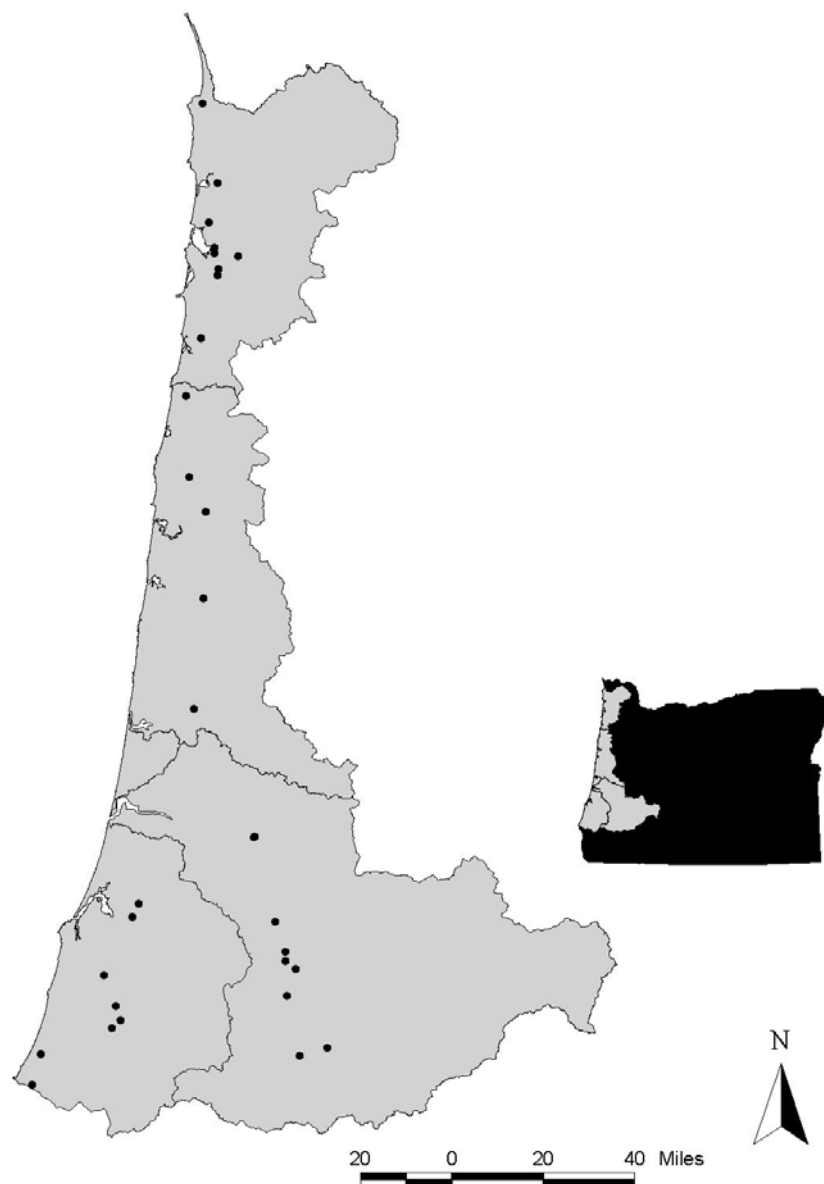


# Water Quality Report: Ambient Monitoring Stations in the Oregon Coast Coho Evolutionarily Significant Unit



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## **Abstract**

This report summarizes water quality data collected at 31 ambient monitoring sites throughout the Oregon Coast Coho Evolutionarily Significant Unit. The Oregon Department of Environmental Quality (ODEQ) collected and analyzed water chemistry data for 20 parameters, from water year 1993 through 2002. ODEQ used the Oregon Water Quality Index (OWQI) as a tool to describe water quality conditions and trends. Seasonally, water quality tended to be worse during low flow summer periods at sites where the OWQI was poor. For the 30 sites with sufficient data to analyze for trends, 12 sites had significant increases in water quality while the rest (18 sites) showed no significant trend in either direction. Improvements in water quality were usually due to decreases in total solids, nutrients, and fecal bacteria.

## **Introduction**

The State of Oregon began the Oregon Plan for Salmon and Watersheds in 1997. State, federal, and private groups have funded efforts to improve watershed conditions and water quality as well as restore listed fish populations. One way to assess watershed conditions is to evaluate water chemistry data at multiple stream locations.

The purpose of this report is to assess water quality data throughout the Oregon Coast Coho Evolutionarily Significant Unit (OCCESU). The Oregon Department of Environmental Quality (ODEQ) maintains a state-wide network of more than 130 ambient water quality monitoring stations of which 31 are located within the OCCESU. These sites tend to be on larger streams and are usually monitored six times per year for long term water quality status and trending.

ODEQ used the Oregon Water Quality Index (OWQI) as a tool to describe water quality conditions in a consistent manner among streams. Once index values were calculated, DEQ described spatial and temporal trends in water quality.

This report is broken into 6 sections:

1. Background
2. North Coast Monitoring Area
3. Mid Coast Monitoring Area
4. Mid – South Coast Monitoring Area
5. Umpqua Monitoring Area
6. Conclusions

## **Background - Oregon Water Quality Index Applied to Coastal Coho ESU**

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) (DO), biochemical oxygen demand (BOD), 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, in press). OWQI scores range from 10 (worst case) to

100 (ideal water quality). For this report, OWQI results are calculated on all samples taken from October 1992 through September 2002. These data are analyzed to determine which variables limit general water quality during various seasons. Each site with sufficient data is analyzed for the presence of significantly increasing or decreasing trends. The Seasonal-Kendall test (WQHydro) is used for trend analysis to ensure that the significant trends that exist are not due to normal seasonal variation. Seasonal averages were calculated for the summer season (June - September) and FWS season (fall, winter, and spring: October - May). The minimum of these seasonal averages is used for ranking purposes. The minimum seasonal average takes into account seasonal variability between different river systems. The seasonal delineation for OWQI calculations is used to provide a standardized comparison of all streams in Oregon.

Water quality is commonly impacted by the introduction of organic matter to streams. The presence of organic matter increases BOD, which means less dissolved oxygen is available for aquatic life. The introduction of untreated animal or human waste increases the possibility of bacterial contamination of water, increasing the risk of infection to swimmers. Eutrophication is the process of enrichment of water with nutrients, mainly nitrogen and phosphorous compounds, which results in excessive growth of algae and nuisance aquatic plants. It increases the amount of organic matter in the water and also increases pollution as this matter grows and then decays. Employing the process of photosynthesis for growth, algae and aquatic plants consume carbon dioxide (thus raising pH) and produce an overabundance of DO. At night the algae and plants respire, depleting available DO. This results in large variations in water quality conditions that can be harmful to other aquatic life. While natural sources of nutrients can influence eutrophication, the introduction of nutrients strengthens the process. Sources of nutrients include wastewater treatment facility discharge and faulty septic systems, runoff from animal husbandry operations, fertilizer application, urban sources, and erosion. High water temperatures compound the decline in water quality by causing more oxygen to leave the water and by increasing the rate of eutrophication. Removal of streamside vegetation, among other factors, influences high stream temperature and, via erosion, increases sedimentation of streams.

### **Trending Analysis**

Temporal trends indicate significant changes in water quality over time. The nonparametric Seasonal-Kendall trend analysis, available in the WQHydro (Aroner, 2001) 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. 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 to ensure a more regular sample variance.

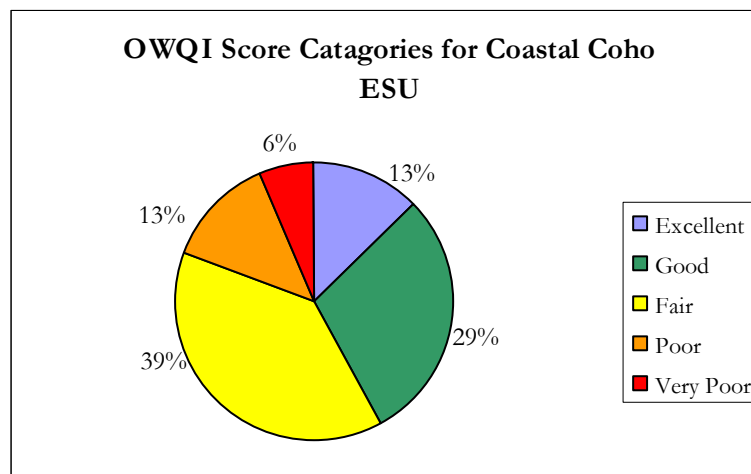
These subsets are compared and an annualized result is generated, indicating whether or not a significant trend exists. Also indicated are the magnitude and significance of the trend. This procedure ensures that increasing or decreasing trends are consistent through most of the year and that the trends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

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.

## 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.

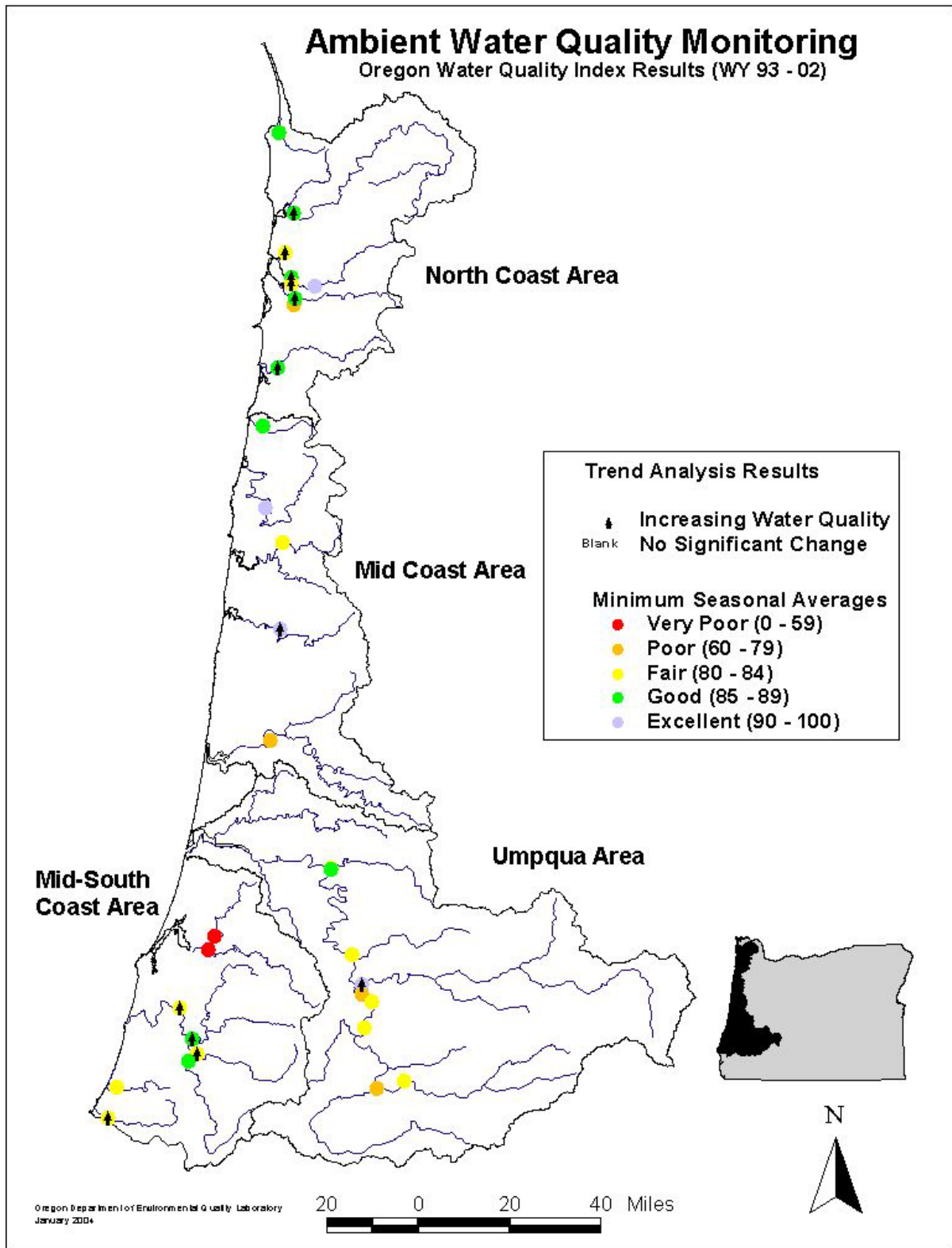
**Figure 1. OWQI Minimum Seasonal Average Score Categories for Coastal Coho ESU Monitoring Sites.**



DEQ ranked OWQI scores for all sites within the Coastal Coho ESU Monitoring Area. For all 31 ambient monitoring locations within the Coastal Coho ESU, 13% are considered excellent, 29% are good, 39% are fair, 13% are poor, and 6% are very poor based on OWQI minimal seasonal average scores (Figure 1). Figure 2 outlines the spatial distribution of OWQI scores throughout the Oregon Coast and Umpqua basins.

Figure 2 displays OWQI status and trending information, with respect to geographical location. Twelve of the 31 stations had improving water quality trends, 18 had no significant trends in either direction, and one station had insufficient data for trending.

Figure 2. OWQI Status and Trends for Monitoring Sites within Coastal Coho ESU.

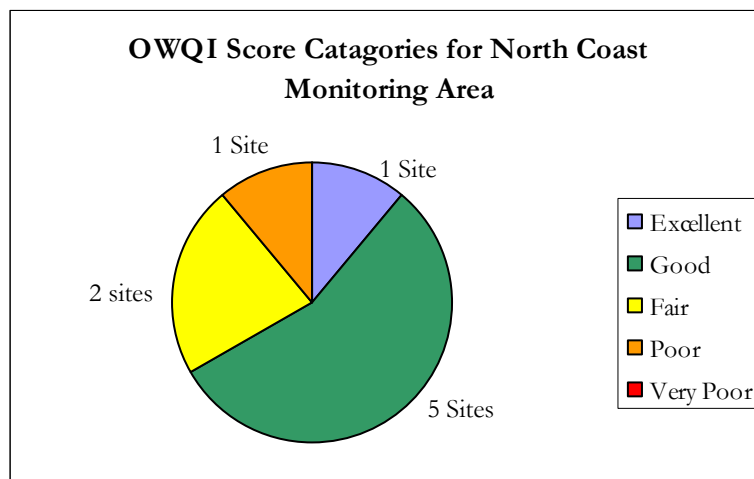


## North Coast Monitoring Area

The North Coast Monitoring Area extends from the Necanicum River in the north to Neskowin Creek in the south. This section of the report describes data from 9 DEQ ambient monitoring locations (Table 1). DEQ collects water chemistry data bi-monthly at the monitoring locations. Figure 3 highlights the minimum seasonal average OWQI score by site for the North Coast Monitoring Area.

Stream water quality varies throughout the year. During the fall, winter, and spring, water quality is excellent at 22 % of sites, good at 56% of sites, and fair at 22% of sites (Table 1). During the summer, OWQI values were excellent at 22% of sites, good at 56% of sites, fair at 11% of sites, and poor at 11% of sites (Table 1).

