11/25/02). Data used for the listing was collected from 6/19/97 – 6/30/97 (LASAR 12877), covering the time period for spawning per ODFW.

Comment 199	Roba Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Roba Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Roba Creek from March – July (e-mail communication with documentation, 11/25/02). Data used for the listing was collected from 6/18/97 – 6/30/97 (LASAR 12880), covering the time period for spawning per ODFW.

Comment 200	Wolf Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Wolf Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Wolf Creek from March – July (e-mail communication with documentation, 11/25/02). Data used for the listing was collected from 6/10/98 – 6/30/98 (LASAR 13239), covering the time period for spawning per ODFW.

Comment 201	Jackson Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period

	of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Jackson Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Jackson Creek from March – July (e-mail communication with documentation, 11/25/02). Data used for the listing was collected from 6/11/98 – 6/30/98 (LASAR 16998), covering the time period for spawning per ODFW.

Comment 202	Little Summit Creek: No fall spawning. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Little Summit Creek. According to Brett Hodgson, assistant district fish biologist, Prineville Field Office, spawning occurs in Little Summit Creek from March – July (e-mail communication with documentation, 11/25/02). Data used for the listing was collected from 6/12/97 – 6/30/97 (LASAR 12882), covering the time period for spawning per ODFW.

Comment 203	Care must be taken if the listings in the Upper and Lower Crooked River Watersheds are based solely on 2001 data because it was the second year of drought and the driest water year since 1994 in the Ochoco Mountains, and while not as dry as 2002, discharges may be in the lower 90 percentile of flows. Since water temperatures are a function of solar input, surface area, and volume heated, 2001 values are probably higher than normal, especially during spring flows, which were substantially lower than normal. (38)
Response	DEQ has revised the "2002 Consolidated Assessment and Listing Methodology" regarding the use of temperature data collected during drought years. Water bodies that exceed the numeric temperature criteria based only on data collected during drought years are placed in the "potential concern" category until additional data, collected during non-drought years is collected. If additional data indicates an exceedance of the criteria, the water body will be moved to the 303(d) list.

Comment 204	There is a concern with water bodies listed for water temperature September 1 through June 30 on the Squaw Creek Subwatershed in the Upper Deschutes Watershed and October 1 through June 30 in the Upper and Lower Crooked River Watersheds. Squaw Creek is not listed as suitable spawning habitat for bull trout and there are no bull trout in either the Upper or Lower Crooked River Watersheds. (38)
Response	In the absence of information, DEQ applies the spawning criterion to water bodies. The listings for Squaw Creek are based on comparison of data to the spawning and rearing temperature criterion, not the bull trout criterion.

Comment 205	There is a concern with water bodies listed for water temperature September

	1 through June 30 on the Squaw Creek Subwatershed in the Upper Deschutes Watershed and October 1 through June 30 in the Upper and Lower Crooked River Watersheds. There is only salmonid spring spawning in the streams proposed for listing. Therefore based on state criteria, the period when water temperatures need to be below 64 degrees in the proposed streams is March through June. (38)
Response	DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin and from September 1 – June 30 in the western portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. As specific information about spawning locations and times for resident fish is developed, DEQ will use the information in following 303(d) assessments. The temperature spawning criterion is 55 degrees, not 64.

Comment 206	Third, while steelhead trout on the Forest are spawning in March and April when water is colder, redband trout generally are spawning in May and even into early June when the water temperatures are warmer. Studies need to be conduced on redband trout to determine what their preferred spawning and rearing temperatures are and these need to be incorporated into the standards also. (38)
Response	As stated in response to comment 205, DEQ applied the spawning criterion for the time periods defined in the Consolidated Assessment and Listing Methodology (DEQ, December 2002) in Table 4. DEQ applied the spawning criterion to data collected in the period of October 1- June 30 in the eastern portion of the Deschutes Basin and from September 1 – June 30 in the western portion of the Deschutes Basin. DEQ recognizes that the peak spawning periods for resident fish are not well documented. As specific information about spawning locations and times for resident fish is developed, DEQ will use the information in following 303(d) assessments.

Comment 207	Squaw Creek (8992) – Squaw Creek was already listed from Alder Springs to Maxwell ditch. Water temperature increases can be observed when irrigation diversions start in May and this is probably also effecting Squaw Creek below Alder Springs. If water were not diverted in Squaw Creek, summer water temperatures could be higher below Alder Springs which has an outflow into Squaw Creek of about 52°F because of increased volumes of warm water reaching the lower 1.6 miles of Squaw Creek. (38)
Response	Comment noted.

Comment 208	McKay Creek (9041) – MacKay Creek was listed on the 94/96 303d list from mouth to headwaters. This is consistent with out monitoring data at 3458, 3679, 3909, and 4100 feet elevation. (38)
Response	McKay Creek is also listed for exceeding the spawning criterion from river mile 14.7 to 19.5.

Comment 209	Ochoco Creek (9043) – Ochoco Creek is already listed from the Mouth to

	Camp Creek. Our monitoring indicates that water temperatures at our station on Ochoco Creek above Ahalt Creek in the SE ¼, NW ¼, NE ¼ of Sec 20, T13S, R20E, had a maximum water temperature of 60.4°F in 1999. (38)
Response	DEQ did not receive additional data during the "call for data" for the 2002 303(d) list to evaluate for attainment of the criterion.

Comment 210	Cow Creek (9049) – The Forest has not monitored water temperature on Cow Creek, but our records show that it goes intermittent in the NW ¼, NE ¼, NW ¼, Sec 14, T18S, R18E. (38)
Response	DEQ's water quality standards are designed to protect the beneficial uses for the State's waters. These uses apply when there is water in the stream.

