Technical Report

Oregon Water Quality Index Summary Report Water Years 1998-2007

May 2008

State of Oregon
Department of
Environmental
Quality

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Introduction

The Oregon Water Quality Index (OWQI) analyzes a defined set of water quality variables and produces a score describing general water quality. The water quality variables included in the OWQI are temperature, dissolved oxygen (percent saturation and concentration), biochemical oxygen demand, pH, total solids, ammonia and nitrate nitrogens, total phosphorus, and bacteria. The bacterial indicator for the OWQI changed from fecal coliform to E. coli in 2002 (Cude, 2005). OWQI scores range from 10 (worst case) to 100 (ideal water quality). The Department of Environmental Quality Laboratory maintains a network of ambient water quality monitoring sites. These sites were selected to provide representative statewide geographical coverage, and to include major rivers and streams throughout the state. There are currently 144 monitoring sites in the network. The size of the network periodically changes due to logistical and budgetary constraints.

For this Summary Report, OWQI results were calculated at these sites on all samples taken in Water Years 1998-2007. These data are analyzed to determine which parameters influence general water quality during various seasons. Each site, with sufficient data, is analyzed for the presence of significantly increasing or decreasing trends. The nonparametric Seasonal-Kendall test is used for trend analysis to ensure that the significant trends that exist are not due to normal seasonal variation. Significant trends are reported at the 80% or greater confidence level. Seasonal Sen slope determines the magnitude of the trend.

Seasonal averages were calculated for the summer season (June - September) and FWS season (fall, winter, spring: October - May). The minimum of these seasonal averages is used for ranking purposes and takes into account seasonal variability between different river systems.

Figure 1 displays OWQI status and trending information, with respect to geographical location.

Benchmark Report

Oregon's surface water quality benchmark, as reported in the Oregon Progress Board's "Oregon Shines" report (Benchmark 78), is expressed in the following manner:

Percentage of monitored stream sites with significantly increasing trends in water quality:
Percentage of monitored stream sites with significantly decreasing trends in water quality:
Percentage of monitored stream sites with water quality in good to excellent condition:

The first two benchmarks will be referred to as trend benchmarks. Both trend benchmarks represent the percentage of monitored stream sites with significantly increasing or decreasing trends in water quality, with respect to the total number of monitored stream sites having sufficient data for trend analysis. The third benchmark will be referred to as the status benchmark. The status benchmark is the percentage of monitoring sites with good to excellent water quality. The percentage is calculated as the ratio of the number of stream monitoring sites ranked with either good or excellent water quality to the total number of ranked stream monitoring sites.

Methodology for calculating these benchmarks is more fully discussed below. Table 1 presents benchmark results. The stated years represent the last water year in a ten water year period. Water years start on October 1 and end on September 30. For instance, calculated benchmark results for 1990 represent trend analyses on data gathered from water year (WY) 1981 to WY 1990, or from October 1, 1980 to September 30, 1990. Benchmark results were originally calculated for 1995. Targeted results for 2010 are challenging yet attainable goals based on prior results. Interim benchmark results are calculated annually to measure progress towards the targeted goals.