**Figure 3. OWQI Minimum Seasonal Average Score Categories for North Coast Monitoring Area.**



**Table 1. North Coast Monitoring Area OWQI scores (WY 1993 – 2002).**

Site	River Mile	LASAR Number	Summer Average	FWS Average	Minimum Seasonal Average	10 Year Trend
Kilchis River at Alderbrook Road	1	13416	87	88	87	+3.3 <sup>2</sup>
Miami River at Moss Creek Road	1.7	13411	84	85	84	+3.3 <sup>3</sup>
Necanicum River at Riverside Lake Camp	5.8	10521	88	91	88	NT
Nehalem River at Foley Road	7.8	11856	90	85	85	+4.0 <sup>1</sup>
Nestucca River at Cloverdale	1.7	10523	89	86	86	+3.6 <sup>1</sup>
Tillamook River at Bewley Creek Road	6.8	13440	69	82	69	NT
Trask River at HWY 101	4.2	13433	87	87	87	+3.1 <sup>3</sup>
Wilson River at HWY 101	1.8	13421	86	83	83	+3.3 <sup>5</sup>
Wilson River at HWY 6	8.5	13424	92	91	91	ID

Summer: June - September; FWS (Fall, Winter, & Spring): October - May  
 Scores - Very Poor: 10-59, Poor: 60-79, Fair: 80-84, Good: 85-89, Excellent: 90-100

Notes: 1- Significance Level of Seasonal-Kendall trend analysis results equal to 99.

2- Significance Level of Seasonal-Kendall trend analysis results equal to 90.

3- Significance Level of Seasonal-Kendall trend analysis results equal to 80.

Boxplots of OWQI scores for each of the monitoring sites within the North Coast area are displayed in Figure 4. Each boxplot represents the distribution of OWQI data for the respective monitoring site. Each box contains fifty percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percentiles, respectively, while the horizontal line inside the box represents the median of the data (fiftieth percentile). Additional vertical lines on either end of the box represent further distribution of data. Asterisks represent outliers, or data resulting from anomalous events. In general, longer boxes mean wider distribution of data, or wider variation of water quality. Wider variation of water quality is usually, but not always, seen in streams that are affected by pollution.

Spatial trends identify changes in water quality throughout a geographic area. By studying the variation in OWQI values, spatial trends in general water quality are apparent.

The Tillamook River at Bewley Creek Road had the greatest variation in OWQI scores over the ten year period (1993- 2002). High levels of fecal coliform and E. coli. bacteria are present throughout the entire year, and had the most affect on summer OWQI scores. Nitrogen nutrients had the greatest effect on low fall, winter, and spring OWQI scores in the Tillamook River. Low outliers are predominantly during the summer months and are driven by high bacteria and nitrogen nutrient concentrations.

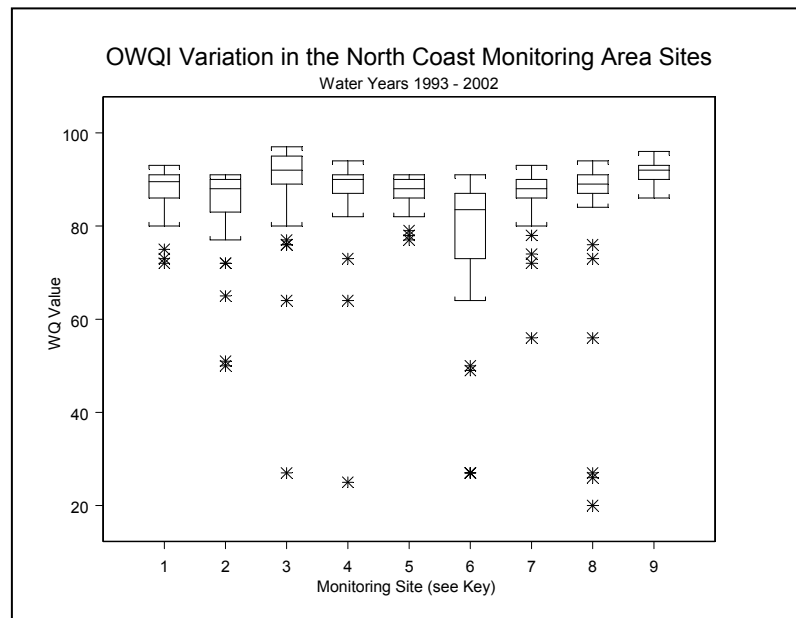
The site in the upper most part of its watershed (Wilson River at HWY 6) was relatively free from point and non-point source pollution. Moderate levels of nitrogen and BOD have some impact on OWQI values year-round at this site. The Wilson River at HWY 6 retained an excellent OWQI scores throughout the entire.

The OWQI scores at the remaining sites within the North Coast Monitoring Area (Kilchis River, Miami River, Necanicum River, Nehalem River, Nestucca River, Trask River, and Wilson River at HWY 101) were impacted by moderate levels of nutrients (nitrogen), total



solids, and BOD. Increased nutrient (nitrogen) levels during the fall, winter, and spring period appeared to have greatest effect on OWQI scores. Low outliers seen in the Necanicum River at Riverside Lake Camp are the result of high summer bacteria levels and high fall, winter, spring nutrient concentrations. Elevated nutrient (total phosphorous and nitrogen) and total solid concentrations during the fall, winter, and spring period accounted for low outliers in the Nehalem River (Nehalem River at Foley Road). Low outliers seen in the Wilson River at HWY 101 are the result of high bacteria and nutrient (nitrogen) levels throughout the year.

**Figure 4. Spatial Trend Analysis Results for the North Coast Monitoring Area.**



Monitoring Site Key: 1) Kilchis River at Alderbrook Road, 2) Miami River at Moss Creek Road, 3) Necanicum River at Riverside Lake Camp, 4) Nehalem River at Riverside Lake Camp, 5) Nestucca River at Cloverdale, 6) Tillamook River at Bewley Creek Road, 7) Trask River at HWY 101, 8) Wilson River at HWY 101, 9) Wilson River at HWY 6.

Temporal trends indicate significant changes in water quality over time. As mentioned above, the Seasonal-Kendall test is used to account for natural seasonal variations in water quality. This stringent, nonparametric statistical analysis requires at least thirty data points to draw valid conclusions. The magnitude of the trend is calculated by Seasonal Sen Slope. Trend analysis results for the North Coast Monitoring Area are presented in Table 1. Although we performed no trend analysis on discharge data, please recall that WY 1996 was marked by extremely high flows and floods, especially in February 1996. This may influence trend analysis results.

Within the North Coast Monitoring Area, 67% of the monitored sites had significantly improving 10 year trends in the OWQI (Table 1). The following section of the report will discuss the 6 sites within the North Coast Monitoring Area (Kilchis River at Alderbrook Road, Miami River at Moss Creek Road, Nehalem River at Foley Road, Nestucca River at Cloverdale, Trask River at HWY 101, and the Wilson River at HWY 101) that had significant trends.

**Table 2. Significant changes in OWQI variables for the Kilchis River at Alderbrook Road (WY 1993 - 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	-0.08	90
Nitrogen Subindex	+3.7	90
Total Solids (mg/L)	-7.9	95
Total Solids Subindex	+5.3	95
Temperature (°C)	-2.1	90
<b>OWQI</b>	<b>+3.3</b>	<b>90</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Kilchis River at Alderbrook Road (Table 2). While the trend is statistically significant, the magnitude is relatively small. The most significant factor in the increase of water quality at the Kilchis River at Alderbrook Road is decreasing Total Solids concentrations, causing an increase in Total Solids subindex values (Table 2). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values. Temperature significantly decreased, but the Temperature Subindex did not significantly change.

**Table 3. Significant changes in OWQI variables for the Miami River at Moss Creek Road (WY 1993 - 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	-0.08	95
Nitrogen Subindex	+4.0	95
<b>OWQI</b>	<b>+3.3</b>	<b>80</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Miami River at Moss Creek Road (Table 3). The most significant factor in the increase of water quality at the Miami River at Moss Creek Road is decreasing Nitrate Nitrogen concentrations, causing an increase in Nitrogen Subindex values (Table 3).

**Table 4. Significant changes in OWQI variables for the Nehalem River at Foley Road (WY 1993 - 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
DO Concentration (mg/L)	-0.7	95
DO Saturation (%)	-2.8	80
DO Subindex	0	NA
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	-0.17	99
Nitrogen Subindex	+6.7	98
Total Solids (mg/L)	-15.0	95
Total Solids Subindex	+11.8	95
Temperature (°C)	-1.6	80
<b>OWQI</b>	<b>+4.0</b>	<b>99</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Nehalem River at Foley Road (Table 4). The most significant factor in the increase of water quality at the Nehalem River at Foley Creek Road is decreasing Total Solids concentrations, causing an increase in Total Solids Subindex values (Table 4). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values. Temperature significantly decreased, but the Temperature Subindex did not significantly change. DO Concentration and DO Saturation concentration trends decreased but the DO Subindex did not significantly change.

**Table 5. Significant changes in OWQI variables for the Nestucca River at Cloverdale (WY 1993 - 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	-0.20	99
Nitrogen Subindex	+7.5	98
Total Solids (mg/L)	-15.2	99
Total Solids Subindex	+11.0	99
Bacteria Subindex	+3.0	98
<b>OWQI</b>	<b>+3.6</b>	<b>99</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Nestucca River at Cloverdale (Table 5). The most significant factor in the increase of water quality at the Nestucca River at Cloverdale is decreasing Total Solids concentrations, causing an increase in Total Solids Subindex values (Table 5). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values. The Bacteria Subindex also increased.

**Table 6. Significant changes in OWQI variables for the Trask River at HWY 101 (WY 1993 - 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
<b>DO Concentration (mg/L)</b>	-0.4	80
<b>DO Saturation (%)</b>	-7.3	95
<b>DO Subindex</b>	0	NA
<b>Ammonia Nitrogen (mg/L)</b>	0	NA
<b>Nitrate Nitrogen (mg/L)</b>	-0.19	99
<b>Nitrogen Subindex</b>	+7.0	98
<b>Total Solids (mg/L)</b>	-10.1	80
<b>Total Solids Subindex</b>	+7.5	80
<b>OWQI</b>	+3.1	80

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.  
2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Trask River at HWY 101 (Table 6). The most significant factor in the increase of water quality at the Trask River at HWY 101 is decreasing Total Solids concentrations, causing an increase in Total Solids Subindex values (Table 6). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values. DO Concentration and DO Saturation concentration trends decreased but the DO Subindex did not significantly change.

**Table 7. Significant changes in OWQI variables for the Wilson River at HWY 101 (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
<b>BOD</b>	-0.48	90
<b>BOD Subindex</b>	+7.9	90
<b>DO Concentration (mg/L)</b>	-0.5	80
<b>DO Saturation (%)</b>	-6.7	99
<b>DO Subindex</b>	0	NA
<b>Total Solids (mg/L)</b>	-10.1	98
<b>Total Solids Subindex</b>	+8.1	98
<b>OWQI</b>	+3.3	80

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.  
2 - Significance Level of Seasonal-Kendall trend analysis results.

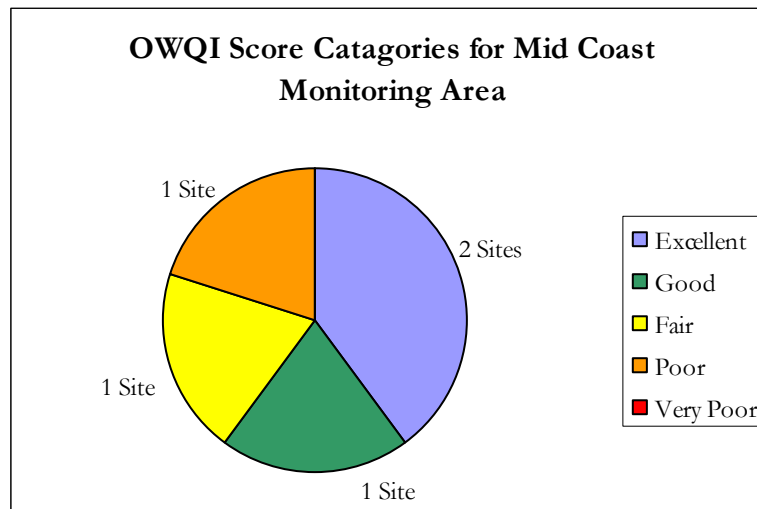
Water quality improved in the Wilson River at HWY 101 (Table 7). The most significant factor in the increase of water quality at the Wilson River at HWY 101 is decreasing Total Solids concentrations, causing an increase in Total Solids Subindex values (Table 7). Decreasing BOD concentrations also contributed to increasing BOD Subindex values. DO Concentration and DO Saturation concentration trends decreased but the DO Subindex did not significantly change.

## Mid Coast Monitoring Area

The Mid Coast Monitoring Area stretches from the Salmon River drainage in the north to Siuslaw drainage in the south. This section of the report describes data from 5 DEQ ambient monitoring locations (Table 8). DEQ collects water chemistry data bi-monthly at the monitoring locations. Figure 6 highlights the minimum seasonal average OWQI score by site for the Mid Coast Monitoring Area.

Stream water quality varies throughout the year. During the fall, winter, and spring, water quality is excellent at 80 % of sites and fair at 20% of sites (Table 8). During the summer, OWQI values were excellent at 40% of sites, good at 40% of sites, and poor at 20% of sites (Table 8).

**Figure 6. OWQI Minimum Seasonal Average Score Categories for Mid Coast Monitoring Area.**



**Table 8. Mid Coast Monitoring Area OWQI scores (WY 1993 – 2002).**

Site	River Mile	LASAR Number	Summer Average	FWS Average	Minimum Seasonal Average	10 Year Trend
Alsea River at Thissell Road	17.7	11263	92	91	91	+2.9 <sup>1</sup>
Salmon River at Otis	2.8	11241	89	90	89	NT
Siletz River 5 miles downstream of Siletz	30.9	10391	93	91	91	NT
Siuslaw River at HWY 126 (Mapleton)	20.5	10392	77	92	77	NT
Yaquina River downstream of Chitwood	24.9	11476	88	82	82	NT

Summer: June - September; FWS (Fall, Winter, & Spring): October - May

Scores - Very Poor: 10-59, Poor: 60-79, Fair: 80-84, Good: 85-89, Excellent: 90-100

Notes: 1- Significance Level of Seasonal-Kendall trend analysis results equal to 90.

Boxplots of OWQI scores for each of the monitoring sites within the North Coast area are displayed in Figure 7. Each boxplot represents the distribution of OWQI data for the respective monitoring site. Each box contains fifty percent of the data. The upper and

lower boundaries of each box define the seventy-fifth and twenty-fifth percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percentiles, respectively, while the horizontal line inside the box represents the median of the data (fiftieth percentile). Additional vertical lines on either end of the box represent further distribution of data. Asterisks represent outliers, or data resulting from anomalous events. In general, longer boxes mean wider distribution of data, or wider variation of water quality. Wider variation of water quality is usually, but not always, seen in streams that are impacted by pollution.

Spatial trends identify changes in water quality throughout a geographic area. By studying the variation in OWQI values, spatial trends in general water quality are apparent.

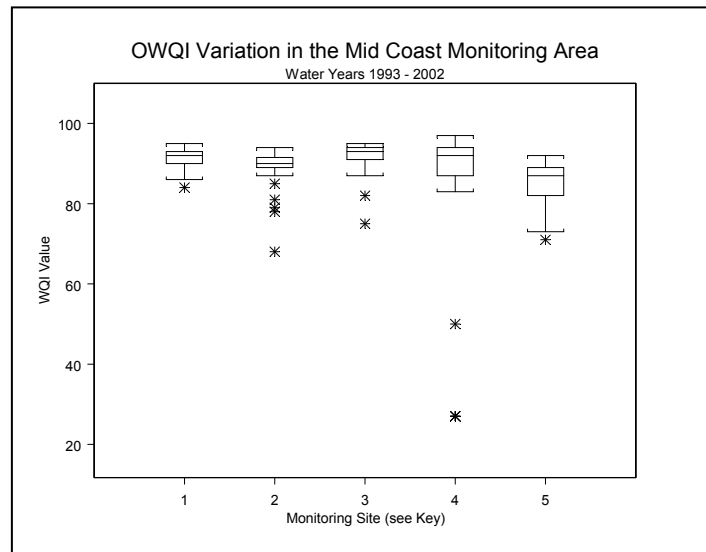
The Yaquina River downstream of Chitwood exhibited high variation in OWQI scores when compared with other sites in the Mid Coast Monitoring Area. High nutrient (nitrogen) levels during the fall, winter, and spring season reduced OWQI scores. The low outlier at the Yaquina River site was driven by high nutrient (phosphorus and nitrogen) and Total Solid concentrations in the winter.