Comment 211	Fox Canyon Creek (569) – This is consistent with our monitoring data at 4400 ft. elevation. (38)
Response	Comment noted.

Comment 212	Waterbody: Fall River Sub-basin: Upper Deschutes DEQ record # 8990 Comment: Fall River listed from RM 0-11.1 for salmonid spawning, 12.8ºC criteria. DEQ data collected at RM 1.6 in 2001. Our data at RM 7.56 for May 9-June 30 and Sept 1- Oct 10, 2001 shows no 7 DMA over 12.3ºC. Should not be listed all the way to RM 11. Furthermore, DEQ should have 2001 data for fall R both at the headwaters and around the hatchery and at our site above the hatchery. I am not sure why this data was not looked at for the listings. It was collected by DEQ in 2001 for the FLIR flights. (39)
Response	Based on data collected at river miles 5.9 through river miles 10.2, the segment from river mile 5 to 11.1 has been designated as attaining the temperature spawning criterion

Comment 213	Waterbody: Brush Creek Sub-basin: Upper Deschutes DEQ record # 9027 Comment: Brush Creek listed for bull trout spawning and rearing year round with a criteria of 10ºC. DEQ data collected at RM 0.1 but listed for RM 0-2. How do we know it exceeds above data collection site? Also only rearing of bull trout occurs in Brush Creek no historical or current documentation of bull trout spawning. Bull trout are part of the Metolius population which deemed to be healthy. Why is it listed year round? Does the data show that 10ºC 7 DMA is exceeded during the winter/fall/spring. (39)
Response	The bull trout criterion in the state's water quality standards does not distinguish between spawning and rearing. Because the criterion is not use specific it is not time specific, so data collected at any time during the year is evaluated. DEQ used "Status of Oregon's Bull Trout" (ODFW, October 1997) to determine where to apply the bull trout criterion. According to this report, Brush Creek currently has spawning, juvenile rearing and resident adult bull trout.

Comment 214	Waterbody:Canyon Creek Sub-basin: Upper Deschutes DEQ record # 9302 Comment: Canyon Creek listed for bull trout spawning and rearing year

	round with a criteria of 10ºC. DEQ data collected at RM 3.6 but listed for RM 0-11.4. How do we know how far upstream it exceeds the criteria above the data collection site? Bull trout are part of the Metolius population which is deemed to be healthy. Why is it listed year round? Does the data show that 10ºC 7 DMA is exceeded during the winter/fall/spring. (39)
Response	Waterbody segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. Data collected that indicates that portions of the listed segment are attaining the criterion will be evaluated in following 303(d) assessments. The bull trout criterion in the state's water quality standards does not distinguish between spawning and rearing. Because the criterion is not use specific it is not time specific, so data collected at any time during the year is evaluated. DEQ used "Status of Oregon's Bull Trout" (ODFW, October 1997) to determine where to apply the bull trout criterion. According to this report, Canyon Creek currently has spawning, juvenile rearing and resident adult bull trout.

Comment 215	Waterbody: First Creek Sub-basin: Upper Deschutes DEQ record # 9030 Comment: First Creek is listed for salmonid spawning with a criteria of 12.8ºC. DEQ data collected at RM 4.1 but listed for RM 3.6-12.1. How do we know it exceeds the 12.8ºC criteria that far above the data collection site. (39)
Response	As stated in previous responses. water body segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. Data collected that indicates that portions of the listed segment are attaining

	the criterion will be evaluated in following 303(d) assessments.

Comment 216	Waterbody: Indian Ford Creek Sub-basin: Upper Deschutes DEQ record # 8994 Comment: List anadromous fish passage a beneficial use. No current anadromous fish or historic records of anadromous fish in Indian Ford Creek. (39)
Response	Anadromous fish passage has been removed as a beneficial use.

Comment 217	Waterbody: Metolius River Sub-basin: Upper Deschutes DEQ record # 8985 Comment: The Metolius River bull trout population is deemed to be healthy. Why is it listed year round? Does the data show that 10ºC 7 DMA is exceeded during the winter/fall/spring. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. The Metolius River has been moved to the "potential concern" category for this reason. The bull trout criterion in the State's water quality standards does not distinguish between spawning and rearing. Because the criterion is not use specific it is not time specific, so data collected at any time during the year is evaluated.

Comment 218	Waterbody: MF Lake Creek Sub-basin: Upper Deschutes DEQ record # 9007 Comment: Lists anadromous fish passage as a beneficial use. No current anadromous fish but there are historic records of anadromous fish in Lake Creek. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. Middle Fork Lake Creek has been moved to the "potential concern" category for this reason. Anadromous fish passage has been removed as a beneficial use for this water body.

Comment 219	Waterbody: Hemlock Creek Sub-basin: Little Deschutes DEQ record # 9009 Comment: Listed during the summer for salmonid rearing with a criteria of 17.8ºC. Lists anadromous fish passage as a beneficial use. No current anadromous fish or historic records of anadromous fish in Hemlock Creek. Currently only contains non-native salmonids species. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. Hemlock Creek has been moved to the "potential concern" category for this reason. Anadromous fish passage has been removed as a beneficial use for this water body.

Comment 220	Waterbody: Hemlock Creek Sub-basin: Little Deschutes DEQ record # 9010 Comment: Listed during the for salmonid spawning with a criteria of 12.8ºC. DEQ data collected at RM 0.4 but listed for RM 0-2.5. How do we know how far upstream it exceeds the criteria above the data collection site? No current anadromous fish or historic records of anadromous fish in Hemlock Creek. Currently only contains non-native salmonids species. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. Hemlock Creek has been moved to the "potential concern" category for this reason. Water body segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. Data collected that indicates that portions of the listed segment are attaining the criterion will be evaluated in following 303(d) assessments. Anadromous fish passage has been removed as a beneficial use.