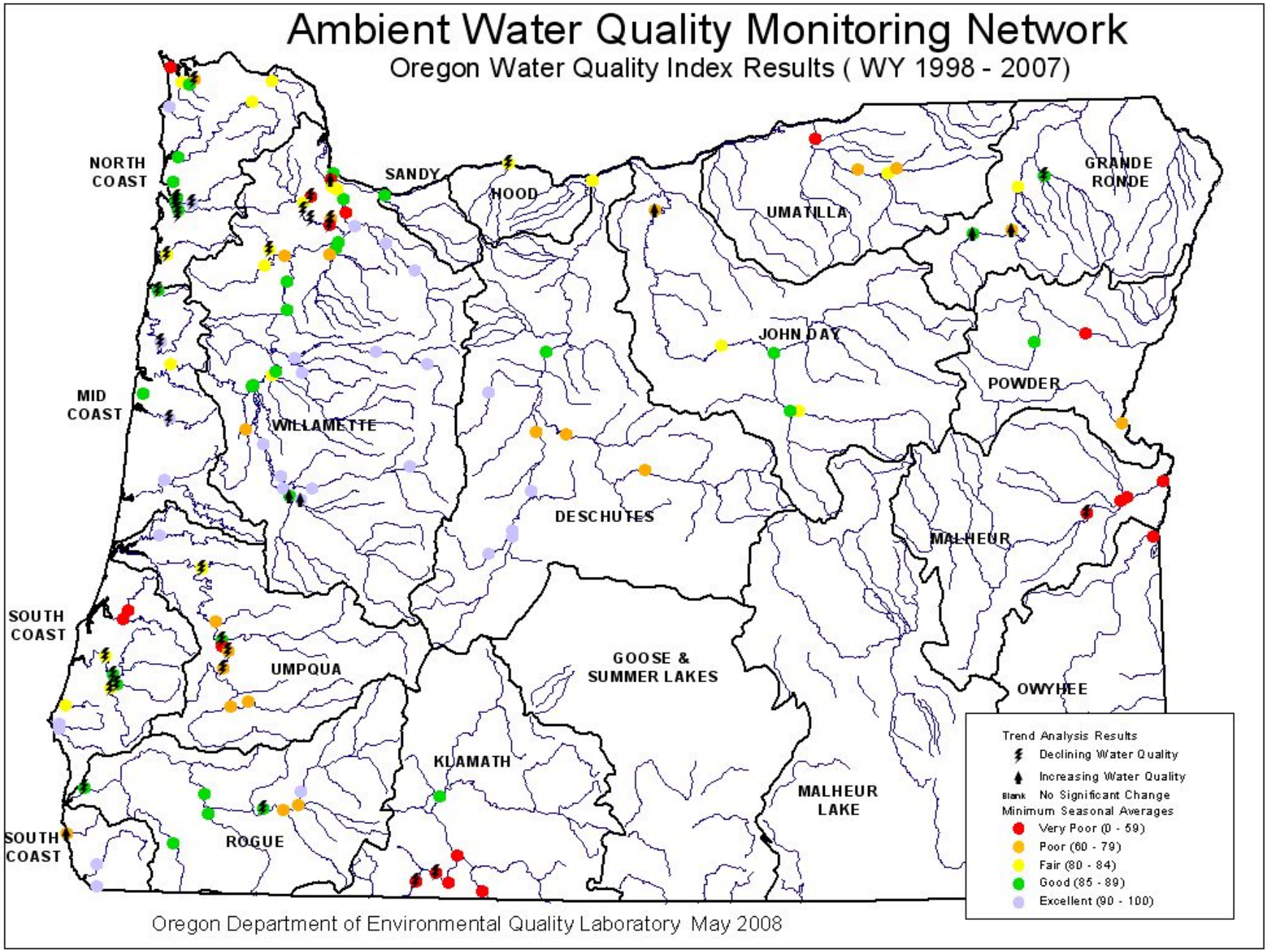
Ambient Water Quality Monitoring Network
Oregon Water Quality Index Results (WY 1998 - 2007)
NORTH COAST
SANDY
HOOD
UMATILLA
GRANDE RONDE
JOHN DAY
POWDER
MID COAST
WILLAMETTE
DESCHUTES
MALHEUR
SOUTH COAST
UMPQUA
GOOSE & SUMMER LAKES
OWYHEE
KLAMATH
MALHEUR LAKE
SOUTH COAST
ROGUE
Trend Analysis Results
Declining Water Quality
Increasing Water Quality
Blank No Significant Change
Minimum Seasonal Averages
Very Poor (0 - 59)
Poor (60 - 79)
Fair (80 - 84)
Good (85 - 89)
Excellent (90 - 100)
Oregon Department of Environmental Quality Laboratory May 2008

Table 1. Comparison of Calculated and Target Surface Water Quality Benchmarks

Benchmark	*1990*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Percentage of monitored stream sites with significantly increasing trends in water quality	8%	21%	32%	52%	70%	64%	70%	51%	37%	32%	24%	14%	8%	6%
Percentage of monitored stream sites with significantly decreasing trends in water quality	20%	8%	2%	0%	1%	1%	1%	5%	4%	6%	10%	14%	21%	24%
Percentage of monitored stream sites with good to excellent water quality condition	27%	28%	35%	32%	37%	41%	42%	46%	46%	48%	49%	51%	50%	49%

Significant changes in the Ambient Monitoring Network

During Water Year 2007, changes to the ambient monitoring network and changes in the amount of data available for trend analysis for several monitoring sites influenced benchmark results. The two monitoring sites (Nehalem River at HWY 202 bridge in Birkenfeld and Smith River 4.4 miles downstream of Smith River Falls) were added in November 2006.

Trend Analysis

The nonparametric Seasonal-Kendall trend analysis, available in the WQHydro statistical software package, requires a minimum of thirty data points to detect the presence of statistically significant trends at any given monitoring site. For each site, the data set is divided into twelve monthly, six bimonthly, or four quarterly subsets, depending on data quantity. The preferred method is to use monthly subsets. Bimonthly subsets were used unless the monitoring frequency for the particular site was greater than bimonthly. If there is more than one sample in a given period, the sample closest to the middle of that period was used. Since these particular datasets don't consistently contain multiple samples in each period (month or quarter), selecting samples in this manner ensures a more regular variance.

These subsets are compared and an annualized result is generated, indicating whether or not a significant trend exists. Also indicated are the magnitude and significance of the trend. This procedure ensures that increasing or decreasing trends are consistent through most of the year and that the trends are not due to normal seasonal variation.