The Siuslaw River at HWY 126 (Mapleton) also had variable OWQI scores. High Temperature and Total Solids as well as low DO results contributed to low outliers during the summer period.

There was little variation in OWQI scores throughout the year at the Alsea River at Thissell Road. Moderate levels of nutrients slightly reduced OWQI scores throughout the year.

The Salmon River at Otis was ranked “good” based on its minimum seasonal average OWQI score. Elevated summer bacteria and nutrient concentrations contributed to low outliers at the Salmon River stream site. The Siletz River 5 miles downstream of Siletz was excellent throughout the year and outliers are attributed to slightly increased Total Solids and Nutrient values.

**Figure 7. Spatial Trend Analysis Results for the Mid Coast Monitoring Area (WY 1993 – 2002).**



Monitoring Site Key: 1) Alsea River at Thissell Road, 2) Salmon River at Otis, 3) Siletz River 5 miles d/s Siletz, 4) Siuslaw River at HWY 126 (Mapleton), 5) Yaquina River downstream of Chitwood.

Temporal trends indicate significant changes in water quality over time. As mentioned above, the Seasonal-Kendall test is used to account for natural seasonal variations in water quality. This stringent, nonparametric statistical analysis requires at least thirty data points to draw valid conclusions. The magnitude of the trend is calculated by Seasonal Sen Slope. Trend analysis results for the Mid Coast Monitoring Area are presented in Table 8. Although we performed no trend analysis on discharge data, please recall that WY 1996 was marked by extremely high flows and floods, especially in February 1996. This may influence trend analysis results.

Within the Mid Coast Monitoring Area, 20% of the monitored sites had significantly increasing 10 year trends in the OWQI (Table 8). The following section of the report will discuss the 1 site within the Mid Coast Monitoring Area (Alsea River at Thissell Road) that had significant trends.

**Table 9. Significant changes in OWQI variables for the Alsea River at Thissell Road (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	-0.07	95
Nitrogen Subindex	+3.7	90
Total Solids (mg/L)	-7.5	80
Total Solids Subindex	0	NA
Temperature (°C)	-1.7	80
<b>OWQI</b>	<b>+2.9</b>	<b>90</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

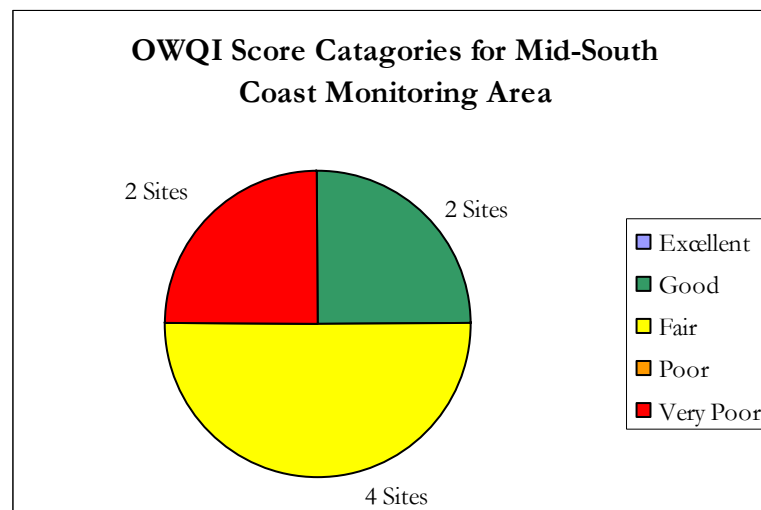
Water quality improved in the Alsea River at Thissell Road (Table 9). The most significant factor in the increase of water quality at the Alsea River at Thissell Road is decreasing Nitrate Nitrogen concentrations, causing an increase in Nitrate Nitrogen Subindex values (Table 9). Decreasing Total Solids concentrations also decreased, but a subsequent decrease in Total Solids Subindex values did not occur.

#### **Mid – South Coast Monitoring Area**

The Mid-South Coast Monitoring Area includes the Siltcoos, Coos, and Coquille basins. This section of the report describes data from 8 DEQ ambient monitoring locations (Table 10). DEQ collects water chemistry data bi-monthly at the monitoring locations. Figure 8 highlights the minimum seasonal average OWQI score by site for the Mid-South Coast Monitoring Area.

Stream water quality varies throughout the year. During the fall, winter, and spring, water quality is excellent at 12 % of sites, good at 38% of sites, and fair at 50% of the sites (Table 10). During the summer, OWQI values were excellent at 12% of sites, good at 50% of sites, fair at 13% of sites, and very poor at 25% of the sites (Table 10).

**Figure 8. OWQI Minimum Seasonal Average Score Categories for Mid-South Coast Monitoring Area.**





**Table 10. Mid-South Coast Monitoring Area OWQI scores (WY 1993 – 2002).**

Site	River Mile	LASAR Number	Summer Average	FWS Average	Minimum Seasonal Average	10 Year Trend
Coquille River at Sturdivant Park Dock	24.5	10596	83	80	80	+5.0 <sup>3</sup>
Floras Creek at HWY 101	4.1	12590	86	82	82	NT
Middle Fork Coquille River at HWY 42	0.2	11485	88	83	83	+5.0 <sup>1</sup>
Millicoma River at Rooke-Higgins Boat Ramp	3.6	13570	52	92	52	NT
North Fork Coquille River at HWY 42	0.2	10393	89	87	87	+2.9 <sup>3</sup>
Sixes River at HWY 101	5.5	10533	91	80	80	+3.1 <sup>2</sup>
South Fork Coos River at Anson Rogers Bridge	2.5	13574	42	87	42	NT
South Fork Coquille River at Broadbent	10.0	11486	86	85	85	NT

Summer: June - September; FWS (Fall, Winter, & Spring): October - May  
 Scores - Very Poor: 10-59, Poor: 60-79, Fair: 80-84, Good: 85-89, Excellent: 90-100

Notes: 1- Significance Level of Seasonal-Kendall trend analysis results equal to 99.

2- Significance Level of Seasonal-Kendall trend analysis results equal to 95.

3- Significance Level of Seasonal-Kendall trend analysis results equal to 90.

Boxplots of OWQI scores for each of the monitoring sites within the Mid-South Coast Monitoring Area are displayed in Figure 9. Each boxplot represents the distribution of OWQI data for the respective monitoring site. Each box contains fifty percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percentiles, respectively, while the horizontal line inside the box represents the median of the data (fiftieth percentile). Additional vertical lines on either end of the box represent further distribution of data. Asterisks represent outliers, or data resulting from anomalous events. In general, longer boxes mean wider distribution of data, or wider variation of water quality. Wider variation of water quality is usually, but not always, seen in streams that are impacted by pollution.

Spatial trends identify changes in water quality throughout a geographic area. By studying the variation in OWQI values, spatial trends in general water quality are apparent.

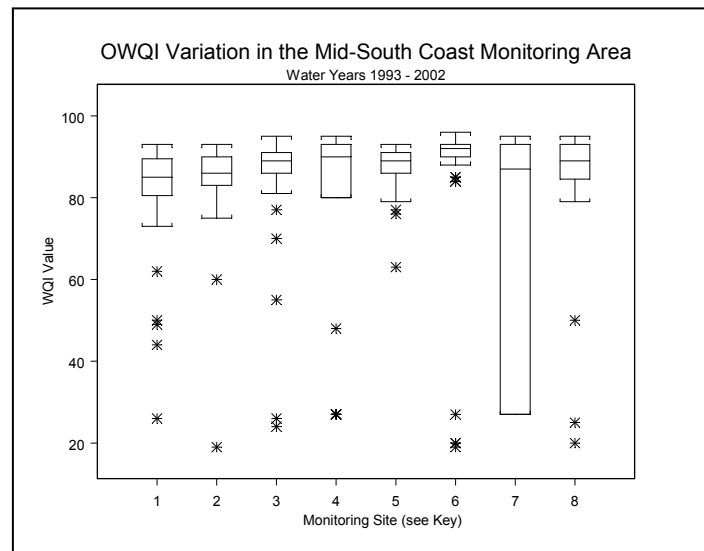
The Sixes River at HWY 101 is relatively free from point or non-point pollution during the summer months. Low outliers in the distribution of OWQI scores can be attributed to high Total Solids and Total Phosphate values during a couple of high precipitation events of the fall, winter, and spring period.

The South Fork Coos River at Anson Rogers Bridge and the Millicoma River at Rooke-Higgins Boat Ramp had the greatest variation in OWQI values within the Mid-South Coast Monitoring area. High Temperature, Total Solids, and BOD concentrations as well as low DO values contributed to low summer OWQI scores. It is important to note that during low flow times of the year, ODEQ may sample a portion of the tidal wedge at the Millacoma River and South Fork Coos River sites. Sampling the tidal wedge would contribute to higher total solids concentrations and lower dissolved oxygen concentrations, hence lowering OWQI scores.

The four Coquille River system sites (Coquille River at Sturdivant Park Dock, Middle Fork Coquille River at HWY 42, North Fork Coquille River at HWY 42, and South Fork Coquille

River at Broadbent) and the Floras Creek at HWY 101 exhibited higher water quality in the summer than the fall, winter, and spring period. Elevated bacteria concentrations during the fall, winter, and spring period lowered OWQI values. High Total Solids concentrations throughout the year contributed to lower OWQI scores in general for the Coquille River system and Floras Creek.

**Figure 9. Spatial Trend Analysis Results for the Mid-South Coast Monitoring Area.**



Monitoring Key: 1) Coquille River at Sturdivant Park Dock, 2) Floras Creek at HWY 101, 3) Middle Fork Coquille at HWY 42, 4) Millicoma River at Rooke-Higgins Boat Ramp, 5) North Fork Coquille River at HWY 42, 6) Sixes River at HWY 101, 7) South Fork Coos River at Anson Rodgers Bridge, 8) South Fork Coquille River at Broadbent

Temporal trends indicate significant changes in water quality over time. As mentioned above, the Seasonal-Kendall test is used to account for natural seasonal variations in water quality. This stringent, nonparametric statistical analysis requires at least thirty data points to draw valid conclusions. The magnitude of the trend is calculated by Seasonal Sen Slope. Trend analysis results for the Mid-South Coast Monitoring Area are presented in Table 10. Although we performed no trend analysis on discharge data, please recall that WY 1996 was marked by extremely high flows and floods, especially in February 1996. This may influence trend analysis results.

Within the Mid-South Coast Monitoring Area, 50% of the monitored sites had significantly increasing 10 year trends in the OWQI (Table 10). The following section of the report will discuss the 4 sites within the Mid-South Coast Monitoring Area (Coquille River at Sturdivant Park Dock, Middle Fork Coquille River at HWY 42, North Fork Coquille River at HWY 42, Sixes River at HWY 101) that had significant trends.

**Table 11. Significant changes in OWQI variables for the Coquille River at Sturdivant Park Dock (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	0	NA
Nitrogen Subindex	+1.7	80
pH (SU)	+0.06	95
<b>OWQI</b>	<b>+5.0</b>	<b>90</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.  
2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Coquille River at Sturdivant Park Dock (Table 11). The most significant factor in the increase of water quality at the Coquille River at Sturdivant Park Dock is decreasing Nitrogen Subindex values (Table 11).

**Table 12. Significant changes in OWQI variables for the Middle Fork Coquille River at HWY 42 (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
Total Solids (mg/L)	-10.9	95
Total Solids Subindex	+7.7	95
Temperature (°C)	-1.8	90
<b>OWQI</b>	<b>+5.0</b>	<b>99</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column  
2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the Middle Fork Coquille River at HWY 42 (Table 12). The most significant factor in the increase of water quality at the Middle Fork Coquille River at HWY 42 is decreasing Total Solids concentrations, causing an increase in Total Solids Subindex values (Table 12).

**Table 13. Significant changes in OWQI variables for the North Fork Coquille River at HWY 42 (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
BOD	-0.31	80
BOD Subindex	+5.6	80
DO Concentration (mg/L)	+0.5	80
DO Saturation (%)	-2.4	80
DO Subindex	0	NA
Ammonia Nitrogen (mg/L)	0	NA
Nitrate Nitrogen (mg/L)	0	NA
Nitrogen Subindex	+3.3	80
Total Phosphate (mg/L)	-0.01	99
Total Phosphate Subindex	+4.3	99
Temperature (°C)	-2.9	99
<b>OWQI</b>	<b>+2.9</b>	<b>90</b>

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.  
2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the North Fork Coquille River at HWY 42 (Table 13). The most significant factor in the increase of water quality at the North Fork Coquille River at HWY is decreasing BOD concentrations, causing an increase in BOD Subindex values (Table 13). Decreasing Total Phosphate concentrations also contributed to increasing Total Phosphate Subindex values.

**Table 14. Significant changes in OWQI variables for the Sixes River at HWY 101 (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
<b>BOD</b>	-0.61	99
<b>BOD Subindex</b>	+11.1	99
<b>Ammonia Nitrogen (mg/L)</b>	0	NA
<b>Nitrate Nitrogen (mg/L)</b>	-0.08	99
<b>Nitrogen Subindex</b>	+3.3	99
<b>OWQI</b>	+3.1	95

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in "Variable" column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

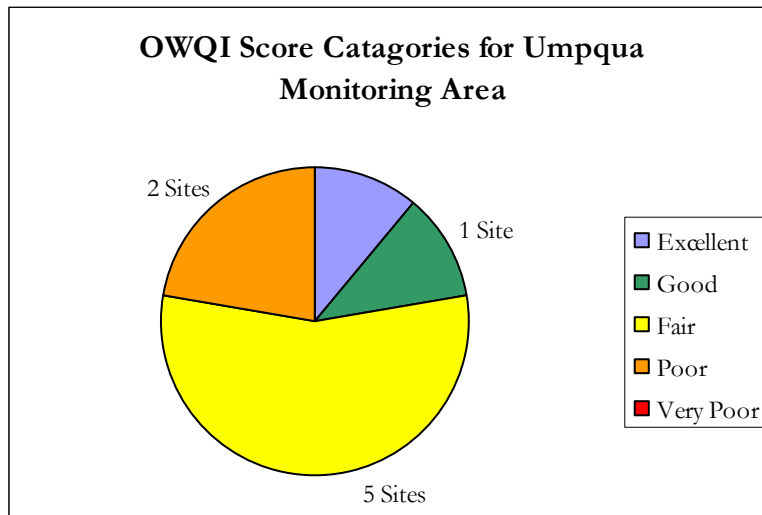
Water quality improved in the Sixes River at HWY 101 (Table 14). The most significant factor in the increase of water quality at the Sixes River at HWY 101 is decreasing BOD concentrations, causing an increase in BOD Subindex values (Table 14). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values.

### **Umpqua Monitoring Area**

The Umpqua Monitoring Area is the entire Umpqua basin. This section of the report describes data from 9 DEQ ambient monitoring locations (Table 15). DEQ collects water chemistry data bi-monthly at the monitoring locations. Figure 10 highlights the minimum seasonal average OWQI score by site for the Umpqua Monitoring Area.