Comment 221	Waterbody: Little Deschutes R. Sub-basin: Little Deschutes DEQ record # 133 Comment: Lists anadromous fish passage as a beneficial use. No current anadromous fish or historic records of anadromous fish in the Little Deschutes River. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. This segment of the Little Deschutes River (river mile 0 to 54) has been moved to the "potential concern" category for this reason. Anadromous fish passage has been removed as a beneficial use.

Comment 222	Waterbody: Little Deschutes R. Sub-basin: Little Deschutes DEQ record # 596 Comment: Lists anadromous fish passage as a beneficial use. No current anadromous fish or historic records of anadromous fish in the Little Deschutes River. (39)
Response	Anadromous fish passage has been removed as a beneficial use.

Comment 223	Waterbody: Little Deschutes R. Sub-basin: Little Deschutes DEQ record # 8989

	DEQ data collected at RM 68 but listed for up to RM 78. How do we know it exceeds the temperature criteria that far above the data collection site? Currently only contains non-native salmonids species. (39)
Response	As stated in previous responses, water body segment length was determined by a succession of steps: • The segment lengths used for previous 303(d) lists were used as a starting point. • If data indicated that segment lengths should be changed (i.e. data was submitted that showed that a portion of a previously listed segment was attaining the criterion), the new segment ended at the point of a confluence nearest the new sampling point. • For a waterbody not previously evaluated, the waterbody segments were delineated by 5th field watershed boundaries. • If the waterbody was contained within a 5th field watershed, and only one site was sampled, the entire length was categorized by the results of the one site. Data collected that indicates that portions of the listed segment are attaining the criterion will be evaluated in following 303(d) assessments.

Comment 224	Waterbody: Little Deschutes R. Sub-basin: Little Deschutes DEQ record # 9314 Comment: No beneficial uses listed for this listing such as salmonids spawning and rearing. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. This segment of the Little Deschutes River (river mile 78 to 82) has been moved to the "potential concern" category for this reason. The record contains salmonid fish rearing as a beneficial use.

Comment 225	Waterbody: Little Deschutes R. Sub-basin: Little Deschutes DEQ record # 9315 Comment: No beneficial uses listed for this listing such as salmonids spawning and rearing. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. This segment of the Little Deschutes River (river mile 78 to 82) has been moved to the "potential concern" category for this reason. The record contains salmonid fish spawning as a beneficial use.

Comment 226	Waterbody: Paulina Creek. Sub-basin: Little Deschutes DEQ record # 9314 Lists anadromous fish passage as a beneficial use. No current anadromous fish or historic records of anadromous fish in Paulina Creek. Currently only contains non-native salmonids species. May want to consider looking at listing Paulina Creek for flow modification because it is regularly dewatered in November to raise water in the lake for the next years irrigation season. (39)

Response	Anadromous fish passage has been removed as a beneficial use. DEQ is no longer placing water bodies on the 303(d) list because of flow modification.

Comment 227	Comments from Mike Riehle, Sister District Fisheries Biologist: His concerns center on the 10C bull trout standard that have or historically have had bull trout spawning and 1st year rearing. Other fisheries biologists on the forest also believe the 10C bull trout standard needs to be revisited. "To apply a 10C standard to streams with older fish would require colder habitat than the fish need. Very few streams can meet that standard, even the 100% spring-fed streams of the Metolius River Watershed. Juvenile bull trout move downstream after their 2nd year into waters that are more productive, have slightly warmer water and more diverse species assemblage. These slightly warmer waters provide faster growth and increased prey fish species. In bull trout only habitat, bull trout tend to cannibalize as they mature into older ages. The criteria needs to allow for dispersal of juveniles into more productive habitats that is a part of their life history strategy. If the Metolius River does meet the standard, no bull trout river will. The criteria needs revision or the application of the criteria needs to be more selective. I have no problem saying that no increase temp is allowed, but the process of writing a WQ management plan or WQ restoration plan is an unneeded burden on streams that are the example of a healthy and recovery Bull Trout population." (39)
Response	As part of EPA's 1999 conditional temperature standard approval and the Endangered Species Act consultation process with National Marine Fisheries Service and US Fish and Wildlife Service, DEQ agreed to "State Conservation Measures". One of these measures specifically addresses bull trout: *DEQ will identify when and where the bull trout temperature criterion will apply and propose appropriate beneficial use designations. DEQ will work with the Services, ODFW, and others with relevant life history information to determine geographic area and time of year (including migration corridors) when application of the bull trout temperature criterion is necessary to maintain the viability of native Oregon bull trout.* DEQ staff has met with fisheries biologists from agencies including Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, US Geological Survey, US Forest Service, The Confederated Tribes of the Warm Springs Reservation and Portland General Electric to complete this conservation measure. Objectives of the Bull Trout Technical Work Group – a. Identify where bull trout are now. b. Identify what time of year bull trout use specific habitat areas or specific stream segments. c. Identify life stages when bull trout are present. d. Identify habitat areas with interspecies overlap. *In addition;* e. Identify where bull trout 'should' be. • How much habitat is needed to protect the bull trout population assuming more habitat is needed for recovery than just existence? DEQ may implement the recommendations of the Bull trout technical work

	group through either revisions to the water quality standards or through policy changes (i.e. review previous 303(d) listings).

Comment 228	Comments from Brad Houslet, Crescent District Fisheries Biologist: There also needs a method to show ODEQ that those water temperatures are background/ natural temperatures and not a result of anthropogenic activities which they are hinting that is the cause of the exceeded standard to establish the TMDL to or with. If the bull trout water doesn't hit 10 deg C then anthropogenic activities are the cause such as timber harvest of the stream banks etc. That background information / report should be sufficient to delist or prevent the listing of a waterbody. This would be handy for lake source streams like Lake Creek or Odell Creek. It may also work with Metolius River and drainages. (39)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed. The goal of temperature TMDLs in to ensure adequate shading in riparian areas.