Of the 131 monitoring sites included in this report (not all monitoring stations generate all data required for OWQI calculations), 127 sites had sufficient data to analyze for trends. Of these 127 sites, 7 had significant increases in water quality and 31 had significant decreases in water quality, while the rest showed no significant trend in either direction. Tables 2 and 3 list these sites and indicate the magnitude and significance of each trend. The magnitude of the trend is derived from the Seasonal Sen slope of the data. This trend analysis did not consider variations in meteorological or hydrological conditions or variations in sample time. It is important to remember that this trend analysis assesses changes in general water quality, specifically those parameters included in the OWQI. This assessment does not consider changes in toxics concentrations, habitat, or biology.

Some of the sites showing significant improvement in general water quality (Table 2) are downstream of significant point sources, primarily wastewater treatment plants. There have been major efforts to reduce the quantity and improve the quality of discharge from point sources. OWQI results show that these efforts have been successful. Other sites showing significant improvement are not affected by point source discharges, so impacts to water quality are related to non-point source activity. Improvements at these sites may be attributed to reduced levels of non-point source activity, increased education about water quality impacts, and watershed restoration efforts. Underlying all of these factors is flow. As Oregon returns, in stages, from drought to the wet phase of the long-term cycle, flows and water quality improves.

Table 2. River Sites Monitored by DEQ Laboratory Showing a Significant Increase in Water Quality

Monitoring Site	*Magnitude*[1]	*S.L.*[2]
Columbia Slough at Landfill Road	+15.1	80
Grande Ronde River at Peach Ln. (Island City)	+6.0	98
Grande Ronde River at Hilgard St. Park	+4.6	99
John Day River at HWY 206	+2.5	80
Coast Fork Willamette River at Mt. Pisgah Park	+2.0	80
Pistol River at Pistol River Loop Road	+1.7	80
Middle Fork Willamette River at Jasper Bridge	+1.5	99

Notes: 1 - Magnitude of increase in general water quality represented by change in OWQI value during WY 1998-2007.
2 - Significance Level of Seasonal-Kendall trend analysis results.
3 - Stream site was not monitored over the full ten water year period.

Factors leading to a significant degradation of water quality (Table 3) may include increased levels of point or non-point source activity and/or decreased flows.

Table 3. River Sites Monitored by DEQ Laboratory Showing a Significant Decrease in Water Quality

Monitoring Site	*Magnitude*[1]	*S.L.*[2]
Tualatin River at HWY 210 (Scholls)	-28.1	99
Tualatin River at Elsner Road	-24.3	99
Tualatin River at Boones Ferry Road	-19.0	99
Malheur River at Little Valley	-10.2	99
Klamath River at Keno	-5.4	90
South Umpqua River at Stewart Park Road (Roseburg)	-5.0	98
Beaverton Creek at Cornelius Pass Road (Orenco)	-5.0	90
Fanno Creek at Bonita Road (Tigard)	-5.0	80
Coquille River at Sturdivant Park Dock	-4.0	95
Middle Fork Coquille River at HWY 42	-3.4	90
Wallowa River at Minam	-3.3	80
Klamath River downstream of Big Bend Powerhouse	-3.3	80
Salmon River at Otis	-3.3	95
Nestucca River at Cloverdale	-3.3	95
Wilson River at HWY 101	-3.3	80
Wilson River at HWY 6	-3.3	99
South Fork Coquille River at Broadbent	-3.3	99
Trask River at HWY 101	-2.5	95
North Fork Coquille River at HWY 42	-2.5	80
Umpqua River at Elkton	-2.5	80
North Yamhill River at Poverty Bend Road	-2.5	90
Hood River at Hood River, OR	-2.2	90
Klaskanine River at Youngs River Loop Road (Olney)	-2.2	90
Siletz River 5 miles d/s Siletz	-2.0	95
Kilchis River at HWY 101	-2.0	90
Rogue River at Lobster Point Bridge	-2.0	95
North Umpqua River at Garden Valley Road	-2.0	90
South Umpqua River at HWY 42 (Winston)	-2.0	80
Alsea River at Thissell Road	-1.7	90
Rogue River at Rock Point Bridge (Gold Hill)	-1.4	80
Tillamook River at Bewley Creek Road	-1.3	80

Notes: 1 - Magnitude of decrease in general water quality represented by change in OWQI value during WY 1998-2007.
2 - Significance Level of Seasonal-Kendall trend analysis results.
3 - Stream site was not monitored over the full ten water year period.

Ranking

The Oregon Water Quality Index was designed to permit comparison of water quality among different stretches of the same river or between different watersheds. The pH and total solids functions within the index account for geological variability. The OWQI calculation formula, an unweighted harmonic square mean function, accounts for the variability of factors limiting water quality in different watersheds. A classification scheme was derived from application of the OWQI to describe general water quality conditions. OWQI scores that are less than 60 are considered very poor; 60-79 poor; 80-84 fair; 85-89 good; and 90-100 excellent. To account for differences in water quality between low flow summer months (June - September) and higher flow fall, winter, and spring (FWS, October - May), average values for summer and FWS were calculated and compared. The list of 131 monitored sites is ranked based on the minimum of the seasonal averages (Tables 4-8).