Stream water quality varies throughout the year. During the fall, winter, and spring, water quality is excellent at 22% of sites, good at 67% of sites, and fair at 11% of the sites (Table 15). During the summer, OWQI values were excellent at 11% of sites, good at 11% of sites, fair at 56% of sites, and poor at 22% of the sites (Table 15).

**Figure 10. OWQI Minimum Seasonal Average Score Categories for Umpqua Monitoring Area.**



**Table 15. Umpqua Monitoring Area OWQI scores (WY 1993 – 2002).**

Site	River Mile	LASAR Number	Summer Average	FWS Average	Minimum Seasonal Average	10 Year Trend
Calapooya Creek at Umpqua	0.4	10996	83	80	80	NT
Cow Creek at Mouth (Riddle)	0.3	10997	79	88	79	NT
Elk Creek at Elkton	0.2	10441	84	87	84	NT
North Umpqua River at Garden Valley Road	1.8	10451	90	91	90	+2.5 <sup>1</sup>
South Umpqua River at Days Creek Cutoff Road	55.5	11484	81	90	81	NT
South Umpqua River at HWY 42 (Winston)	21.2	10443	80	87	80	NT
South Umpqua River at Melrose Road	5.1	10442	62	85	62	NT
South Umpqua River at Stewart Park Road (Roseburg)	10.7	11522	80	87	80	NT
Umpqua River at Elkton	48.4	10437	87	87	87	NT

Summer: June - September; FWS (Fall, Winter, & Spring): October - May  
 Scores - Very Poor: 10-59, Poor: 60-79, Fair: 80-84, Good: 85-89, Excellent: 90-100

Notes: 1- Significance Level of Seasonal-Kendall trend analysis results equal to 95.

Boxplots of OWQI scores for each of the monitoring sites within the Umpqua Monitoring Area are displayed in Figure 11. Each boxplot represents the distribution of OWQI data for the respective monitoring site. Each box contains fifty percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percent of the data. The upper and lower boundaries of each box define the seventy-fifth and twenty-fifth percentiles, respectively, while the horizontal line inside the box represents the median of the data (fiftieth percentile). Additional vertical lines on either end of the box represent further distribution of data. Asterisks represent outliers, or data resulting from anomalous events. In general, longer boxes mean wider distribution of data, or wider variation of water quality. Wider variation of water quality is usually, but not always, seen in streams that are impacted by pollution.

Spatial trends identify changes in water quality throughout a geographic area. By studying the variation in OWQI values, spatial trends in general water quality are apparent.

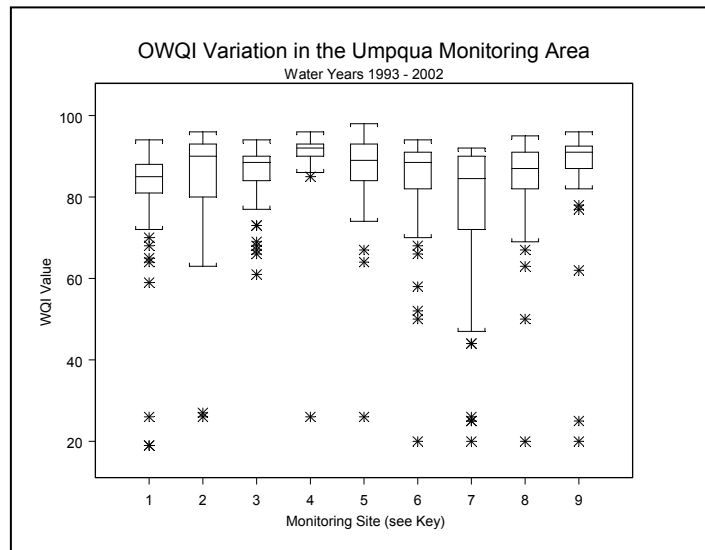
The North Umpqua River at Garden Valley Road had low variation in OWQI scores. Moderate levels of BOD slightly decreased water quality.

The South Umpqua system sites (South Umpqua at Days Creek Cutoff Road, South Umpqua River at HWY 42 (Winston) South Umpqua River at Stewart Park Road (Roseburg), and South Umpqua River at Melrose Road) decreased in water quality from upstream to downstream. Elevated Total Solid concentrations year round contributed to lowering OWQI scores. In addition, high temperature, high pH, and supersaturation of DO decreased water quality at all South Umpqua sites in the summer. A jump in Total Phosphate concentrations at the South Umpqua at Melrose Road site contributed to a wide distribution in OWQI scores.

The mainstem Umpqua River as sampled at the Umpqua River at Elkton maintained relatively similar OWQI scores throughout the year. Moderate BOD and Total Solids concentrations contributed to lowering water quality throughout the year.

DEQ monitored a couple of tributaries to the Umpqua River system. The water quality at all three tributary sites (Calapooya Creek at Umpqua, Cow Creek at Mouth (Riddle), and Elk Creek at Elkton) was affected by elevated Total Solids concentrations throughout the year. Elk Creek and Calapooya Creek water quality were also affected by high year round Bacteria concentrations. DO supersaturation, high stream Temperatures and pH contributed to lower water quality during the summer in Cow Creek at Mouth (Riddle).

**Figure 11. Spatial Trend Analysis Results for the Umpqua Monitoring Area (WY 1993 – 2002).**



Monitoring Key: 1) Calapooya Creek at Umpqua, 2) Cow Creek at Mouth (Riddle), 3) Elk Creek at Elkton, 4) North Umpqua River at Garden Valley Road, 5) South Umpqua River at Days Creek Cutoff Road, 6) South Umpqua River at HWY 42 (Winston), 7) South Umpqua River at Melrose Road, 8) South Umpqua River at Stewart Park Road (Roseburg), 9) Umpqua River at Elkton.

Temporal trends indicate significant changes in water quality over time. As mentioned above, the Seasonal-Kendall test is used to account for natural seasonal variations in water quality. This stringent, nonparametric statistical analysis requires at least thirty data points to draw valid conclusions. The magnitude of the trend is calculated by Seasonal Sen Slope. Trend analysis results for the Umpqua Monitoring Area are presented in Table 15. Although we performed no trend analysis on discharge data, please recall that WY 1996 was marked by extremely high flows and floods, especially in February 1996. This may influence trend analysis results.

Within the Mid-South Coast Monitoring Area, 11% of the monitored sites had significantly increasing 10 year trends in the OWQI (Table 15). The following section of the report will discuss the 1 site within the Umpqua Monitoring Area (North Umpqua River at Garden Valley Road) that had significant trends.

**Table 16. Significant changes in OWQI variables for the North Umpqua River at Garden Valley Road (WY 1993 – 2002).**

<i>Variable</i>	<i>Magnitude<sup>1</sup></i>	<i>S.L.<sup>2</sup></i>
<b>DO Concentration (mg/L)</b>	0	NA
<b>DO Saturation (%)</b>	-2.5	80
<b>DO Subindex</b>	+2.0	80
<b>Ammonia Nitrogen (mg/L)</b>	0	NA
<b>Nitrate Nitrogen (mg/L)</b>	-0.02	99
<b>Nitrogen Subindex</b>	+1.5	99
<b>pH (SU)</b>	+0.2	90
<b>OWQI</b>	+2.5	95

Notes: 1 - Magnitude of change during WY 1993-2002. Units in parentheses in “Variable” column.

2 - Significance Level of Seasonal-Kendall trend analysis results.

Water quality improved in the North Umpqua at Garden Valley Road (Table 16). The most significant factor in the increase of water quality at the North Umpqua River at Garden Valley Road is increased DO Subindex values caused by decreasing DO Saturation levels (Table 16). Decreasing Nitrate Nitrogen concentrations also contributed to increasing Nitrogen Subindex values.



## Conclusions

Oregon DEQ assessed water quality through the use of Oregon Water Quality Index at 31 ambient monitoring sites throughout the Coastal Coho ESU. The majority of stream sites would be categorized as having fair to good water quality. Throughout all reporting units, water quality as measured through OWQI was generally better in the fall, winter, and spring period as compared to the summer months. Over the period 1993 – 2002, 39% (12/31) of the sites within the entire Coastal Coho ESU had significantly improving trends in water quality.

Throughout the North Coast Monitoring Area, the majority of stream sites would be categorized as good to excellent. It appeared that slightly elevated nutrient and Total Solids concentrations reduced OWQI scores at many sites. The driving force behind improving water quality trends (WY 1993 – 2002) at 5 sites was decreasing Nitrate Nitrogen concentrations that caused increases in the Nitrogen Subindex values. Decreased Total Solids concentrations also played a large roll in improved water quality at sites with significantly increasing trends.

The Mid Coast Monitoring Area is characterized by streams with good to excellent water quality. When compared with other monitoring areas within the Coastal Coho ESU, sites within the Mid Coast Monitoring Area showed the least variability in OWQI scores. The one site with significant trends, Alsea River at Thissell Road, had decreasing Nitrate Nitrogen concentrations that improved water quality.

The majority of sites within the Mid – South Monitoring Area can be described as having fair to good water quality as indicated through OWQI scores. Elevated bacteria concentrations at all the Coquille River system sites as well as the Floras Creek site contributed to lowering OWQI scores. Declining Total Solids and nutrient levels were the driving force behind all four sites (Sixes River at HWY 101, North Fork Coquille at HWY 42, Middle Fork Coquille at HWY 42, and Coquille River at Sturdivant Park Dock) with significantly improving water quality trends.

The Umpqua Monitoring Area sites exhibited high seasonal variability of OWQI scores. The majority of sites were good to excellent within fall, winter, and spring period and poor to fair within the summer months. Almost all, 89% (8/9) sites had lower OWQI scores in the summer when compared to the fall, winter, and spring period. Elevated Total Solids concentrations depressed OWQI scores at every site within the Umpqua Monitoring Area (89% - 8/9) except for the North Umpqua River at Garden Valley Road. Water Quality declined from upstream to downstream within the South Umpqua system. It is important to note that from water years 1986 to 1995 the South Umpqua River at Melrose Road had significantly increasing trends in water quality (Cude 1996). Fall, winter, and spring OWQI average score has increased by 11 points (shift from poor to good water quality).

## References

- Aroner, E., 2001. WQHydro – Water Quality/Hydrology Graphics/Analysis System – User's Manual. WQHydro Consulting, Portland, Oregon.
- Cude, C. G., 1996. Oregon Water Quality Index Report for Umpqua Basin, Water Years 1986 – 1995.
- Cude, C. G., 2001. Oregon Water Quality Index: A Tool for Evaluating Water Quality Management Effectiveness. *Journal of the American Water Resources Association*, 37(1): 125-137.
- Cude, C. G., in press. Relationship between Fecal Coliform and *Escherichia coli* for Oregon's Rivers and Streams.

# Appendix 1 - North Coast



# **Necanicum River at Riverside Lake Camp**

SAMPLE_DATE	10/12/1992	12/16/1992	03/10/1993	06/09/1993	09/22/1993	12/15/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995
SAMPLE_TIME	13:30	14:10	15:00	14:15	13:15	12:35	11:00	13:35	14:00	13:40
Alkalinity Field (mg/L)	15	9		12	15	8	13		8	8
Ammonia (mg/L)	0.02	0.020	0.020	0.030	0.030	0.040	0.02	0.03	0.02	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.0	1.3	1.9	1.1	0.9	1.2	0.8	0.3	0.5	0.9
Chemical Oxygen Demand (mg/L)	<5	10		6	<5	6	<5		<5	<5
Chlorophyll a (µg/L)				1.3	0.4		1.0			
Conductivity Field (µmhos/cm)	74	50		52	57	54	50		49	43
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	79	17	13	41	140	23	110	540	23	14
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.200		0.200	<0.200	<0.200	<0.2		0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.04	0.47	0.41	0.21	0.10	0.66	0.24	0.31	0.59	0.42
Orthophosphate Dissolved (mg/L as P)	0.006	0.008		<0.005	<0.005	<0.005	<0.005			<0.005
Oxygen, total dissolved Field (mg/L)	10.0	12.2	11.6	10.7	10.3	11.7	10.6	9.8	11.8	11.6
Oxygen, total dissolved Percent Saturation Field (%)	93	98	104	102	102	101	100	98	94	103
pH Field (SU)	7.2	7	6.9	7.30	7	7	7.0	7.2	7.1	6.9
Pheophytin a (µg/L)				2	0.90		1.5			
Phosphate Total (mg/L as P)	0.01	0.010	0.010	0.030	0.020	0.020	<0.01	0.02	0.02	0.02
Solids Total (mg/L)	68	45	44	53	59	56	45	58	48	48
Solids Total Suspended (mg/L)	<1	<1		3	<1	<1	<1			<1
Temperature Field (°C)	12.5	6	11	13.5	15.5	9	13.0	16.0	6.0	10.0
Turbidity Field (NTU)	1 Est	1		2	1	1	1		1	2
SAMPLE_DATE	06/21/1995	09/13/1995	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	12/10/1997
SAMPLE_TIME	15:00	12:35	12:10	13:45	14:30	14:15	13:30	11:40	14:25	12:20
Alkalinity Field (mg/L)	11	17	9	11	14	8	4	10	16	8
Ammonia (mg/L)	0.04	0.04	0.020	0.020	0.050	<0.020	0.040	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.6	0.5	0.4	0.3	0.1	0.3	0.8	0.5	0.5
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	12	<5	<5	<5	<5
Chlorophyll a (µg/L)	4.0	2		3	0.8			1.5	2.1	
Conductivity Field (µmhos/cm)	48	62	51	54	66	45	34	49	62	47
E. Coli MTEC (CFU/100 ml)			16 Est.	72 Est.	600	20 Est.	165	195	520	64 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	79	920	12 Est.	100	900	20 Est.	380 Est.	200	520	72 Est.
Kjeldahl Nitrogen Total (mg/L)	0.4	<0.2	<0.200	0.200	<0.200	<0.200	0.200	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.17	0.09	0.31	0.12	0.12	0.51	0.38	0.29	0.12	0.47
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	10.6	8.6	11.8	10.6	8.9	11.2	10.9	11.0	9.5	11.7
Oxygen, total dissolved Percent Saturation Field (%)	102	90	103	104	92	94	95	103	99	99
pH Field (SU)	7.2	7.0	7	7.30	7	7	6.80	7.0	7	7.1
Pheophytin a (µg/L)	4.7	4		2.20	1.70			1.8	3.9	
Phosphate Total (mg/L as P)	0.01	<0.01	0.010	0.010	0.010	0.020	0.140	0.01	0.01	0.01
Solids Total (mg/L)	47	53	30	45	49	40	100 Est.	26	45	48
Solids Total Suspended (mg/L)	<1	<1	<1	<1	<1	2	70	1	<1	1
Temperature Field (°C)	14.0	17.5	9.5	15.2	16.9	8	9.3	12.6	17.5	8.1
Turbidity Field (NTU)	2	1	1	<1	1	2	54	1	2	3