Comment 229	The Native vs Non-native thing seems quite weird but if that is the case then if our latest fish sampling of Little Deschutes river shows no redband above the Gischrist millpond then it shouldn't be listed for temperature and so on. (39)
Response	The Federal Clean Water Act defines an existing use as "attained uses in an actual water body on or after November 28, 1975". Attained uses must be protected by the State. Ideally water quality criteria would be developed that would protect all attained uses, however, in some case the criteria have been created to protect a specific use. An example is the temperature criterion for salmonid spawning. The criterion addresses "native salmonid spawning, egg incubation and fry emergence (OAR 340-41-(basin)(2)(b)(iii)).

Comment 230	Hemlock creek. It failed in 2001 (20.9) but with similar data for 2002 (17.6) it does not so that there should delist it even if it is only non-native. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. Hemlock Creek (in the Little Deschutes basin) has been moved to the "potential concern" category for this reason from river miles 0 to 2.5. Hemlock Creek is in the "attaining criteria/uses" category from river mile 2.5 to 5.9 for temperature.

Comment 231	The Metolius River is quite blatant. The only place it meets the standard is the 0.5 miles from the spring to somewhere above Tract C bridge. (39)
Response	The "2002 Consolidated Assessment and Listing Methodology" has been revised to de-list water bodies which were placed on the 2002 303(d) list based only on data collected in drought years. The Metolius River has been moved to the "potential concern" category for this reason.

Comment 232	Comments from Louis Wasniewski, Assistant Forest Hydrologist: Big Marsh Creek found in the Crescent Creek drainage should be listed for stream temperature from the mouth to RM 7.1. Data collected by the Forest Service shows an exceedance for the 12.8C criteria from September 30 to June 1 for years 2000 to 2002. The rearing criteria of 17.8C was also exceeded for year 1997, 98, 2000, 2001, and 2002. (39)
Response	The "call for data" for the 2002 303(d) list ended on November 2, 2001. DEQ reviewed the list of sites where temperature data had been submitted to DEQ and Big Marsh Creek was not on the site list.

Comment 233	DEQ has set water quality standards to protect the beneficial uses which include fish listed under the Endangered Species Act. We have grave concerns about the methodology used at the agency to create the 303d list and submit these comments into the record during the 2002 303(d) list review. The 2002 303d list contains streams and stream reaches that have been identified by DEQ as being water quality limited because they fail to meet the standards. Regarding temperature and sediments there are hundreds of streams that have been listed which DEQ placed on the list without considering available scientific information (ORS 468B.110(d). (40)
Response	DEQ's temperature standard contains criteria that have been set as a general threshold to protect salmon and trout and, in the 303(d) and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish.

Comment 234	DEQ documentation for the 303(d) listing does not consider the natural process of adiabatic heating and cooling. High elevation sites, uninfluenced by human activities are listed without considering that their heating cycles are controlled by the cool environment due to location. Bohren (1998) and Halliday and Resnick should be used in order to make these distinctions and remove streams in Eastern Oregon above 4500 feet. (40)
Response	DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed and endorsed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST …"The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water

	is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 235	Streams listed for sediment because they **might have sediment** is not "best scientific information" and linking it to fish use is beyond anything remotely resembling scientific knowledge. You must reexamine the list and remove the stream listed with data that has not been tested beyond exploratory statistics. Means and standard deviations are too limited to tell anything about the sites and whether the stream is experiencing natural erosion or something due to other factors. (40)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed.

Comment 236	DEQ has no protocols requiring such measurements and must consider the error in the listings if improper data is being used to determine streams that exceed the water quality standards without also having data to determine if the streams are responding to natural conditions. (40)
Response	The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed. DEQ will evaluate sediment assessment methods prior to the development of the 2004 303(d) list, as resources allow. DEQ will then re-evaluate previous sediment listings based on the adopted sediment assessment method.

Comment 237	The information in these reports exemplifies the best way to examine water data in an objective way to avoid making human errors about what it means. It should be noted that the streams were investigated for water quality regarding thermal pollution and did not resort to claims about fish outside the data. DEQ makes that error in the way the standard is interpreted using the 7 day maximum temperature averages. The 7 day exploratory statistics is hardly rigorous enough to match the analyses in the literature provided. (40)
Response	DEQ's temperature standard contains criteria that have been set as a

	general threshold to protect salmon and trout and, in the 303d and TMDL process, acts as a trigger for further study to determine the reasons for elevated temperature in streams. The temperature criteria are based upon the best information available from scientists who study these fish.

Comment 238	The streams in the Burnt River subbasin, Powder Basin, North Fork and Middle Fork John Day, and Grande Ronde Basin must be reassessed, and Umpqua basin. These basins have been analyzed and found to be heating and cooling according to natural conditions regardless of the human activities. DEQ must look at the data and conduct an analysis using one of the methods established in the literature that makes an objective determination of whether the water temperatures are natural or due to other factors. You cannot use fish data to talk around the issue. You must use best available information about water first.....because the water can't respond to the fish. Such an association with water violates the physical laws. DEQ must use the appropriate science to examine water quality issues (40)
Response	As stated in response to comment 234, DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed and endorsed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST …"The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 239	DEQ must make the connection between the 303d listings and the rules that are applied to streams on the list. The assignment of a stream to regulation