Table 4. Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Excellent Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
EXCELLENT						
South Coast	Winchuck River upstream of HWY 101	2.5	10537	95	95	95
Willamette - Lower	Clackamas River at McIver Park (Upper Boat Ramp)	22.6	13070	95	95	95
Willamette - Lower	Clackamas River at Memaloose Road	35.7	14008	95	95	95
Willamette - Middle	North Santiam River at Coopers Ridge Road	63.8	12559	96	95	95
Willamette - Middle	North Santiam River at Gates School Road	39.0	12553	96	94	94
Willamette - Middle	North Santiam River at Green's Bridge	2.9	10792	94	94	94
Willamette - Upper	McKenzie River at Hendricks Bridge	24.0	10662	94	94	94
Willamette - Upper	McKenzie River at McKenzie Bridge	68.1	12552	95	94	94
Mid Coast	Siuslaw River at Tide Wayside	26.3	33642	93	94	93
Willamette - Lower	Clackamas River at High Rocks	1.2	11233	93	93	93
Willamette - Middle	South Santiam River at HWY 226 (Crabtree)	7.6	10366	93	93	93
Willamette - Upper	Middle Fork Willamette River at Jasper Bridge	8.0	10386	95	93	93
Willamette - Upper	Willamette River at HWY 126 (Springfield)	185.3	10359	94	93	93
Deschutes	Deschutes River at Mirror Pond (Bend)	164.9	10511	92	92	92
Deschutes	Little Deschutes River at HWY 42	4.0	10696	92	92	92
Grande Ronde	Minam River at Minam	0.1	11457	92	95	92
Rogue	Rogue River at Dodge Park	138.4	10423	93	92	92
South Coast	Elk River at HWY 101	3.4	11905	92	94	92
Deschutes	Deschutes River at Harper Bridge (Sunriver)	191.7	10686	91	93	91
Deschutes	Deschutes River at Pringle Falls	217.0	10688	91	94	91
Deschutes	Metolius River at Bridge 99 (Camp Sherman)	30.3	10690	91	92	91
Mid Coast	Alsea River at Thissell Road	17.7	11263	91	91	91
Umpqua	Smith River 4.4 Miles d/s Smith River Falls		11491	91	92	91
Willamette - Upper	McKenzie River at Coburg Road	7.1	10376	91	93	91
Willamette - Upper	Willamette River at HWY 99E (Harrisburg)	161.2	10355	91	91	91
Mid Coast	Siletz River 5 miles d/s Siletz	30.9	10391	93	90	90
North Coast	Necanicum River at Riverside Lake Camp	5.8	10521	90	91	90
North Coast	Wilson River at HWY 6	8.5	13424	91	90	90
South Coast	Chetco River at USGS Gage	10.8	11483	90	95	90
South Coast	Sixes River at HWY 101	5.5	10533	91	90	90

Table 5. Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Good Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
GOOD						
John Day	North Fork John Day River at Kimberly	0.2	11017	89	92	89
Klamath	Williamson River at Williamson River Store	4.6	10770	89	91	89
Mid Coast	Beaver Creek North Fork at Ona Grange RM 4.8	4.8	33644	90	89	89
North Coast	Youngs River at Youngs River Loop Road	8.9	12187	93	89	89
Willamette - Middle	Mollala River at Canby	3	10637	89	92	89
Willamette - Middle	Willamette River at Salem	84	10555	90	89	89
Willamette - Upper	Willamette River at HWY 20 (Albany)	119.3	10350	90	89	89