# **Necanicum River at Riverside Lake Camp**

SAMPLE_DATE	03/18/1998	07/08/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/25/1999	07/21/1999	09/22/1999	11/03/1999
SAMPLE_TIME	14:20	15:10	15:00	12:45	14:50	13:40	10:40	14:30	14:30	13:30
Alkalinity Field (mg/L)	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667	45.95241667
Ammonia (mg/L)	10	12	15	8	8	8	10	11	14	10
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	<0.02	0.02	0.02	<0.02	<0.02	<0.02	0.07	<0.02	0.02	<0.02
Chemical Oxygen Demand (mg/L)	0.9	0.5	0.5	1.1	1.4	2.0	0.6	1.0	0.1	0.7
Chlorophyll a (µg/L)	<5	<5	5	<5	<5	<5	<5	<5	<5	5
Conductivity Field (µmhos/cm)		2.9	0.7				0.9	0.4	0.7	
E. Coli MTEC (CFU/100 ml)	48	55	67	52	48	48	51	56	66	62
Fecal Coliform Membrane filter (CFU/100 ml)	4 Est.	62	94	90	22 Est	10 est	60	34 Est.		74
Kjeldahl Nitrogen Total (mg/L)	6 Est.	74	114	70	32 Est	12 est	50	48	53	72
Nitrate/nitrite Dissolved (mg/L as N)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Orthophosphate Dissolved (mg/L as P)	0.36	0.16	0.09	0.66	0.49	0.344	0.230	0.142	0.0887	0.407
Oxygen, total dissolved Field (mg/L)	<0.005	<0.005	<0.005	<0.005	0.004	<0.005	0.007	<0.005	<0.005	0.005
Oxygen, total dissolved Percent Saturation Field (%)	12.2	11	9.0	11.4	12.0	12.1	10.6	10.1	9.3	11.2
pH Field (SU)	109	109	93	100	98	102	98	100	92	95
Pheophytin a (µg/L)	7.3	7.4	7.1	7.0	7.2	7.1	6.8	7.1	7.0	7.1
Phosphate Total (mg/L as P)		1.1	0.8				1.5	0.7	0.3	
Solids Total (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01
Solids Total Suspended (mg/L)	40	44	62	48	41	42	45	44	39	59
Temperature Field (°C)	<1	<1		2	4	<1	1	<1	1	<1
Turbidity Field (NTU)	10.6	15.5	17.2	9.7	7.1	8.0	11.9	15.6	15.3	8.4
	1	1	1	2	3	3	4	1	2	1
SAMPLE_DATE	01/13/2000	03/29/2000	05/24/2000	07/12/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001	08/01/2001
SAMPLE_TIME	12:55	13:40	14:35	12:20	12:15	12:55	12:10	11:40	13:45	14:10
Alkalinity Field (mg/L)	6	9	9		15	8	8	7	9	13
Ammonia (mg/L)	0.04	<0.02	0.03	0.02	0.03	<0.02	0.03	0.02	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.1	1.1	0.6	0.3	0.4	1.4	0.9	2.1	3.8	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5		<5	5	<5	5	22	<5
Chlorophyll a (µg/L)			0.3		0.2				1.0	0.9
Conductivity Field (µmhos/cm)	46	50	51		59	51	54	54	47	63
E. Coli MTEC (CFU/100 ml)	22EST'	2EST'	14EST'		30EST'	26EST'	6EST'	<2	40	26EST'
Fecal Coliform Membrane filter (CFU/100 ml)	42	<2	12EST'	16	28EST'	30EST'	4EST'	6EST'	30EST'	40
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.403	0.277	0.240	0.144	0.106	0.519	0.503	0.451	0.373	0.135
Orthophosphate Dissolved (mg/L as P)	0.005	<0.005	<0.005		<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	12.0	12.1	10.8	10.1	8.9	11.3	11.9	12.4	11.0 EST'	10.4
Oxygen, total dissolved Percent Saturation Field (%)	98	103	104	99	92	96	99	103	99 EST'	103
pH Field (SU)	6.9	7.2	7.2	7.1	7.0	7.0	7.1	7.0	7.1	7.2
Pheophytin a (µg/L)			0.5		0.3				1.2	1.3
Phosphate Total (mg/L as P)	0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	0.01	<0.01
Solids Total (mg/L)	38	58	39	44	57	35	45	47	55	52
Solids Total Suspended (mg/L)	1	1	<1		<1	<1	<1	<1	3	<1
Temperature Field (°C)	7.2	8.3	14.2	15.2	17.0	8.5	7.4	7.3	10.9	15.5
Turbidity Field (NTU)	3	1.0	2.8		1	1	1	2	3	1

## **LASAR:10521**

# **Necanicum River at Riverside Lake Camp**

# **LASAR:10521**

SAMPLE_DATE	01/13/2000	03/29/2000	05/24/2000	07/12/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001	08/01/2001
SAMPLE_TIME	12:55	13:40	14:35	12:20	12:15	12:55	12:10	11:40	13:45	14:10
Alkalinity Field (mg/L)	6	9	9		15	8	8	7	9	13
Ammonia (mg/L)	0.04	<0.02	0.03	0.02	0.03	<0.02	0.03	0.02	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.1	1.1	0.6	0.3	0.4	1.4	0.9	2.1	3.8	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5		<5	5	<5	5	22	<5
Chlorophyll a (µg/L)			0.3		0.2				1.0	0.9
Conductivity Field (µmhos/cm)	46	50	51		59	51	54	54	47	63
E. Coli MTEC (CFU/100 ml)	22EST'	2EST'	14EST'		30EST'	26EST'	6EST'	<2	40	26EST'
Fecal Coliform Membrane filter (CFU/100 ml)	42	<2	12EST'	16	28EST'	30EST'	4EST'	6EST'	30EST'	40
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.403	0.277	0.240	0.144	0.106	0.519	0.503	0.451	0.373	0.135
Orthophosphate Dissolved (mg/L as P)	0.005	<0.005	<0.005		<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	12.0	12.1	10.8	10.1	8.9	11.3	11.9	12.4	11.0 EST	10.4
Oxygen, total dissolved Percent Saturation Field (%)	98	103	104	99	92	96	99	103	99 EST	103
pH Field (SU)	6.9	7.2	7.2	7.1	7.0	7.0	7.1	7.0	7.1	7.2
Pheophytin a (µg/L)			0.5		0.3				1.2	1.3
Phosphate Total (mg/L as P)	0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	0.01	<0.01
Solids Total (mg/L)	38	58	39	44	57	35	45	47	55	52
Solids Total Suspended (mg/L)	1	1	<1		<1	<1	<1	<1	3	<1
Temperature Field (°C)	7.2	8.3	14.2	15.2	17.0	8.5	7.4	7.3	10.9	15.5
Turbidity Field (NTU)	3	1.0	2.8		1	1	1	2	3	1
SAMPLE_DATE	09/26/2001	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/08/2002	09/18/2002			
SAMPLE_TIME	11:30	12:20	12:30	12:50	13:30	15:00	11:02			
Alkalinity Field (mg/L)	14	6	7	5	11	12	16			
Ammonia (mg/L)	0.03	0.04	0.03	<0.02	0.02	<0.02	<0.02			
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	1.5	0.2	1.0	0.8	0.2	<0.1			
Chemical Oxygen Demand (mg/L)	5	18	<5	<5	<5	<5	<5			
Chlorophyll a (µg/L)	1.2				0.4	0.6	0.3			
Conductivity Field (µmhos/cm)	63	39	46	52	53	58	70			
E. Coli MTEC (CFU/100 ml)	540	500EST'	10EST'	14EST'	4est	55	>2419			
Fecal Coliform Membrane filter (CFU/100 ml)	730	900EST'	10EST'	8EST'	8est					
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Nitrate/nitrite Dissolved (mg/L as N)	0.119	0.359	0.538	0.379	0.215	0.134	0.0844			
Orthophosphate Dissolved (mg/L as P)	0.007Est	0.005	0.006	<0.005	<0.005	<0.005	<0.005			
Oxygen, total dissolved Field (mg/L)	9.3	11.0	11.3	11.7	11.9	9.8	8.5			
Oxygen, total dissolved Percent Saturation Field (%)	89	94	97	96	104	101	83			
pH Field (SU)	7.1	7.0	6.8	6.6	7.1	7.1	7.0			
Pheophytin a (µg/L)	2.3				0.4	0.9	1.0			
Phosphate Total (mg/L as P)	0.02	0.16	0.03	<0.01	<0.01	0.01	0.01			
Solids Total (mg/L)	47	140	39	33	37	45	57			
Solids Total Suspended (mg/L)	2	98	6	<1	<1	1	<1			
Temperature Field (°C)	14.0	8.4	8.8	7.0	9.5	17.0	15.0			
Turbidity Field (NTU)	2	76	7	<1	1	1	2			

# Nestucca River at Cloverdale

LASAR: 10523

SAMPLE_DATE	10/13/1992	12/16/1992	03/10/1993	06/09/1993	09/22/1993	12/15/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995
SAMPLE_TIME	12:20	09:15	09:50	09:00	08:15	09:15	07:50	18:20	09:40	09:45
Alkalinity Field (mg/L)	34	21	21	25	31	20	26	29	19	18
Ammonia (mg/L)	0.030	0.020	0.020	0.020	0.020	0.070	0.02	0.050	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.5	1.4	1.8	1.1	1.1	1.2	0.6	0.7	0.8	0.7
Chemical Oxygen Demand (mg/L)	7	10	<5	5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)				0.8	0.7		1.6	2		
Conductivity Field (µmhos/cm)	101	77	75	77	86	76	76	91	106	68
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	79	33	33	170	49	130	250	170	49	49
Kjeldahl Nitrogen Total (mg/L)	0.200	0.200	0.200	0.200	0.200	0.200	<0.2	0.500	0.3	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.41	1.10	0.97	0.68	0.42	1.20	0.67	0.50	1.2	0.83
Orthophosphate Dissolved (mg/L as P)	0.011	0.018	0.016	0.015	0.010	0.015	0.013	0.013		0.019
Oxygen, total dissolved Field (mg/L)	10.4	12.2	11.5	10.4	9.7	11.7	9.6	10.5	11.8	11.7
Oxygen, total dissolved Percent Saturation Field (%)	98	98	99	98	87	100	91	108	94	101
pH Field (SU)	7.30	7.20	7.30	7.50	7.30	7.40	7.2	7.50	7.3	7.3
Pheophytin a (µg/L)				1.30	2.50		4.1	5.30		
Phosphate Total (mg/L as P)	0.020	0.040	0.030	0.030	0.030	0.030	0.02	0.040	0.12	0.06
Solids Total (mg/L)	80	65	70	58	75	70	64	76	93	65
Solids Total Suspended (mg/L)	1	1	<1	4	2	4	1	<1	6	9
Temperature Field (°C)	13	6	9	13	11	8.5	13.0	17	6.0	9.0
Turbidity Field (NTU)	<1	2	1	1	1	4	2	2	4	11
SAMPLE_DATE	06/21/1995	08/08/1995	09/13/1995	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997
SAMPLE_TIME	10:45	14:00	08:35	08:30	09:40	10:25	09:25	09:40	08:00	09:50
Alkalinity Field (mg/L)	24		34	21	25	29	18	16	23	29
Ammonia (mg/L)	0.05	0.02	0.02	<0.020	0.020	0.030	0.030	0.020	<0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.5	0.9	0.3	1.5	0.7	0.5	0.6	1.0	0.7
Chemical Oxygen Demand (mg/L)	<5		<5	<5	6	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	7.7		4		13	2.6				1.6
Conductivity Field (µmhos/cm)	75		92	74	79	92	67	60	77	89
E. Coli MTEC (CFU/100 ml)				40 Est.	88	220	36 Est.	160 Est.	135	110
Fecal Coliform Membrane filter (CFU/100 ml)	130	240	130	160	116	260	130	60 Est.	245	190
Kjeldahl Nitrogen Total (mg/L)	0.4		0.4	<0.200	0.300	0.200	0.400	<0.200	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.51	0.52	0.48	0.67	0.31	0.22	0.87	0.59	0.43	0.33
Orthophosphate Dissolved (mg/L as P)	0.014		0.017	0.013	<0.005	<0.005	0.018	0.014	0.010	0.012
Oxygen, total dissolved Field (mg/L)	10.5	9.6	8.6	11.6	10.5	8.6	11.3	11	9.9	8.6
Oxygen, total dissolved Percent Saturation Field (%)	99	97	89	99	99	86	94	96	93	89
pH Field (SU)	7.3	7.3	7.2	7.40	7.70	7.30	7.40	7.40	7.3	7.4
Pheophytin a (µg/L)	20		16		9.40	7.20				5.8
Phosphate Total (mg/L as P)	0.03	0.04	0.03	0.030	0.020	0.020	0.130	0.060	0.03	0.03
Solids Total (mg/L)	58	76	74	51	61	58	89	76 Est.	60	49
Solids Total Suspended (mg/L)	2		1	3	1	1	27	15	2	<1
Temperature Field (°C)	13.0	16.5	17.0	8.5	13	16.2	7.7	9.5	13.0	17
Turbidity Field (NTU)	4		1	5	1	1	35	18	2	1



# **Nestucca River at Cloverdale**

	12/10/1997	03/18/1998	07/08/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	08/11/1999
SAMPLE_DATE	08:12	09:20	09:15	09:05	08:15	08:50	07:40	07:40	08:20	16:00
SAMPLE_TIME	20	20	26	29	17	19	18	22	24	25
Alkalinity Field (mg/L)	0.03	<0.02	0.02	0.02	0.02	<0.02	0.05	0.02	0.03	0.04
Ammonia (mg/L)	0.2	1.1	0.6	1.1	1.4	1.1	1.4	1.4	0.6	1.0
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	6	<5	<5	5	6	<5	<5	5	<5	<5
Chemical Oxygen Demand (mg/L)			2.4	1.1				1.5	1.3	0.7
Chlorophyll a (µg/L)	75	73	83	92	75	70	68	73	81	90
Conductivity Field (µmhos/cm)	140	12 Est.	128	138	370	10 Est	154	38 Est.	260	
E. Coli MTEC (CFU/100 ml)	160	10 Est.	108	178	100est	8 Est	310	56	320	184
Fecal Coliform Membrane filter (CFU/100 ml)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Kjeldahl Nitrogen Total (mg/L)	0.78	0.76	0.43	0.38	0.92	0.89	0.650	0.503	0.268	0.295
Nitrate/nitrite Dissolved (mg/L as N)	0.020	0.016	0.010	0.012	0.013	0.016	0.013	0.017	0.013	0.016
Orthophosphate Dissolved (mg/L as P)	11.1	12.1	9.5	8.3	11.2	12.1	11.8	10.7	9.0	10.2
Oxygen, total dissolved Field (mg/L)	92	102	93	82	97	99	96	95	89	105
Oxygen, total dissolved Percent Saturation Field (%)	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.4	7.3	7.4
pH Field (SU)			3.6	2.9				3.0	3.0	1.8
Pheophytin a (µg/L)	0.03	0.03	0.02	0.03	0.04	0.05	0.03	0.03	0.02	0.03
Phosphate Total (mg/L as P)	51	59	63	69	67	66	55	57	64	66
Solids Total (mg/L)	2	2	<1		6	12	5	<1	1	1
Solids Total Suspended (mg/L)	7.6	7.9	15	15.7	9.1	6.7	6.3	10.1	15.4	17.1
Temperature Field (°C)	4	4	2	2	6	13	10	2.2	2	1
Turbidity Field (NTU)										
SAMPLE_DATE	09/22/1999	11/03/1999	01/13/2000	03/29/2000	05/24/2000	07/13/2000	09/12/2000	11/29/2000	01/23/2001	03/21/2001
SAMPLE_TIME	09:05	09:00	08:35	08:45	08:50	09:30	15:55	09:05	15:25	15:40
Alkalinity Field (mg/L)	28	22	15	20	21	23		21	21	19
Ammonia (mg/L)	0.03	0.04	0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	1	1.0	1.2	1.0	0.8	0.7	0.4	2.0	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5		5	<5	<5
Chlorophyll a (µg/L)	0.5				0.8	2.1				
Conductivity Field (µmhos/cm)	91	89	67	71	74	80		76	80	76
E. Coli MTEC (CFU/100 ml)		54	158	10EST	46	260		68	10EST	8EST
Fecal Coliform Membrane filter (CFU/100 ml)	95	66	160	4EST	40	210	52	72	16EST	18EST
Kjeldahl Nitrogen Total (mg/L)	0.7	<0.2	<0.2	<0.2	<0.2	0.3		<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.324	0.774	0.705	0.538	0.452	0.301	0.335	0.855	0.746	0.843
Orthophosphate Dissolved (mg/L as P)	0.017	0.014	0.020	0.014	0.015	0.011		0.009	0.016	0.017
Oxygen, total dissolved Field (mg/L)	8.4	11.2	12.3	12.1	10.4	9.7	9.5	11.2	12.0	11.9
Oxygen, total dissolved Percent Saturation Field (%)	82	93	98	98	96	96	101	92	98	103
pH Field (SU)	7.2	7.3	7.3	7.5	7.4	7.4	7.2	7.4	7.3	7.4
Pheophytin a (µg/L)	0.7				1.5	2.2				
Phosphate Total (mg/L as P)	0.03	0.02	0.06	0.02	0.03	0.02	0.03	0.02	0.02	0.03
Solids Total (mg/L)	60	64	78	69	54	57	61	58	56	54
Solids Total Suspended (mg/L)	<1	<1	16	2	2	1		2	<1	3
Temperature Field (°C)	14.7	7.6	5.9	6.7	12.1	15.7	19.2	7.2	7.1	9.6
Turbidity Field (NTU)	2	1	29	3.1	2.1	1.5		2	2	8