	via the 303d list and then the TMDL places a burden on the agency to make that connection and the law mandates that the standard and assessment to place a stream on the list be scientifically accurate. The Clean Water Act places that burden on the agency also. We note that you have failed since 1996 to study the Laws of Thermodynamics and have failed to properly analyze the water temperature data using the laws. DEQ collects and relies on water temperature data using a thermometer and you do not collect information about SOLAR RADIATION + NET LONGWAVE RADIATION, + EVAPORATION + CONVECTION + ADVECTION + BED CONDUCTION. (40)
Response	As stated in response to several previous comments, DEQ's technical methodology for assessing stream temperature is based on sound science and has been reviewed by prominent scientists at Oregon State University and around the country. The Heat Source methodology review can be found at the following internet link: http://www.deq.state.or.us/wq/tmdls/tmdls.htm It has also been reviewed and endorsed by the Independent Multidisciplinary Science Team (IMST) which is a group of scientists impaneled by the State of Oregon to review the science used for decisions on salmon recovery. According to the IMST …"The State of Oregon has developed a scientifically sound stream temperature model, Heat Source, for developing watershed management plans for stream temperature in the TMDL process." (Letter from IMST to Mike Llewelyn, ODEQ and Charles D. Craig, ODA, November 26, 2002). Stream temperature varies based upon the net energy entering or leaving the stream. If more energy enters the stream than leaves, the temperature goes up. If more leaves, the temperature goes down. There are a number of energy sources that are involved: Conduction (air will heat water if the water is cooler than the air; and air will cool water if the water is warmer than the air); long wave radiation which is both emitted by the stream and also collected by the stream; and by short wave radiation (solar radiation), to name the significant sources. Groundwater input and streambed conduction are also accounted for in the analysis. Determining the change in stream temperature is complex because the flow of energy in and out of the stream is constantly changing as conditions change. DEQ's model for evaluating stream temperature considers all heat transfer processes over the course of time.

Comment 240	We suggest DEQ prioritize the 303d list into a list where known point source concerns exist as described by the Clean Water Act. A second list should be made for steams that have both point source and non point source concerns as described in the Clean Water Act. And finally a 3rd list should be made that lists those streams that due to natural factors cannot meet the standard and the natural temperatures become the standard. We suggest referring to: Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction. National Academy Press Washington, D.C. 2001. This report is available on the National Academy website. (40)

Response	The 303(d) list identifies waters which are water quality limited and need a TMDL. DEQ conducts source assessments during the development of TMDLs. The Oregon Administrative Rules (OAR) provide for situations in which the "naturally occurring quality parameters …are outside the numerical limits of the (above) water quality standards, the naturally occurring water quality shall be the standard". (OAR 340-041-(basin) (3)). DEQ does not have adequate resources to analyze data to determine natural conditions prior to placing a water body on the 303(d) list. During TMDL development, DEQ investigates the natural conditions in the watershed.

Comment 241	Especially for those waterbodies de-listed during the 2002 Reporting Cycle, EPA requests DEQ consider categorizing the following waters as "TMDL Approved." If DEQ has other data or information to demonstrate conditions have changed such as to meet the TMDL shade allocations, please describe this in the "Supporting Data" column and provide that data to EPA. • COQUILLE subbasin: South Fork Coquille River (above RM 70) and Clear, Coal, Foggy, Panther and Wooden Rock creeks (Upper South Fork Coquille Watershed TMDL, approved March 23, 2001) • LOWER ROGUE Subbasin: Boulder Creek (Record 4452), North Fork Lobster Creek (Record 4448) and South Fork Lobster Creek (Record 4496) (Lobster Creek Watershed TMDL, approved June 13, 2002) • MIDDLE COLUMBIA-HOOD Subbasin: Coe Branch (Records 8956 and 8957), Dog River (Record 1194) and West Fork Neal Creek (Record 1218) (Western Hood Subbasin TMDL, approved January 30, 2002) • SPRAGUE Subbasin: Corral Creek (record 1951), North Fork Sprague River (record 2154) and South Fork Sprague River (record 2155) (Upper Klamath Lake Drainage TMDL, approved August 7, 2002) • UPPER KLAMATH LAKE Subbasin: Cherry, Fourmile, Sevenmile,Threemile Creeks and Wood River (Upper Klamath Lake Drainage TMDL, approved August 7, 2002) • WILLIAMSON Subbasin: Jackson, Miller and Sand Creeks (Upper Klamath Lake Drainage TMDL, approved August 7, 2002) • WILSON-TRASK-NESTUCCA Subbasin: All bacteria listings covered by Nestucca Bay Watershed TMDL, approved May 13, 2002, and Tillamook Bay Watershed TMDL, approved July 31, 2001 (9)
Response	Coquille subbasin: All these water bodies are in either the "attaining criteria/uses" or "insufficient data" category. Lower Rogue Subbasin: All these water bodies are in the "attaining criteria/uses" category. Middle Columbia-Hood Subbasin: All these water bodies are in the "attaining criteria/uses" category. Sprague Subbasin: All these water bodies are in the "attaining criteria/uses"

	category. Upper Klamath Lake Subbasin: All these water bodies are in the "attaining criteria/uses" category. Williamson Subbasin: All these water bodies are in the "attaining criteria/uses" category. Wilson-Trask-Nestucca Subbasin: All water bodies that were previously on the 303(d) list have been moved to the "TMDL Approved" category. Generally speaking, when a TMDL was approved, only those waters that had previously been on the 303(d) list were moved to the "TMDL Approved" category. Water bodies in the "insufficient data" category or "attaining criteria/uses" category have been left in that category. DEQ agrees that where TMDLs are developed on a watershed basis, the TMDL addresses all water bodies in the watershed. DEQ will standardize the process to move all waters in a watershed with a completed TMDL into the "TMDL Approved" category (for a specific parameter) for the 2004 integrated report.