Willamette - Upper	Willamette River at HWY 34 (Corvallis)	131.4	10352	90	89	89
Grande Ronde	Grande Ronde River at Hilgard St. Park	166.8	10720	88	94	88
Mid Coast	Salmon River at Otis	2.8	11241	88	89	88
North Coast	Nehalem River at Foley Road	7.8	11856	90	88	88
Rogue	Illinois River downstream of Kerby	48.4	11482	88	91	88
Sandy	Sandy River at Troutdale Bridge	3.1	10674	91	88	88
Umpqua	North Umpqua River at Garden Valley Road	1.8	10451	88	91	88
Willamette - Middle	Willamette River at Wheatland Ferry	71.9	10344	89	88	88
Columbia	Columbia River at Portland Marker 47 (u/s Willamette)	102.5	10616	88	87	87
John Day	South Fork John Day River at Dayville	0.2	11020	87	88	87
North Coast	Kilchis River at HWY 101	1	13416	87	89	87
North Coast	Miami River at Moss Creek Road	1.7	13411	87	87	87
Rogue	Rogue River at Lobster Point Bridge	11.0	10414	87	92	87
South Coast	Middle Fork Coquille River at HWY 42	0.2	11485	88	87	87
South Coast	North Fork Coquille River at HWY 42	0.2	10393	88	87	87
Willamette - Upper	Coast Fork Willamette River at Mt. Pisgah Park	3.0	11275	87	92	87
Deschutes	Deschutes River at Warm Springs	96.8	10506	88	86	86
Grande Ronde	Wallowa River at Minam	10.0	10410	86	89	86
North Coast	Trask River at HWY 101	4.2	13433	87	86	86
North Coast	Wilson River at HWY 101	1.8	13421	86	89	86
Powder	Powder River at Campbell St. (Baker City)	119.3	15565	90	86	86
Rogue	Applegate River at HWY 199	2.6	10428	86	90	86
Rogue	Rogue River at Robertson Bridge (Merlin)	86.6	10418	86	86	86
Willamette - Middle	Willamette River at Canby Ferry	34.4	10339	86	89	86
Rogue	Rogue River at Rock Point Bridge (Gold Hill)	117.3	10421	87	85	85
Willamette - Lower	Willamette River at Hawthorne Bridge	13.2	10611	86	85	85
Willamette - Upper	Mary's River at HWY 99W (Corvallis)	0.2	10373	85	86	85

Table 6. Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Fair Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
FAIR						
John Day	John Day River at Service Creek	157.4	11478	84	90	84
John Day	John Day River upstream of Dayville	215.4	11479	84	86	84
North Coast	Nestucca River at Cloverdale	1.7	10523	88	84	84
South Coast	Floras Creek at HWY 101	4.1	12590	86	84	84

Table 6. (continued) Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Fair Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
FAIR						
Umpqua	Umpqua River at Elkton	48.4	10437	84	89	84
Willamette - Middle	South Yamhill River at HWY 99W	16.5	10948	87	84	84
North Coast	Clatskanie River at HWY 30 (Clatskanie)	4.7	11434	83	86	83
North Coast	Nehalem River at HWY 202 Bridge in Birkenfeld		34019	83	91	83
South Coast	South Fork Coquille River at Broadbent	10.0	11486	83	89	83
Hood	Hood River at Hood River, OR	1	12012	86	82	82
Mid Coast	Yaquina River downstream of Chitwood	24.9	11476	88	82	82
North Coast	Lewis & Clark River at Stavebolt Lane	7.6	10817	82	88	82

South Coast	Coquille River at Sturdivant Park Dock	24.5	10596	82	84	82
Willamette - Lower	Willamette River at SP&S RR Bridge (Portland)	7.0	10332	84	82	82
Deschutes	Deschutes River at Deschutes River Park (Mouth)	1.0	10411	81	86	81
Grande Ronde	Grande Ronde River at HWY 82 (Elgin)	99.0	10719	81	88	81
Umatilla	McKay Creek at Kirk St. (Pendleton)	1.5	12005	81	82	81
Willamette - Lower	Swan Island Channel midpoint (Willamette River)	0.5	10801	81	85	81
Willamette - Middle	North Yamhill River at Poverty Bend Road	4.5	10929	82	81	81
Willamette - Upper	Calapooia River at Queens Road (Albany)	3.0	11180	81	82	81
Umpqua	Elk Creek at Elkton	0.2	10441	80	88	80
Willamette - Lower	Tualatin River at Rood Bridge	39.0	10461	83	80	80

Table 7. Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Poor Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
POOR						
Deschutes	Crooked River at Conant Basin Road	105.0	11477	79	87	79
Umpqua	Calapooya Creek at Umpqua	0.4	10996	78	81	78
Willamette - Upper	Long Tom River at Stow Pit Road (Monroe)	4.7	11140	78	82	78
Deschutes	Deschutes River at Lower Bridge	133.4	10508	77	88	77
Grande Ronde	Grande Ronde River at Peach Ln. (Island City)	151.1	11521	77	89	77
John Day	John Day River at HWY 206	39.5	11386	76	89	76
Willamette - Middle	Yamhill River at Dayton	5.0	10363	76	78	76
Umatilla	Umatilla River at Yoakum	37.2	10404	75	81	75
Umpqua	Cow Creek at Mouth (Riddle)	0.3	10997	75	90	75
Umpqua	South Umpqua River at Days Creek Cutoff Road	55.5	11484	74	92	74
Umpqua	South Umpqua River at HWY 42 (Winston)	21.2	10443	73	91	73
Rogue	Little Butte Creek at Agate Road (White City)	1.4	10602	72	82	72
Umpqua	South Umpqua River at Stewart Park Road (Roseburg)	10.7	11522	72	86	72
Deschutes	Crooked River at Lone Pine Road	29.9	10517	71	74	71
Umatilla	Umatilla River at HWY 11 (Pendleton)	57.1	10406	71	91	71
South Coast	Pistol River at Pistol River Loop Road	1.2	11493	70	86	70
North Coast	Klaskanine River at Youngs River Loop Road (Olney)	1.3	11904	65	87	65
Willamette - Middle	Pudding River at HWY 99E (Aurora)	8.1	10917	69	65	65
Powder	Burnt River downstream of Huntington	1.1	14336	63	75	63
Rogue	Bear Creek at Kirtland Road	0.9	11051	63	65	63
Willamette - Lower	Fanno Creek at Bonita Road (Tigard)	2.3	10469	63	67	63