# Nestucca River at Cloverdale

SAMPLE_DATE	05/15/2001	07/31/2001	11/27/2001	01/08/2002	03/05/2002	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	16:00	17:05	15:15	16:30	16:15	15:30	10:30	15:51
Alkalinity Field (mg/L)	20	28	18	15	22	23	26	25
Ammonia (mg/L)	0.03	0.04	<0.02	0.04	<0.02	<0.02	0.04	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.8	1.3	1.3	1.3	1.6	0.5	0.5
Chemical Oxygen Demand (mg/L)	6	<5	<5	<5	<5	<5	<5	6
Chlorophyll a (µg/L)	1.3	0.5				1.1	0.4	1.0
Conductivity Field (µmhos/cm)	69	89	77	65	73	76	84	92
E. Coli MTEC (CFU/100 ml)	296 EST	50	28EST	88	2EST	22EST	118	687
Fecal Coliform Membrane filter (CFU/100 ml)	360 EST	74	30EST	44	6EST	4EST		
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	<0.2	0.5	<0.2	<0.2	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.616	0.374	0.942	0.720	0.658	0.405	0.353	0.394
Orthophosphate Dissolved (mg/L as P)	0.016	0.013	0.018	0.021	0.017	0.011	0.012	0.012
Oxygen, total dissolved Field (mg/L)	11.0	10.5	11.7	11.3	11.7	12.7	9.2	9.9
Oxygen, total dissolved Percent Saturation Field (%)	99	112	96	99	98	112	95	102
pH Field (SU)	7.4	7.5	7.4	7.1	7.3	7.8	7.4	7.5
Pheophytin a (µg/L)	1.4	1.1				0.7	1.4	2.4
Phosphate Total (mg/L as P)	0.03	0.03	0.04	0.14	0.02	0.02	0.02	0.03
Solids Total (mg/L)	74	58	62	92	53	52	64	64
Solids Total Suspended (mg/L)	5	<1	8	40	2	1	2	2
Temperature Field (°C)	10.8	18.9	6.9	9.7	8.0	9.9	16.8	17.2
Turbidity Field (NTU)	6	<1	10	62	4	2	2	3

# LASAR: 10523

# Nehalem River at Foley Road

	10/13/1992	03/10/1993	06/09/1993	09/22/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995	09/13/1995
SAMPLE_DATE	08:55	14:00	13:30	11:40	10:15	14:55	13:00	12:46	13:55	11:05
SAMPLE_TIME	08:55	14:00	13:30	11:40	10:15	14:55	13:00	12:46	13:55	11:05
Alkalinity Field (mg/L)	28	15	19	28	22	26	13	20	30	30
Ammonia (mg/L)	0.020	<0.020	0.020	0.020	<0.02	0.060	0.04	0.03	0.06	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	2.6	1.3	0.9	1.0	0.6	0.8	1.7	0.4	1.0
Chemical Oxygen Demand (mg/L)	12	<5	5	<5	<5	5	<5	<5	<5	<5
Chlorophyll a (µg/L)			0.8	1.1	1.3	6			5.9	12
Conductivity Field (µmhos/cm)	108	62	62	80	62	82	60	48	65	86
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	110	2	130	49	8	23	140	22	8	170
Kjeldahl Nitrogen Total (mg/L)	<0.200	0.200	0.200	0.200	0.3	0.300	0.3	0.2	0.4	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.29	0.62	0.40	0.23	0.42	0.41	0.89	0.59	0.33	0.23
Orthophosphate Dissolved (mg/L as P)	0.007	0.008	0.013	0.009	0.005	0.006		0.010	0.008	0.007
Oxygen, total dissolved Field (mg/L)	10.5	12.5	11.1	9.6	9.7	10.4	12.6	11.9	10.8	8.6
Oxygen, total dissolved Percent Saturation Field (%)	87	112	107	94	97	109	98	103	105	92
pH Field (SU)	7.40	7.40	7.50	7.50	7.5	7.60	7.3	7.2	7.4	7.5
Pheophytin a (µg/L)			1.90	3.70	2.7	10.50			9.6	17
Phosphate Total (mg/L as P)	0.030	0.020	0.050	0.030	0.03	0.030	0.05	0.11	0.02	0.02
Solids Total (mg/L)	88	56	62	70	65	70	73	76	63	65
Solids Total Suspended (mg/L)	1	<1	<1	2	<1	<1		24	2	<1
Temperature Field (°C)	7.5	10.5	14	15	16.0	18	5.0	9.0	14.5	19.5
Turbidity Field (NTU)	1	2	5	<1	1	2		17	4	1
SAMPLE_DATE	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	12/10/1997	03/18/1998	07/08/1998
SAMPLE_TIME	11:15	12:45	13:05	13:15	12:30	10:50	12:50	11:22	13:25	14:10
Alkalinity Field (mg/L)	16	21	27	11	10	19	26	16	15	22
Ammonia (mg/L)	<0.020	0.020	0.030	0.030	0.040	0.03	<0.02	0.02	<0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	0.9	0.5	0.4	0.5	1.2	0.8	1	0.9	0.6
Chemical Oxygen Demand (mg/L)	<5	<5	<5	8	<5	5	6	8	<5	<5
Chlorophyll a (µg/L)		5.7	9.7			3.3	7.3			4.9
Conductivity Field (µmhos/cm)	61	69	91	49	42	65	86	59	56	72
E. Coli MTEC (CFU/100 ml)	4 Est.	4 Est.	28 Est.	64 Est.	100	28 EST	60 Est.	32 Est.	4 Est.	10 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	16 Est.	20 Est.	145	295	120 Est.	16 EST	125	52 Est.	4 Est.	10 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.200	0.200	0.200	<0.200	0.200	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.45	0.18	0.13	0.60	0.49	0.33	0.21	0.57	0.50	0.17
Orthophosphate Dissolved (mg/L as P)	0.008	<0.005	0.005	0.009	0.010	0.005	<0.005	0.014	0.009	<0.005
Oxygen, total dissolved Field (mg/L)	11.8	10.5	8.9	11.7	11.6	10.4	8.8	12.5	12.1	10.4
Oxygen, total dissolved Percent Saturation Field (%)	102	105	93	97	100	102	93	102	107	113
pH Field (SU)	7.40	7.50	7.40	7.10	7.30	7.4	7.4	7.5	7.4	7.5
Pheophytin a (µg/L)		4.70	3.60			5.5	6			1.9
Phosphate Total (mg/L as P)	0.040	0.020	0.020	0.190	0.390	0.02	0.02	0.03	0.02	0.02
Solids Total (mg/L)	44	56	63	73	210 Est.	44	58	51	54	56
Solids Total Suspended (mg/L)	5	1	1	44	150	2	1	6	1	1
Temperature Field (°C)	9	16.2	17.6	7.7	8.8	15.2	18	7	10	19.9
Turbidity Field (NTU)	6	<1	1	42	121	2	2	6	4	1

# Nehalem River at Foley Road

	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999	11/03/1999	01/13/2000	03/29/2000
SAMPLE_DATE	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999	11/03/1999	01/13/2000	03/29/2000
SAMPLE_TIME	14:00	11:20	13:45	11:50	12:55	12:45	13:00	12:30	12:00	12:10
Alkalinity Field (mg/L)	25	15	13	13	15	22	26	19	11	15
Ammonia (mg/L)	0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.7	1.0	1.7	1.6	1.8	1.2	0.6	1.2	1.1	0.7
Chemical Oxygen Demand (mg/L)	7	5	<5	8	8	<5	6	8	<5	<5
Chlorophyll a (µg/L)	12.5				1.9	3.1	0.6			
Conductivity Field (µmhos/cm)	88	68	52	49	59	73	87	86	52	56
E. Coli MTEC (CFU/100 ml)	60	68	8 Est	16 est	<2	36 Est.		10 Est.	16EST	8EST
Fecal Coliform Membrane filter (CFU/100 ml)	82	48	40	48est	<2	22 Est.	55	10 Est.	14EST	10EST
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.19	0.84	0.59	0.378	0.192	0.164	0.130	0.532	0.515	0.303
Orthophosphate Dissolved (mg/L as P)	<0.005	0.008	0.009	0.008	<0.005	0.006	<0.005	0.012	0.011	0.009
Oxygen, total dissolved Field (mg/L)	9.4	11.7	12.5	12.3	11.6	8.8	8.9	11.5	12.7	12.5
Oxygen, total dissolved Percent Saturation Field (%)	99	102	100	101	112	93	90	97	100	105
pH Field (SU)	7.5	7.4	7.2	7.2	7.7	7.4	7.4	7.4	7.3	7.6
Pheophytin a (µg/L)	6.1				2.8	4.4	1.7			
Phosphate Total (mg/L as P)	0.03	0.02	0.05	0.07	0.02	0.02	0.02	0.03	0.04	0.02
Solids Total (mg/L)	75	61	58	84	46	57	56	74	58	63
Solids Total Suspended (mg/L)		3	14	31	<1	1	<1	1	8	1
Temperature Field (°C)	18.3	9.3	6.2	7.1	13.9	18.4	16.7	8.1	5.5	7.9
Turbidity Field (NTU)	3	5	13	32	1.7	1	2	3	11	2.6
SAMPLE_DATE	05/24/2000	07/12/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001	08/01/2001	09/26/2001	11/28/2001
SAMPLE_TIME	12:55	11:15	11:20	14:30	11:00	10:25	12:45	13:00	10:40	11:30
Alkalinity Field (mg/L)	17	20	26	15	16	16	18	24	25	14
Ammonia (mg/L)	<0.02	0.03	0.03	<0.02	<0.02	<0.02	0.03	0.03	0.03	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.8	0.7	1.4	1.1	2.4	0.9	1.3	0.5	0.9
Chemical Oxygen Demand (mg/L)	<5	6	<5	8	<5	6	6	5	<5	6
Chlorophyll a (µg/L)	0.8	2.5	1.6				2.8	2.7	2.5	
Conductivity Field (µmhos/cm)	60	72	81	68	65	65	59	81	87	58
E. Coli MTEC (CFU/100 ml)	4EST	14EST	4EST	24EST	6EST	2EST	58	10EST	75	78
Fecal Coliform Membrane filter (CFU/100 ml)	4EST	26EST	6EST	48	18EST	6EST	54	8EST	108	74
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.230	0.223	0.163	0.723	0.487	0.475	0.423	0.201	0.277	0.685
Orthophosphate Dissolved (mg/L as P)	0.007	0.008	0.005	0.009	0.012	0.007	0.008	0.006	0.038	0.010
Oxygen, total dissolved Field (mg/L)	10.7	9.3	8.6	12.0	12.3	12.1	11.5 EST	8.9	8.2	11.5
Oxygen, total dissolved Percent Saturation Field (%)	106	94	91	99	100	102	104 EST	94	81	97
pH Field (SU)	7.6	7.3	6.9	7.2	7.1	7.4	7.4	7.3	7.2	7.4
Pheophytin a (µg/L)	0.9	2.1	1.0				4.2	3.2	4.3	
Phosphate Total (mg/L as P)	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.04	0.04
Solids Total (mg/L)	47	54	70	52	56	56	69	60	62	54
Solids Total Suspended (mg/L)	1	1	1	3	1	2	5	2	3	8
Temperature Field (°C)	15.6	16.5	18.0	7.3	6.4	7.8	11.2	17.8	15.3	8.0
Turbidity Field (NTU)	1.8	1	2	5	3	3	4	1	3	10

# Nehalem River at Foley Road

SAMPLE_DATE	01/09/2002	03/06/2002	05/08/2002	07/08/2002	09/18/2002
SAMPLE_TIME	10:50	11:20	12:00	15:55	10:08
Alkalinity Field (mg/L)	10	18	19	24	27
Ammonia (mg/L)	0.03	<0.02	0.02	<0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1.5	1.1	0.5	0.8
Chemical Oxygen Demand (mg/L)	7	<5	<5	6	5
Chlorophyll a (µg/L)			1.7	3.0	4.3
Conductivity Field (µmhos/cm)	47	59	64	76	94
E. Coli MTEC (CFU/100 ml)	40	12EST	2est	8	9
Fecal Coliform Membrane filter (CFU/100 ml)	32EST	10EST	<2		
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.409	0.456	0.184	0.204	0.215
Orthophosphate Dissolved (mg/L as P)	0.015	0.009	0.006	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	11.7	11.4	12.1	9.6	8.3
Oxygen, total dissolved Percent Saturation Field (%)	100	92	108	104	84
pH Field (SU)	7.0	7.8	7.6	7.4	7.3
Pheophytin a (µg/L)			0.7	1.3	3.4
Phosphate Total (mg/L as P)	0.22	0.02	0.02	0.02	0.02
Solids Total (mg/L)	120	49	46	56	62
Solids Total Suspended (mg/L)	77	<1	1	2	1
Temperature Field (°C)	8.4	6.6	10.4	19.9	16.5
Turbidity Field (NTU)	85	3	2	1	2