Comment 242	Certain waterbody/pollutant pairs appear to be included in two different Integrated Report Categories. EPA's Integrated Report guidance suggests each waterbody/pollutant pair should be placed in only one of the five unique categories. • COQUILLE Subbasin; Coquille River, Records 4735 and 4940, Records 4734 and 4973. Each of the these record sets are included in two categories: "Attaining Criteria/Uses" and "TMDL Approved" • LOWER ROGUE Subbasin; Records 4453 and 4452: Both of these records cover RM 0 to 3.9. However, two different category determinations are made. • UPPER GRANDE RONDE Subbasin, Records 928 and 1152. Both of these records address dissolved oxygen in the Grande Ronde River between RM 80.7 and 162.4 during the fall season. However, one record is in the "Attaining Uses" Category and the other is in "TMDL Approved" Category. Since the TMDL covering this segment applies between June 1 and October 31, inserting these dates into the "Supporting Data" column may help clarify. • UPPER GRANDE RONDE Subbasin, Grande Ronde River, Records 819, 1190, 820: The reach between RM 196.2 and 200.6 is included in two different Categories. • WILSON-TRASK-NESTUCCA Subbasin, East Fork of the South Fork Trask River (RM 0 to 12.3). Record 3033 notes the river is "attaining criteria/uses" in the winter, spring and fall. Record 3034 says there is insufficient/no data. Suggestion: EPA requests DEQ make a single category determination for each parameter/segment pair. (9)
Response	COQUILLE Subbasin; Coquille River, Record 4735: the supporting data clarifies that the original listing applied from May – September. Record 4940:

	the supporting data clarifies that the original listing applied from October – April. LOWER ROGUE Subbasin; Records 4453 and 4452: Both of these records cover RM 0 to 3.9. These records apply to two different water bodies in the Lower Rogue basin. The LLIDs are different for the water bodies. UPPER GRANDE RONDE Subbasin, Records 928 and 1152. The "supporting data" field clarifies that March – July applies to the listing for record 928. The "supporting data" field clarifies that the period of August – February applies to the listing for record 1152. UPPER GRANDE RONDE Subbasin, Grande Ronde River, Records 819, 1190, 820: The river miles associated with record 819 were incorrect on the draft 2002 303(d) list. According to the 1998 list, the boundaries for record 819 were Five Points Creek to Limber Jack Creek. This segment corresponds to river mile 162 to 193. The segments have been corrected in the database and there is no longer overlap in the records. WILSON-TRASK-NESTUCCA Subbasin, East Fork of the South Fork Trask River (RM 0 to 12.3): DEQ is using the river reach file system developed by Streamnet (http://www.streamnet.org/pnwr/pnwrhome.html) for the 2002 303(d) list. According to the Streamnet map there is an East Fork of the South Fork Trask River and no East Fork Trask River. These records have both been placed under the East Fork of the South Fork Trask River because the original location for record 3033 is not known.

Comment 243#	Table 1 identifies waters to include in the Supplemental De-listing Table. (9) Comment: The Integrated Report Indicates the following waters had TMDLs approved. However they are not included in the de-listing table. Suggestion: Please review these waters either describe why they were omitted or insert them into the de-listing spreadsheet table (9).
Response	Generally speaking, when a TMDL was approved, only those waters that had previously been on the 303(d) list were moved to the "TMDL Approved" category. Water bodies in the "insufficient data", "attaining criteria/uses" or "potential concern" category generally were left in that category. However, the water bodies listed in Table 1 were moved to the "TMDL Approved" category even though they were not previously on the 303(d) list. The supplemental de-listing table that DEQ provided to EPA included only those waters for which TMDLs had been approved that were previously on the 303(d) list. The Fanno Creek listing under chlorophyll a was previously on the 303(d) list and was included in the de-listing table DEQ provided to EPA.

Table 1: Waters NOT included in the Supplemental De-listing Table							
Name_4th_Field	**Waterbody Name**	**FKStreamLLID**	**fkseason**	**RM1**	**RM2**	**Parameter**	**Reason**
ILLINOIS	Sucker Creek	1236144421299	Summer	11.7	26	Temperature	TMDL Approved 5/4/99
MIDDLE COLUMBIA-HOOD	Lake Branch	1217031455483	Summer	0	10	Temperature	TMDL Approved (1/30/2002)
NORTH UMPQUA	Black Creek	1228240432060	Summer	0	5.2	pH	TMDL Approved (1/29/2002)
NORTH UMPQUA	Fall Creek	1230747432712	Summer	0	6.3	Temperature	TMDL Approved (1/29/2002)
NORTH UMPQUA	Jim Creek	1230209432413		0	4.1	Sedimentation	TMDL Approved (1/29/2002)
TUALATIN	Dawson Creek	1229329455162		0	4.1	Biological Criteria	TMDL Approved (8/7/2001)

Table 1: Waters NOT included in the Supplemental De-listing Table							
Name_4th_Field	**Waterbody Name**	**FKStreamLLID**	**fkseason**	**RM1**	**RM2**	**Parameter**	**Reason**
TUALATIN	Fanno Creek	1227639453931	Summer	0	13.9	Chlorophyll a	TMDL Approved (8/7/2001)
TUALATIN	Williams Canyon	1231991454322		0	2.4	Biological Criteria	TMDL Approved (8/7/2001)
UMATILLA	Darr Creek	1185377455698		0	3.4	Sedimentation	TMDL Approved (5/9/2001)
UMATILLA	Meacham Creek	1183604457023		0	18	Sedimentation	TMDL Approved (5/9/2001)
UMATILLA	North Fork Meacham Creek	1182906455268		0	11.8	Sedimentation	TMDL Approved (5/9/2001)