Table 8. Monitored Sites Ranked by Minimum Seasonal Average OWQI Score - Very Poor Category

Basin	Site	River Mile	LASAR Number	Summer Mean	FWS Mean	Minimum Seasonal Mean
VERY POOR						
North Coast	Tillamook River at Bewley Creek Road	6.8	13440	59	79	59
Willamette - Lower	Tualatin River at Elsner Road	16.2	10458	59	63	59
Willamette - Middle	Pudding River at HWY 211 (Woodburn)	22.4	10640	59	62	59
Willamette - Lower	Tualatin River at HWY 210 (Scholls)	26.9	10459	56	63	56
Willamette - Lower	Tualatin River at Boones Ferry Road	8.6	10456	54	59	54
Klamath	Klamath River downstream of Big Bend Powerhouse	219.9	10764	53	76	53
Umpqua	South Umpqua River at Melrose Road	5.1	10442	53	86	53

Willamette - Lower	Beaverton Creek at Cornelius Pass Road (Orenco)	0.3	10480	53	68	53
South Coast	Millicoma River at Rooke Higgins Boat Ramp	3.6	13570	52	89	52
Umatilla	Umatilla River at Westland Road (Hermiston)	8.7	11489	52	75	52
Malheur	Malheur River at Little Valley	49.0	11480	49	52	49
Powder	Powder River at HWY 86	32.1	15566	49	70	49
Willamette - Lower	Columbia Slough at Landfill Road	2.6	11201	43	47	43
South Coast	South Fork Coos River at Anson Rogers Bridge	2.5	13574	38	86	38
North Coast	Skipanon River at HWY 101	4.9	10812	37	74	37
Owyhee	Owyhee River at HWY 201	2.9	10729	36	45	36
Klamath	Link River at Mouth (Entrance to Lake Ewauna)	0.1	10768	35	83	35
Willamette - Lower	Johnson Creek at SE 17th Avenue (Portland)	0.2	11321	30	35	30
Malheur	Bully Creek at HWY 20 (Vale)	2.3	11043	29	33	29
Klamath	Klamath River at Keno	234.2	10765	27	71	27
Klamath	Lost River at HWY 39 (u/s Merrill)	12.1	10759	25	35	25
Malheur	Willow Creek at RR Xing east of Vale	4.3	10728	25	26	25
Malheur	Malheur River at HWY 201 (Ontario)	0.5	10407	23	26	23
Klamath	Klamath Strait at USBR Pump Station F	2.0	10763	19	25	19

Summary Table

The following table (Table 9) summarizes water quality status and trends, using the Oregon Water Quality Index, for sites on the ambient water quality monitoring network. The stream sites are arranged alphabetically within major basins, which are also arranged alphabetically.

Table 9. OWQI Status and Trends Summary

Site	RM	Score	Category	Trend	Magnitude
COLUMBIA					
Columbia River at Portland Marker 47 (u/s Willamette)	102.5	87	g	NT	

RM: River Mile. **Score**: Minimum Seasonal Average. Category Key: **e**: Excellent; **g**: Good; **f**: Fair; **p**: Poor; **vp**: Very Poor.
Trend Key: **Dec**.: Significant Decrease; **Inc**.: Significant Increase; **NT**: No significant Trend; **ID**: Insufficient data available.

Table 9.(continued) OWQI Status and Trends Summary

Site	RM	Score	Category	Trend	Magnitude
DESCHUTES					
Crooked River at Conant Basin Road	105.0	79	p	NT	
Crooked River at Lone Pine Road	29.9	71	p	NT	
Deschutes River at Deschutes River Park (Mouth)	1.0	81	f	NT	
Deschutes River at Harper Bridge (Sunriver)	191.7	91	e	NT	
Deschutes River at Lower Bridge	133.4	77	p	NT	
Deschutes River at Mirror Pond (Bend)	164.9	92	e	NT	
Deschutes River at Pringle Falls	217.0	91	e	NT	
Deschutes River at Warm Springs	96.8	86	g	NT	
Little Deschutes River at HWY 42	4.0	92	e	NT	
Metolius River at Bridge 99 (Camp Sherman)	30.3	91	e	NT	
GRANDE RONDE					
Grande Ronde River at Hilgard St. Park	166.8	88	g	Inc.	+4.6
Grande Ronde River at HWY 82 (Elgin)	99.0	81	f	NT	