## LASAR:11856

**Miami River at Moss Creek Road**
**LASAR:13411**

SAMPLE_DATE	10/13/1992	03/10/1993	06/09/1993	09/22/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995	09/13/1995
SAMPLE_TIME	09:30	12:20	12:55	10:50	09:45	15:30	12:15	12:00	13:20	10:35
Alkalinity Field (mg/L)	24	16	19	23	20	20	15	14	18	24
Ammonia (mg/L)	<0.020	0.020	0.040	<0.020	<0.02	0.040	0.03	0.03	0.05	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	1.6	1.7	0.6	1.0	0.4	0.7	0.6	0.2	0.8
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			1.2	1.3	1.0	2.1			8.1	3
Conductivity Field (µmhos/cm)	82	63	63	64	59	68	149	53	58	70
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	920	17	>1600	220	49	170	13	79	1600	350
Kjeldahl Nitrogen Total (mg/L)	<0.200	<0.200	0.200	<0.200	<0.2	<0.200	<0.2	<0.2	0.4	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.70	1.10	0.74	0.78	0.85	0.85	1.3	0.85	0.72	0.69
Orthophosphate Dissolved (mg/L as P)	0.005	0.007	0.008	0.006	<0.005	0.006		0.006	0.005	0.006
Oxygen, total dissolved Field (mg/L)	9.7	11.3	11.1	10.3	10.9	9.8	11.3	11.4	11.0	9.8
Oxygen, total dissolved Percent Saturation Field (%)	87	100	103	100	101	101	93	102	104	95
pH Field (SU)	7.20	7.20	7.20	7	7.4	7.30	7.2	7.1	7.2	7.1
Pheophytin a (µg/L)			5.90	2.40	2.3	3.30			21	6
Phosphate Total (mg/L as P)	0.020	0.020	0.040	0.020	0.01	0.030	0.02	0.03	0.02	0.01
Solids Total (mg/L)	74	55	45	58	47	60	59	46	55	57
Solids Total Suspended (mg/L)	<1	<1	4	<1	<1	<1	3	1	2	<1
Temperature Field (°C)	10.5	10	12	14	12.0	17	7.0	10.5	13.0	14.5
Turbidity Field (NTU)	<1	<1	3	<1	1	1	2	<1	3	1
SAMPLE_DATE	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	12/10/1997	02/09/1998	03/18/1998
SAMPLE_TIME	10:50	12:15	12:30	12:35	12:00	10:15	12:10	10:45	13:45	13:00
Alkalinity Field (mg/L)	16	18	22		10	17	21	17		16
Ammonia (mg/L)	0.020	0.030	0.030	<0.02	0.030	0.02	<0.02	0.05	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.1	0.4	0.1	0.3	2.0	0.4	0.6	0.2	0.9
Chemical Oxygen Demand (mg/L)	<5	5	<5		<5	<5	<5	<5		<5
Chlorophyll a (µg/L)		6.7	1.4			2.8	1.4			
Conductivity Field (µmhos/cm)	64	68	74		46	60	74	64		63
E. Coli MTEC (CFU/100 ml)	315	152	100		240	44 EST	210	1160		8 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	1200	300	135	52	180 Est.	84	245	600	20	10 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.200	0.200	<0.200		<0.200	<0.2	<0.2	<0.2		<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.89	0.72	0.75	1.10	0.70	0.71	0.76	1.1	0.9	0.96
Orthophosphate Dissolved (mg/L as P)	0.006	<0.005	0.007		0.007	<0.005	0.006	0.008		0.006
Oxygen, total dissolved Field (mg/L)	11.8	11.3	9.6	10.9	11	11.4	9.9	11.1	11.5	11.5
Oxygen, total dissolved Percent Saturation Field (%)	103	100	95	93	95	104	97	96	99	104
pH Field (SU)	7.10	7	7.10	7.10	7.10	7.2	7.2	7.2	7.4	7.2
Pheophytin a (µg/L)		10	2.70			3.9	3.1			
Phosphate Total (mg/L as P)	0.010	0.010	0.010	0.030	0.110	0.01	0.01	0.02	0.02	0.01
Solids Total (mg/L)	37	62	48	55	91 Est.	47	42	48	38	41
Solids Total Suspended (mg/L)	<1	<1	<1		44	2	<1	<1		<1
Temperature Field (°C)	9.5	14.4	15.4	8.7	9.2	11.7	15	9.2	9.0	11.1
Turbidity Field (NTU)	2	1	<1		45	1	1	3		1

**Miami River at Moss Creek Road**
**LASAR:13411**

SAMPLE_DATE	07/08/1998	09/14/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999	11/03/1999
SAMPLE_TIME	13:30	14:55	13:25	10:50	13:00	11:10	12:20	12:05	12:20	12:00
Alkalinity Field (mg/L)	19		21	14	14	14	14	18	21	16
Ammonia (mg/L)	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.4	0.2	0.8	1.0	1.3	2.8	0.7	0.3	0.7
Chemical Oxygen Demand (mg/L)	<5		<5	<5	<5	<5	5	<5	<5	<5
Chlorophyll a (µg/L)	1.6		4.0				0.5	0.8	0.9	
Conductivity Field (µmhos/cm)	67		75	65	62	59	66	68	74	72
E. Coli MTEC (CFU/100 ml)	22 Est.		240	42	4 Est	2 est	720	>600		70
Fecal Coliform Membrane filter (CFU/100 ml)	46	166	290	40	8 Est	4 est	840	>600	270	36 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2		<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.70	0.72	0.72	1.3	1.0	0.694	0.701	0.565	0.571	1.12
Orthophosphate Dissolved (mg/L as P)	<0.005		0.005	0.007	<0.005	<0.005	0.007	0.007	0.006	0.008
Oxygen, total dissolved Field (mg/L)	11.2	9.9	10.2	11.1	11.6	11.9	11.0	11.3	10.8	10.8
Oxygen, total dissolved Percent Saturation Field (%)	112	103	104	98	97	100	103	108	105	94
pH Field (SU)	7.2	8.2	7.2	7.2	7.1	7.1	7.2	7.3	7.3	7.2
Pheophytin a (µg/L)	1.2		3.2				1.6	8.5	0.9	
Phosphate Total (mg/L as P)	<0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01	0.01	0.01
Solids Total (mg/L)	51	57	64	53	44	48	49	52	47	59
Solids Total Suspended (mg/L)	<1			<1	1	<1	<1	1	1	1
Temperature Field (°C)	16.2	17.3	16.6	10.2	7.8	8.0	12.7	13.6	14.6	9.6
Turbidity Field (NTU)	1		1	3	2	2	0.9	3	2	1
SAMPLE_DATE	01/13/2000	03/29/2000	05/24/2000	07/13/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001	08/01/2001
SAMPLE_TIME	11:25	11:40	12:20	13:40	10:50	12:30	10:18	09:40	12:05	12:15
Alkalinity Field (mg/L)	11	14	16	17	22	13	14	13	15	19
Ammonia (mg/L)	0.03	0.03	0.05	<0.02	0.02	0.03	<0.02	0.03	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.9	0.8	0.8	0.3	2.2	0.4	1.6	0.6	1.3
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			0.4	0.9	0.4				0.7	1.8
Conductivity Field (µmhos/cm)	58	61	63	66	62	60	64	64	55	72
E. Coli MTEC (CFU/100 ml)	4EST	10EST	12EST	30EST	58	10EST	10EST	6EST	158	230
Fecal Coliform Membrane filter (CFU/100 ml)	8EST	6EST	16EST	20EST	50	22EST	8EST	16EST	216	450
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.805	0.732	0.735	0.597	0.656	1.06	0.939	1.03	0.819	0.695
Orthophosphate Dissolved (mg/L as P)	0.006	0.006	0.006	0.005	0.007	<0.005	0.008	0.007	<0.005	0.006
Oxygen, total dissolved Field (mg/L)	11.7	11.7	10.7	11.4	9.4	10.9	11.3	11.8	11.2 EST	11.1
Oxygen, total dissolved Percent Saturation Field (%)	97	100	102	113	92	95	95	98	101 EST	107
pH Field (SU)	7.2	7.3	7.2	7.2	6.7	7.1	7.0	7.2	7.2	7.2
Pheophytin a (µg/L)			0.9	1.0	0.3				1.0	3.3
Phosphate Total (mg/L as P)	0.02	<0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01	0.01
Solids Total (mg/L)	46	47	44	50	54	41	47	54	56	61
Solids Total Suspended (mg/L)	1	<1	<1	<1	<1	1	<1	2	2	<1
Temperature Field (°C)	7.7	8.6	13.6	15.4	15.0	9.3	8.1	7.6	10.8	14.0
Turbidity Field (NTU)	3	0.7	0.9	0.8	1	2	1	2	2	1

# Miami River at Moss Creek Road

SAMPLE_DATE	09/26/2001	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/08/2002	09/18/2002
SAMPLE_TIME	10:00	10:50	10:10	10:45	11:25	16:30	09:34
Alkalinity Field (mg/L)	18	14	12	15	17	18	20
Ammonia (mg/L)	0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.5	0.9	0.3	1.1	1.2	0.2	<0.1
Chemical Oxygen Demand (mg/L)	8	7	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	3.8				2.2	1.5	0.5
Conductivity Field (µmhos/cm)	70	65	59	62	66	67	76
E. Coli MTEC (CFU/100 ml)	>600	380	4EST	520	100	276	82
Fecal Coliform Membrane filter (CFU/100 ml)	>600	280	16EST	490	88		
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.648	0.965	0.904	0.902	0.662	0.643	0.745
Orthophosphate Dissolved (mg/L as P)	0.011Est	0.007	0.008	<0.005	0.007	0.005	0.007
Oxygen, total dissolved Field (mg/L)	9.4	10.6	11.3	11.3	12.2	10.5	9.7
Oxygen, total dissolved Percent Saturation Field (%)	89	91	96	95	109	105	91
pH Field (SU)	7.0	7.1	7.1	7.2	7.3	7.2	7.1
Pheophytin a (µg/L)	4.9				2.3	1.4	0.8
Phosphate Total (mg/L as P)	0.05	0.04	0.04	0.01	0.02	0.01	0.01
Solids Total (mg/L)	57	59	43	43	46	49	52
Solids Total Suspended (mg/L)	5	9	10	<1	2	2	<1
Temperature Field (°C)	12.8	9.1	8.7	8.1	10.3	16.0	12.3
Turbidity Field (NTU)	2	11	12	2	2	1	<1

# LASAR:13411



**Kilchis River at HWY 101**
**LASAR:13416**

SAMPLE_DATE	10/13/1992	03/10/1993	06/09/1993	09/22/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995	09/13/1995
SAMPLE_TIME	10:05	11:50	11:35	10:25	09:20	16:00	11:45	11:30	12:55	10:15
Alkalinity Field (mg/L)							15	14	17	24
Ammonia (mg/L)	0.02	0.02	0.09	<0.02	<0.02	0.03	0.02	0.02	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.8	1	0.4	0.7	0.2	0.6	0.5	0.2	0.8
Chemical Oxygen Demand (mg/L)					<5		<5	<5	<5	<5
Chlorophyll a (µg/L)					2.5				6.0	4
Conductivity Field (µmhos/cm)					53		60	43	50	64
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	540	7	540	220	170	110	7	8	240	920
Kjeldahl Nitrogen Total (mg/L)					<0.2		0.2	<0.2	0.4	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.730	0.94	0.69	0.76	0.77	1.00	1.2	0.66	0.63	0.74
Orthophosphate Dissolved (mg/L as P)					<0.005			0.009	0.007	0.007
Oxygen, total dissolved Field (mg/L)	8.0	11.5	10.7	8.6	10.8	9.3	11.5	11.8	11.3	8.6
Oxygen, total dissolved Percent Saturation Field (%)	72	102	101	82	100	94	92	103	107	86
pH Field (SU)	6.8	7.1	7.3	6.9	7.3	7.1	7.3	7.3	7.3	7.0
Pheophytin a (µg/L)					3.7				7.5	10
Phosphate Total (mg/L as P)	0.01	0.02	0.02	0.02	0.01	0.03	0.04	0.03	0.01	0.01
Solids Total (mg/L)	73	50	45	64	45	56	55	40	45	55
Solids Total Suspended (mg/L)					<1		<1	2	<1	<1
Temperature Field (°C)	11.0	10	13	13.5	12.0	16.5	6.0	9.5	13.0	16.0
Turbidity Field (NTU)					1		2	3	2	1
SAMPLE_DATE	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	12/10/1997	03/18/1998	07/08/1998
SAMPLE_TIME	10:15	11:45	12:10	12:00	11:25	09:55	11:45	10:22	12:30	12:55
Alkalinity Field (mg/L)	16	20	22	14	11	15	21	15	16	20
Ammonia (mg/L)	<0.020	0.020	0.030	0.020	0.02	<0.02	0.02	0.03	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1	0.6	0.2	0.4	0.7	0.5	0.6	0.8	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)		5.1	1.6			4.0	1.6			2.7
Conductivity Field (µmhos/cm)	56	61	70	50	39	53	70	53	57	65
E. Coli MTEC (CFU/100 ml)	8 Est.	>400	64 Est.	8 Est.	4 Est.	48 EST	72 Est.	28 Est.	38 Est.	320
Fecal Coliform Membrane filter (CFU/100 ml)	100	>400	104	28 Est.	4 Est.	170	165	12 Est.	54	480
Kjeldahl Nitrogen Total (mg/L)	<0.200	<0.200	<0.200	<0.200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.78	0.58	0.68	0.84	0.47	0.62	0.74	0.82	0.88	0.70
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	0.006	0.011	0.010	0.006	0.008	0.012	0.010	0.008
Oxygen, total dissolved Field (mg/L)	11.4	10.4	8.9	11.2	11.4	11.3	9.3	11.6	11.8	10.7
Oxygen, total dissolved Percent Saturation Field (%)	98	99	87	92	98	103	92	98	104	106
pH Field (SU)	7.10	7.30	7	7.20	7.4	7.2	7.1	7.2	7.2	7.2
Pheophytin a (µg/L)		6.10	3			4.0	3.3			3
Phosphate Total (mg/L as P)	0.020	0.010	0.010	0.030	0.17	0.02	0.01	0.02	0.01	0.02
Solids Total (mg/L)	36	46	49	51	110 Est.	43	44	37	50	51
Solids Total Suspended (mg/L)	1	1	<1	3	73	<1	<1	5	1	<1
Temperature Field (°C)	9	13.5	15.2	8.1	8.9	11.7	15.5	8.2	10.1	15.3
Turbidity Field (NTU)	2	<1	<1	4	70	1	1	3	2	1

**Kilchis River at HWY 101**

	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999	11/03/1999	01/13/2000	03/29/2000
SAMPLE_DATE	12:05	10:25	12:30	10:45	11:45	11:35	11:55	11:25	11:00	11:20
SAMPLE_TIME	22	15	15	13	15	18	22	14	12	15
Alkalinity Field (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.02
Ammonia (mg/L)	0.3	1.1	1.3	1.3	1.6	0.2	1.0	0.5	1.4	1.0
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chemical Oxygen Demand (mg/L)	1.8				0.4		0.4			
Chlorophyll a (µg/L)	75	59	55	52	57	64	73	64	52	53
Conductivity Field (µmhos/cm)	118	96	8 Est	4est	28 Est.	116		28 Est.	6EST	<2
E. Coli MTEC (CFU/100 ml)	210	128	4 Est	6est	28 Est.	146	128	94	6EST	<2
Fecal Coliform Membrane filter (CFU/100 ml)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Kjeldahl Nitrogen Total (mg/L)	0.67	1.1	0.94	0.522	0.603	0.522	0.564	0.947	0.662	0.548
Nitrate/nitrite Dissolved (mg/L as N)	<0.005	0.010	0.010	0.008	0.011	0.008	0.008	0.009	0.012	0.009
Orthophosphate Dissolved (mg/L as P)	9.1	11.4	11.8	12.2	11.5	10.4	9.0	11.0	12.1	12.1
Oxygen, total dissolved Field (mg/L)	89	101	98	100	105	101	86	96	98	102
Oxygen, total dissolved Percent Saturation Field (%)	7.0	7.3	7.0	7.0	7.2	7.1	7.0	7.1	7.2	7.4
pH Field (SU)	1.5				0.9		0.4			
Pheophytin a (µg/L)	0.01	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.02	<0.01
Phosphate Total (mg/L as P)	64	66	45	41	44	50	45	53	41	57
Solids Total (mg/L)		<1	2	<1	<1	<1	<1	<1	1	<1
Solids Total Suspended (mg/L)	15.1	9.8	7.3	6.9	11.3	14.3	13.6	8.8	6.5	8.0
Temperature Field (°C)	1	3	2	3	1.4	1	1	1	4	0.7
Turbidity Field (NTU)										
SAMPLE_DATE	05/24/2000	07/13/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001	08/01/2001	09/26/2001	11/28/2001
SAMPLE_TIME	11:40	12:40	10:20	11:50	09:40	09:10	11:35	11:35	09:20	10:20
Alkalinity Field (mg/L)	16	20	22	13	13	14	15	19	19	14
Ammonia (mg/L)	0.02	<0.02	0.03	<0.02	0.02	<0.02	0.03	0.03	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.2	0.2	1.3	1.2	2.0	0.9	0.3	1.0	0.8
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	0.3	4.3	0.5				0.7	1.0	2.0	
Conductivity Field (µmhos/cm)	57	62	68	52	57	58	48	70	67	54
E. Coli MTEC (CFU/100 ml)	8EST	68	52	14EST	4EST	322	30EST	82	760	66
Fecal Coliform Membrane filter (CFU/100 ml)	10EST	42	60	12EST	2EST	488	20EST	220	970	64
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.636	0.470	0.645	0.851	0.730	0.877	0.630	0.713	0.650	0.762
Orthophosphate Dissolved (mg/L as P)	0.010	<0.005	0.010	0.008	0.010	0.011	0.009	0.008	0.007	0.013
Oxygen, total dissolved Field (mg/L)	10.7	12.0	8.5	11.2	11.3	11.9	11.5 EST	9.3	8.7	11.1
Oxygen, total dissolved Percent Saturation Field (%)	100	116	83	95	94	96	100 EST	91	83	93
pH Field (SU)	7.2	7.2	6.7	7.2	7.0	7.2	7.3	7.5	7.0	7.4
Pheophytin a (µg/L)	0.5	3.1	0.6				0.5	1.8	2.4	
Phosphate Total (mg/L as P)	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.03	0.04
Solids Total (mg/L)	40	47	54	39	45	50	51	50	55	41
Solids Total Suspended (mg/L)	<1	<1	<1	1	<1	<1	2	<1	1	6
Temperature Field (°C)	12.7	14.4	15.0	8.4	7.5	6.8	9.6	14.9	13.4	8.2
Turbidity Field (NTU)	0.7	0.7	1	2	1	2	3	<1	2	9