Table 1: Waters NOT included in the Supplemental De-listing Table							
Name_4th_Field	**Waterbody Name**	**FKStreamLLID**	**fkseason**	**RM1**	**RM2**	**Parameter**	**Reason**
UPPER GRANDE RONDE	Mottet Creek	1178873457669	Summer	0	10.3	Temperature	TMDL Approved (5/3/2000)
WILSON-TRASK-NESTUCA	Kilchis	1238985454957	winter/spring/fall	8.4	15.4	Fecal Coliform	TMDL Approved (7/31/2001)
WILSON-TRASK-NESTUCA	Nestucca River	1239555451826	Summer	28.9	53	Temperature	TMDL Approved (5/13/2002)

Comment 244	It would be helpful if the source of the water temperature data was identified in the detail sheet for each Record ID, such as was done for the 1998 303d list. We also question whether it is valid to propose listing a stream on the 303d list based only one year of field data that was collected during a drought year, especially if the standard was exceeded by only a small amount. Our final concern is including a stream on the draft 303d list for it's entire length, even though the site where water temperature data is collected is many miles downstream. A good example of this is the Sandy River, which is proposed for listing up to river mile 55 on the west slope of Mt. Hood. (41)
Response	Most of the data used for the 2002 303 (d) list was assigned a LASAR code. The LASAR code is a five digit code assigned to a sampling location based on the latitude/longitude and site description. Because the LASAR ID is based on the sampling location, it is possible for a LASAR ID to be assigned to more than one organization. If the name of the agency/organization that collected a particular data set is required, DEQ staff can provide that information as requested. DEQ has revised the "2002 Consolidated Assessment and Listing Methodology" regarding the use of temperature data collected during drought years. Water bodies that exceed the numeric temperature criteria based only on data collected during drought years are placed in the "potential concern" category until additional data, collected during non-drought years is collected. If additional data indicates an exceedance of the criteria, the water body will be moved to the 303(d) list. The Sandy River has been moved to "potential concern" from river miles 0 to 29.5 under the temperature spawning criterion. The Sandy River has been moved to "potential concern" from river miles 29.5 to 55.5 under both the temperature spawning and rearing criteria.

Comment 245	Sandy River: Record ID: 8908, LLID 1224071455697. The Sandy River is currently shown on the draft 303d listed as not meeting the rearing water temperature standard from river mile 29.5 to river mile 55.5 (headwaters). Our monitoring data (1998,1999, and 2001) for the Sandy River at the National Forest boundary shows that the summer rearing standard above the National Forest boundary was met for those years. We will forward monitoring data for water temperature when it is available (41).
Response	DEQ processed data collected from the USFS on the Sandy River from 1998-2001. However, only data that was accompanied by appropriate quality assurance checks was used to list or de-list segments. A discussion of the data evaluation process can be found in the "Consolidated Assessment and Listing Methodology, DEQ, December 2002). As noted in the previous response, segments listed on drought year data have been moved to the "potential concern" category. DEQ would appreciate receiving data collected in non-drought years that meet the QA/QC requirements.

Comment 246	Blazed Alder Creek: Record ID: 8935, Clear Creek: Record ID: 8953. These streams are newly listed on the draft 303d list for not meeting the spawning

	water temperature standard. The supporting data consists of the LASAR flight and water temperature data for 2001 where there is 1 day with a 7 DMA > 12.8 degrees C. Since 2001 was identified as a drought year, and the supporting data is marginal, we feel additional water temperature data should be collected before these stream segments are placed on the 303d list for water temperature (41).
Response	DEQ has revised the "2002 Consolidated Assessment and Listing Methodology" regarding the use of temperature data collected during drought years. Water bodies that exceed the numeric temperature criteria based only on data collected during drought years are placed in the "potential concern" category until additional data, collected during non-drought years is collected. If additional data indicates an exceedance of the criteria, the water body will be moved to the 303(d) list. Both Blazed Alder Creek and Clear Creek have been moved to "potential concern" under the spawning temperature criterion.

Comment 247	North Fork Mill Creek: Record ID's 8961 and 8962: LLID 1213083455503. This stream is currently included on the draft 303 list for both the spawning and rearing temperature standards for it's entire length. Our water temperature data for 2001, measured at the National Forest boundary, shows that water temperature standards for both rearing and spawning were met, even during 2001, an officially designated drought year (41).
Response	DEQ reviewed the data submitted for North Fork Mill Creek and changed the segment lengths based on the data. River miles 0 to 3.7 are on the 303(d) list and river miles 3.7 to 12.1 are in the "attaining" category based on the USFS data.

Comment 248	Ramsey Creek: Record ID: 8970, LLID 1212173454336. This reach (river mile 5.4 to 13.2) of Ramsey Creek is currently identified as not meeting spawning temperature standard. The LASAR data is currently only supporting information, with no actual instream water temperature data. Our water temperature data for 2000, 2001, and 2002 at the old National Forest boundary shows the spawning standard was met for those years. (41)
Response	DEQ processed data collected by the USFS on Ramsey Creek in 2002 (LASAR 28081). These data indicate the spawning criterion is attained. Additionally, the data used for the draft listing (LASAR 28341) showed attainment of the criterion. The draft listing was in error. Ramsey Creek has been moved to the "attained" category.

Comment 249	Eightmile Creek: Record ID: 9299 and 1196, LLID 1210866456062. Eightmile Creek is listed on the 1998 303d list for not meeting the rearing water temperature standards, and has also been included on the draft 2002 303d list for not meeting the spawning water temperature standard from river mile 0 to river mile 25. Our water temperature data for 2000, 2001, and 2002 at the National Forest boundary shows both the spawning and rearing water temperature standards were met for those years (41).
Response	DEQ processed data collected by the USFS on Eightmile Creek in 2002. The data were collected at the national forest boundary (LASAR 28083). These data indicate the spawning and rearing criteria are attained. Eightmile Creek, from river mile 22 to 25, has been moved to the "attained" category.