Grande Ronde River at Peach Ln. (Island City)	151.1	77	p	Inc.	+6.0
Minam River at Minam	0.1	92	e	NT	
Wallowa River at Minam	10.0	86	g	Dec.	-3.3
HOOD					
Hood River at Hood River, OR	1	82	f	Dec.	-2.2
JOHN DAY					
John Day River at HWY 206	39.5	76	p	Inc.	+2.5
John Day River at Service Creek	157.4	84	f	NT	
John Day River upstream of Dayville	215.4	84	f	NT	
North Fork John Day River at Kimberly	0.2	89	g	NT	
South Fork John Day River at Dayville	0.2	87	g	NT	
KLAMATH					
Klamath River at Keno	234.2	27	vp	Dec.	-5.4
Klamath River downstream of Big Bend Powerhouse	219.9	53	vp	Dec.	-3.3
Klamath Strait at USBR Pump Station F	2.0	19	vp	NT	
Link River at Mouth (Entrance to Lake Ewauna)	0.1	35	vp	NT	
Lost River at HWY 39 (u/s Merrill)	12.1	25	vp	NT	
Williamson River at Williamson River Store	4.6	89	g	NT	
MALHEUR					
Bully Creek at HWY 20 (Vale)	2.3	29	vp	NT	
Malheur River at HWY 201 (Ontario)	0.5	23	vp	NT	
Malheur River at Little Valley	49.0	49	vp	Dec.	-10.2
Willow Creek at RR Xing east of Vale	4.3	25	vp	NT	

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Table 9.(continued) OWQI Status and Trends Summary

Site	RM	Score	Category	Trend	Magnitude
MID COAST					
Alsea River at Thissell Road	17.7	91	e	Dec.	-1.7
Salmon River at Otis	2.8	88	g	Dec.	-3.3
Siletz River 5 miles d/s Siletz	30.9	90	e	Dec.	-2.0
Yaquina River downstream of Chitwood	24.9	82	f	NT	
Siuslaw River at Tide Wayside	26.3	93	e	N/A	
Beaver Creek North Fork at Ona Grange RM 4.8	4.8	89	g	N/A	
NORTH COAST					
Clatskanie River at HWY 30 (Clatskanie)	4.7	83	f	NT	
Kilchis River at HWY 101	1	87	g	Dec.	-2.0
Klaskanine River at Youngs River Loop Road (Olney)	1.3	65	p	Dec.	-2.2
Lewis & Clark River at Stavebolt Lane	7.6	82	f	NT	
Miami River at Moss Creek Road	1.7	87	g	NT	
Necanicum River at Riverside Lake Camp	5.8	90	e	NT	
Nehalem River at Foley Road	7.8	88	g	NT	

Nestucca River at Cloverdale	1.7	84	f	Dec.	-3.3
Nehalem River at HWY 202 Bridge in Birkenfeld		83	f	N/A	
Skipanon River at HWY 101	4.9	37	vp	NT	
Tillamook River at Bewley Creek Road	6.8	59	vp	Dec.	-1.3
Trask River at HWY 101	4.2	86	g	Dec.	-2.5
Wilson River at HWY 101	1.8	86	g	Dec.	-3.3
Wilson River at HWY 6	8.5	90	e	Dec.	-3.3
Youngs River at Youngs River Loop Road	8.9	89	g	NT	
OWYHEE					
Owyhee River at HWY 201	2.9	36	vp	NT	
POWDER					
Burnt River downstream of Huntington	1.1	63	p	NT	
Powder River at Campbell St. (Baker City)	119.3	86	g	NT	
Powder River at HWY 86	32.1	49	vp	NT	
ROGUE					
Applegate River at HWY 199	2.6	86	g	NT	
Bear Creek at Kirtland Road	0.9	63	p	NT	
Illinois River downstream of Kerby	48.4	88	g	NT	
Little Butte Creek at Agate Road (White City)	1.4	72	p	NT	
Rogue River at Dodge Park	138.4	92	e	NT	
Rogue River at Lobster Point Bridge	11.0	87	g	Dec.	-2.0
Rogue River at Robertson Bridge (Merlin)	86.6	86	g	NT	
Rogue River at Rock Point Bridge (Gold Hill)	117.3	85	g	Dec.	-1.4

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Table 9.(continued) OWQI Status and Trends Summary

Site	RM	Score	Category	Trend	Magnitude
SANDY					
Sandy River at Troutdale Bridge	3.1	88	g	NT	
SOUTH COAST					
Chetco River at USGS Gage	10.8	90	e	NT	
Coquille River at Sturdivant Park Dock	24.5	82	f	Dec.	-4.0
Elk River at HWY 101	3.4	92	e	NT	
Floras Creek at HWY 101	4.1	84	f	NT	
Middle Fork Coquille River at HWY 42	0.2	87	g	Dec.	-3.4
Millicoma River at Rooke Higgins Boat Ramp	3.6	52	vp	NT	
Smith River 4.4 Miles d/s Smith River Falls		91	e	N/A	
North Fork Coquille River at HWY 42	0.2	87	g	Dec.	-2.5
Pistol River at Pistol River Loop Road	1.2	70	p	Inc.	+1.7
Sixes River at HWY 101	5.5	90	e	NT	
South Fork Coos River at Anson Rogers Bridge	2.5	38	vp	NT	
South Fork Coquille River at Broadbent	10.0	83	f	Dec.	-3.3
Winchuck River upstream of HWY 101	2.5	95	e	NT	

UMATILLA					
McKay Creek at Kirk St. (Pendleton)	1.5	81	f	NT	
Umatilla River at HWY 11 (Pendleton)	57.1	71	p	NT	
Umatilla River at Westland Road (Hermiston)	8.7	52	vp	NT	
Umatilla River at Yoakum	37.2	75	p	NT	
UMPQUA					
Calapooya Creek at Umpqua	0.4	78	p	NT	
Cow Creek at Mouth (Riddle)	0.3	75	p	NT	
Elk Creek at Elkton	0.2	80	f	NT	
North Umpqua River at Garden Valley Road	1.8	88	g	Dec.	-2.0
South Umpqua River at Days Creek Cutoff Road	55.5	74	p	NT	
South Umpqua River at HWY 42 (Winston)	21.2	73	p	Dec.	-2.0
South Umpqua River at Melrose Road	5.1	53	vp	NT	
South Umpqua River at Stewart Park Road (Roseburg)	10.7	72	p	Dec.	-5.0
Umpqua River at Elkton	48.4	84	f	Dec.	-2.5

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Table 9.(continued) OWQI Status and Trends Summary

Site	RM	Score	Category	Trend	Magnitude
WILLAMETTE - LOWER					
Beaverton Creek at Cornelius Pass Road (Orenco)	0.3	53	vp	Dec.	-5.0
Clackamas River at High Rocks	1.2	93	e	NT	
Clackamas River at McIver Park (Upper Boat Ramp)	22.6	95	e	NT	
Clackamas River at Memaloose Road	35.7	95	e	NT	
Columbia Slough at Landfill Road	2.6	43	vp	Inc.	+15.1
Fanno Creek at Bonita Road (Tigard)	2.3	63	p	Dec.	-5.0
Johnson Creek at SE 17th Avenue (Portland)	0.2	30	vp	NT	
Swan Island Channel midpoint (Willamette River)	0.5	81	f	NT	
Tualatin River at Boones Ferry Road	8.6	54	vp	Dec.	-19.0
Tualatin River at Elsner Road	16.2	59	vp	Dec.	-24.3
Tualatin River at HWY 210 (Scholls)	26.9	56	vp	Dec.	-28.1
Tualatin River at Rood Bridge	39.0	80	f	NT	
Willamette River at Hawthorne Bridge	13.2	85	g	NT	
Willamette River at SP&S RR Bridge (Portland)	7.0	82	f	NT	
WILLAMETTE - MIDDLE					
Mollala River at Canby	3	89	g	NT	
North Santiam River at Coopers Ridge Road	63.8	95	e	NT	
North Santiam River at Gates School Road	39.0	94	e	NT	
North Santiam River at Green's Bridge	2.9	94	e	NT	
North Yamhill River at Poverty Bend Road	4.5	81	f	Dec.	-2.5
Pudding River at HWY 211 (Woodburn)	22.4	59	vp	NT	
Pudding River at HWY 99E (Aurora)	8.1	65	p	NT	
South Santiam River at HWY 226 (Crabtree)	7.6	93	e	NT	

South Yamhill River at HWY 99W	16.5	84	f	NT	
Willamette River at Canby Ferry	34.4	86	g	NT	
Willamette River at Salem	84	89	g	NT	
Willamette River at Wheatland Ferry	71.9	88	g	NT	
Yamhill River at Dayton	5.0	76	p	NT	
WILLAMETTE - UPPER					
Calapooia River at Queens Road (Albany)	3.0	81	f	NT	
Coast Fork Willamette River at Mt. Pisgah Park	3.0	87	g	Inc.	+2.0
Long Tom River at Stow Pit Road (Monroe)	4.7	78	p	NT	
Mary's River at HWY 99W (Corvallis)	0.2	85	g	NT	
McKenzie River at Coburg Road	7.1	91	e	NT	
McKenzie River at Hendricks Bridge	24.0	94	e	NT	
McKenzie River at McKenzie Bridge	68.1	94	e	NT	
Middle Fork Willamette River at Jasper Bridge	8.0	93	e	Inc.	+1.5
Willamette River at HWY 126 (Springfield)	185.3	93	e	NT	
Willamette River at HWY 20 (Albany)	119.3	89	g	NT	
Willamette River at HWY 34 (Corvallis)	131.4	89	g	NT	
Willamette River at HWY 99E (Harrisburg)	161.2	91	e	NT	

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