Comment 250	Eagle Creek: Record ID: 6020, LLID 1223833453520. This stream is currently included on the draft 303 list for the rearing temperature standard up to river mile 20, in the Salmon Huckleberry Wilderness. Our monitoring data at the National Forest (1998 thru 2001) and Salmon Huckleberry Wilderness boundaries (1998 and 2000) shows that the rearing water temperature standard is not exceeded on the National Forest portion of Eagle Creek. We also provided information during the public comment period for the 1998 303d list, which resulted in the National Forest portion of Eagle Creek being delisted (41).
Response	DEQ processed data collected from the USFS on Eagle Creek from 1998-2001. However, only data that was accompanied by appropriate quality assurance checks was used to list or de-list segments. A discussion of the data evaluation process can be found in the "Consolidated Assessment and Listing Methodology, DEQ, December 2002).

Comment 251	The 2002 303(d) list includes a number of segments in the Lost River subbasin that are included for non-attainment of beneficial uses of rearing criteria, spawning criteria, and fish passage. Due to barriers to downstream fish passage, trout and suckers have not been reported for Rock Creek that is included on the 2002 list for rearing criteria. Additionally, spawning, which is also included on the 2002 list for the East Branch Lost River, has not been observed or recorded for this segment. Finally, the listing for anadromous fish passage in the Lost River subbasin may be erroneous because anadromous fish do not currently have access nor is it clear that they ever had access to the Lost River. BLM questions ODEQ's listings in segments of the Lost River subbasin given that the beneficial uses protected by the criteria are not present. (19)
Response	In response to this comment, DEQ staff contacted the ODFW district biologist and asked for "best professional judgment" on the presence and uses for Rock Creek and East Branch Lost River. According to Roger Smith, district fish biologist, Klamath Watershed Office, the only resident fish present in Rock Creek are Klamath speckled bass, which is not a cold water fish (phone communication, 11/25/02).. The spawning and rearing temperature listings for Rock Creek have been removed from the 2002 303(d) list. Also, according to Roger Smith, no spawning habitat is available in the East Branch Lost River. The spawning temperature listing has been removed from the 2002 303(d) list. Per ODFW's anadromous fish distribution and use maps (version 9), anadromous fish passage has been removed as a beneficial use in the Lost basin.

Comment 252	Dissolved oxygen listings are proposed for the Sixes and Winchuck Rivers for the Winter/Spring/Fall season. This season corresponds to the default salmonid spawning times for the South Coast watersheds, October 1 - May 15 (Table 4 from Consolidated Assessment and Listing Methodology for Oregon's Draft 2002 303(d) List and 305(b) Report). Since the Sixes and Winchuck listings are based on 17 samples, it is assumed that data are from 1992 through 2000. For the Winchuck River (LASAR site #10537), only one exceedence was found in the LASAR database, on November 16, 1999.

	We request that DEQ re-examine the data supporting this listing. General Comment - it is unclear why only 7 samples from 1992-1995 were used to evaluate dissolved oxygen for **rearing**, during the summer months. (42)
Response	DEQ analyzed data contained in LASAR that dated from 1990-2000. The listing is based on 17 samples and exceedances of two samples (11/3/98 and 11/16/99). This data is available on the website. The "attaining criteria/uses" category under the cold water dissolved oxygen criterion was assigned in 1998. The 303(d) database has not been updated with the additional samples that indicate continued compliance with the criterion.

Comment 253	South Coast and Lower Rogue watershed councils submitted temperature data in 1998, 1999, and 2000, using the appropriate format and all DEQ-requested supporting information. This was required by DEQ as a condition of receiving monitoring equipment. There is no evidence in the draft 2002 listings that this information was used. Using these data, 27 tributaries or segments would be listed as Attaining Uses/Criteria, and 25 tributaries or segments would be added to the 303(d) list (see attached list as .xls file). (42)
Response	DEQ has evaluated the data provided by the South Coast/Lower Rogue watershed councils. Additional water bodies have been added to the 303(d) list and the "attaining criteria/uses" category based on the data.

Comment 254	The listings for the mainstem Klamath River are not clearly presented. The 2002 303(d) list referred to the 1998 list for temperature listings between River Miles (RM) 0.5 and 24.5 and to listings for temperature, ammonia, chlorophyll a, dissolved oxygen, fecal coliform, and pH between RMs 0.5 to 25.9. Further, the 1998 303(d) list, included the portion of the Klamath River between Oregon and California and Keno Dam for temperature only, with the J.C. Boyle Reservoir listed for chlorophyll a, pH, and dissolved oxygen. In telephone conversations with ODEQ staff, staff have conferred and agreed that no new parameters have been added to the 2002 303(d) list for the Klamath River. There are discrepancies between the 1998 and 2002 lists that are not reconciled by data or ODEQ staff. The current list should be revised to include more refined segment boundaries (e.g., dams, reservoirs, and powerhouses) that clearly reflect the appropriate listings (19).
Response	The river miles for the Klamath River have been corrected. The river miles now represent the segments as described in the 1998 303(d) list. River miles 207 to 231 cover the river from the California border to Keno Dam. River miles 231 to 250 cover the river from Keno Dam to the Link River. River miles 250 to 251 cover the Link River. Upper Klamath Lake is represented by river miles 251 to 275. Agency Lake is represented by river miles 275 to 282. J.C. Boyle Reservoir does not show up separately in the 2002 list. According to the records from the 1998 303(d) list, the J.C. Boyle reservoir entries were duplicates of those for the Klamath River. Klamath Strait has separate records under a "placeholder" LLID.