**Kilchis River at HWY 101**

SAMPLE_DATE	01/09/2002	03/06/2002	05/08/2002	07/08/2002	09/18/2002
SAMPLE_TIME	09:40	09:40	10:30	17:05	08:50
Alkalinity Field (mg/L)	13	13	18	18	21
Ammonia (mg/L)	<0.02	<0.02	<0.02	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	<0.1	0.5	1.2	0.1	0.1
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			2.6	0.7	0.7
Conductivity Field (µmhos/cm)	53	57	60	62	75
E. Coli MTEC (CFU/100 ml)	6EST	18EST	4est	42	435
Fecal Coliform Membrane filter (CFU/100 ml)	6EST	12EST	12est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.729	0.899	0.623	0.579	0.808
Orthophosphate Dissolved (mg/L as P)	0.014	0.008	0.005	0.008	0.008
Oxygen, total dissolved Field (mg/L)	11.6	11.2	12.0	10.4	8.2
Oxygen, total dissolved Percent Saturation Field (%)	99	93	102	107	77
pH Field (SU)	7.1	7.2	7.3	7.1	6.9
Pheophytin a (µg/L)			0.6	0.8	1.3
Phosphate Total (mg/L as P)	0.05	0.01	0.01	0.01	0.02
Solids Total (mg/L)	47	41	38	43	52
Solids Total Suspended (mg/L)	12	<1	1	<1	<1
Temperature Field (°C)	8.5	7.5	8.6	16.8	13.0
Turbidity Field (NTU)	17	<1	1	<1	<1

**LASAR:13416**

**Wilson River at HWY 101**

	10/13/1992	12/16/1992	03/10/1993	06/09/1993	09/22/1993	12/15/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995
SAMPLE_DATE	10:25	10:55	11:35	10:45	10:10	10:30	09:05	16:30	11:20	11:10
SAMPLE_TIME	32	19	21	24	32	20	26	29		16
Alkalinity Field (mg/L)	0.020	0.020	0.020	0.030	<0.020	0.030	<0.02	0.040	0.020	0.04
Ammonia (mg/L)	1.2	1.6	1.7	1.2	0.9	1.2	0.6	0.4	1.1	1.2
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	6	7	<5	<5	<5	<5	<5	<5		<5
Chemical Oxygen Demand (mg/L)				1.3	1		2.5	1.4		
Chlorophyll a (µg/L)	95	61	59	71	83	68	66	84		51
Conductivity Field (µmhos/cm)										
E. Coli MTEC (CFU/100 ml)	920	79	7	40	79	13	49	130	33	49
Fecal Coliform Membrane filter (CFU/100 ml)	0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.2	0.200		<0.2
Kjeldahl Nitrogen Total (mg/L)	0.49	0.68	0.55	0.52	0.54	0.85	0.54	0.64	0.94	0.43
Nitrate/nitrite Dissolved (mg/L as N)	0.007	0.012	0.011	0.008	<0.005	0.011	0.005	0.007		0.011
Orthophosphate Dissolved (mg/L as P)	9.5	12.4	11.9	10.3	9.4	11.8	9.6	9.6	12.0	12.0
Oxygen, total dissolved Field (mg/L)	87	99	103	97	90	102	92	99	94	103
Oxygen, total dissolved Percent Saturation Field (%)	7.10	7.30	7.10	7.30	7.20	7.40	7.5	7.20	7.40	7.4
pH Field (SU)				1.80	1.70		3.7	4		
Pheophytin a (µg/L)	0.020	0.030	0.030	0.010	0.020	0.030	0.01	0.030	0.050	0.05
Phosphate Total (mg/L as P)	77	49	52	51	71	60	56	68	71	53
Solids Total (mg/L)	<1	<1	2	<1	<1	1	<1	<1		5
Solids Total Suspended (mg/L)	11.5	6	9	13	13.5	9	14.0	17	5	9.0
Temperature Field (°C)	1	2	1	1	<1	2	1	2		8
Turbidity Field (NTU)										
SAMPLE_DATE	06/21/1995	09/13/1995	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	09/25/1997
SAMPLE_TIME	12:15	09:55	10:00	11:10	11:50	11:40	11:00	09:35	11:25	10:00
Alkalinity Field (mg/L)	24	36	21	25	32	18	13	22	31	22
Ammonia (mg/L)	0.04	0.03	0.020	0.020	0.040	0.030	0.040	0.03	<0.02	0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	1.0	0.9	1.2	0.6	0.2	0.5	1.1	0.8	0.2
Chemical Oxygen Demand (mg/L)	<5	<5	<5	6	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	5.8	4		13	1.7			2.4	2.4	0.7
Conductivity Field (µmhos/cm)	67	89	64	72	90	55	42	67	89	71
E. Coli MTEC (CFU/100 ml)			16 Est.	20 Est.	360 Est.	16 Est.	<20	64 EST	150	295
Fecal Coliform Membrane filter (CFU/100 ml)	240	350	48 Est.	92 Est.	520	68 Est.	800	112	190	860
Kjeldahl Nitrogen Total (mg/L)	0.5	0.2	<0.200	<0.200	<0.200	<0.200	<0.200	<0.2	<0.2	<0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.51	0.51	0.18	0.24	0.32	0.57	0.30	0.59	0.43	0.72
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	0.010	<0.005	<0.005	0.014	0.013	0.007	<0.005	0.012
Oxygen, total dissolved Field (mg/L)	10.7	8.0	11.4	10.9	8.5	11.7	11.9	10.4	8.8	9.2
Oxygen, total dissolved Percent Saturation Field (%)	102	84	98	105	88	97	104	99	91	89
pH Field (SU)	7.4	7.2	7.30	7.50	7.20	7.40	7.50	7.3	7.3	7.40
Pheophytin a (µg/L)	10	8		5.30	3.50			6.0	4.2	1.80
Phosphate Total (mg/L as P)	0.02	0.02	0.040	<0.010	0.020	0.290	0.620	0.02	0.02	0.020
Solids Total (mg/L)	55	63	48	64	60	120	310 Est.	54	50	53
Solids Total Suspended (mg/L)	2	<1	7	1	<1	61	270	1	<1	<1
Temperature Field (°C)	13.5	18.0	9	14.2	17	7.3	8.3	13.4	17	14.5
Turbidity Field (NTU)	3	1	6	<1	1	67	218	2	1	1

**Wilson River at HWY 101**

	12/10/1997	03/18/1998	07/08/1998	07/28/1998	07/28/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999
SAMPLE_DATE	12/10/1997	03/18/1998	07/08/1998	07/28/1998	07/28/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999
SAMPLE_TIME	10:05	11:40	11:45	10:00	19:05	11:40	10:05	12:05	10:20	11:15
Alkalinity Field (mg/L)	19	20	28			41	18	20	18	19
Ammonia (mg/L)	0.03	<0.02	0.04	0.04	0.04	0.04	<0.02	<0.02	0.04	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	0.7	0.6	0.1	0.7	0.7	1.2	1.0	1.0	1.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5			<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			2.1			0.5				0.9
Conductivity Field (µmhos/cm)	62	63	82			219	66	62	59	60
E. Coli MTEC (CFU/100 ml)	40 Est.	2 Est.	64			>600	42	18 Est	14 est	10 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	36 Est.	<2	88	180	50	>600	38est	24 Est	8 est	18 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2			<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.74	0.71	0.48	0.54	0.54	0.63	0.89	0.76	0.422	0.339
Orthophosphate Dissolved (mg/L as P)	0.015	0.011	<0.005			0.311	0.010	0.012	0.010	0.008
Oxygen, total dissolved Field (mg/L)	11.9	12	10.3	7.5	9.2	7.5	11.4	12.1	12.3	11.2
Oxygen, total dissolved Pectent Saturation Field (%)	98	103	107	82	103	77	100	98	100	102
pH Field (SU)	7.5	7.3	7.4	7.3	7.2	7.3	7.3	7.4	7.2	7.3
Pheophytin a (µg/L)			1.7			1.0				2.1
Phosphate Total (mg/L as P)	0.03	0.02	0.01	0.02	0.02	0.33	0.02	0.04	0.02	0.02
Solids Total (mg/L)	50	42	68	72	66	130	58	57	50	46
Solids Total Suspended (mg/L)	4	2	1				<1	8	19	<1
Temperature Field (°C)	7.3	9	17.3	19.8	21.6	17.7	9.4	6.5	6.4	11.7
Turbidity Field (NTU)	7	4	1			2	6	11	8	2.7
SAMPLE_DATE	07/21/1999	09/22/1999	11/03/1999	01/13/2000	03/29/2000	05/24/2000	07/13/2000	09/13/2000	11/29/2000	01/24/2001
SAMPLE_TIME	11:10	11:35	11:05	10:45	11:00	11:15	12:10	10:00	11:25	09:20
Alkalinity Field (mg/L)	26	34	21	16	20	21	26	31	18	19
Ammonia (mg/L)	0.03	0.03	<0.02	0.04	<0.02	0.04	<0.02	0.03	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.3	0.9	1.7	1.3	0.4	1.1	0.6	1.4	1.0
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	1.4	0.3				0.4	4.8	0.6		
Conductivity Field (µmhos/cm)	79	94	77	61	61	66	74	84	62	65
E. Coli MTEC (CFU/100 ml)	88		38 Est.	10EST	<2	6EST	90	48	96	22EST
Fecal Coliform Membrane filter (CFU/100 ml)	126	70	32 Est.	16EST	2EST	16EST	92	26EST	90	14EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.370	0.357	0.776	0.556	0.397	0.416	0.239	0.501	0.629	0.522
Orthophosphate Dissolved (mg/L as P)	0.006	0.008	0.009	0.014	0.011	0.010	<0.005	0.009	0.008	0.015
Oxygen, total dissolved Field (mg/L)	10.0	8.0	11.3	12.5	12.1	10.4	11.5	8.7	11.5	11.7
Oxygen, total dissolved Pectent Saturation Field (%)	100	79	95	99	100	98	117	87	95	95
pH Field (SU)	7.3	7.2	7.4	7.3	7.4	7.4	7.7	6.8	7.3	7.1
Pheophytin a (µg/L)	2.0	0.6				0.6	1.5	0.6		
Phosphate Total (mg/L as P)	0.01	0.02	0.02	0.04	0.01	0.02	0.01	0.02	0.02	0.02
Solids Total (mg/L)	58	60	61	60	64	48	54	69	41	51
Solids Total Suspended (mg/L)	<1	<1	<1	7	1	<1	1	<1	2	1
Temperature Field (°C)	16.0	15.4	7.8	5.5	7.3	13.0	16.4	16.0	7.3	6.6
Turbidity Field (NTU)	1	2	1	15	2.9	1.4	0.9	1	2	2

**Wilson River at HWY 101**

SAMPLE_DATE	03/22/2001	05/16/2001	08/01/2001	09/26/2001	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/09/2002	09/18/2002
SAMPLE_TIME	08:45	11:10	10:35	08:55	09:35	09:15	09:20	10:10	08:05	08:19
Alkalinity Field (mg/L)	18	20	29	30	19	16	19	23	27	28
Ammonia (mg/L)	0.03	<0.02	0.03	0.03	0.03	0.02	<0.02	<0.02	0.04	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.9	0.9	0.5	0.9	0.8	0.5	0.4	0.7	0.5	0.5
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	7	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)		1.5	0.9	2.1				2.1	1.8	0.5
Conductivity Field (µmhos/cm)	66	57	88	89	64	56	63	69	75	92
E. Coli MTEC (CFU/100 ml)	10EST	70	24EST	240	1100EST	8EST	116	8est	71	86
Fecal Coliform Membrane filter (CFU/100 ml)	2EST	80	60	320	1200EST	14EST	112	6est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.591	0.448	0.464	0.410	0.666	0.418	0.512	0.391	0.420	0.525
Orthophosphate Dissolved (mg/L as P)	0.012	0.009	0.007	<0.005	0.017	0.017	0.009	0.006	0.005	0.006
Oxygen, total dissolved Field (mg/L)	11.9	11.5 EST	8.8	8.3	11.3	11.7	11.6	11.6	8.7	8.0
Oxygen, total dissolved Percent Saturation Field (%)	96	100 EST	89	81	94	98	95	99	85	78
pH Field (SU)	7.3	7.5	7.4	7.2	7.5	7.3	7.3	7.4	7.3	7.1
Pheophytin a (µg/L)		1.3	1.7	3.0				0.8	2.8	1.7
Phosphate Total (mg/L as P)	0.02	0.03	0.02	0.02	0.15	0.13	0.02	0.01	0.01	0.02
Solids Total (mg/L)	59	35	62	59	58	68	45	47	56	59
Solids Total Suspended (mg/L)	2	5	2	1	10	40	<1	1	2	<1
Temperature Field (°C)	6.8	9.4	16.5	14.8	7.6	8.1	7.1	8.4	15.2	15.0
Turbidity Field (NTU)	10	5	1	2	20	52	2	1	<1	1

**LASAR:13421**

**Wilson River at HWY 6**
**LASAR:13424**

SAMPLE_DATE	02/09/1998	07/08/1998	09/14/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999
SAMPLE_TIME	10:30	11:05	18:35	11:05	09:40	10:40	09:50	10:30	10:20	11:05
Alkalinity Field (mg/L)		25		26	19	18	17	17	23	26
Ammonia (mg/L)	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	0.2	1.0	0.5	1.1	1.2	1.2	1.0	0.5	0.6
Chemical Oxygen Demand (mg/L)		<5		<5	<5	<5	<5	5	<5	<5
Chlorophyll a (µg/L)		1.6		1.5				2.1	1.1	0.7
Conductivity Field (µmhos/cm)		75		83	66	58	57	56	71	79
E. Coli MTEC (CFU/100 ml)		14 Est.		30 Est.	10est	4 Est	12 est	24 Est.	10 Est.	
Fecal Coliform Membrane filter (CFU/100 ml)	10	10 Est.	26	16 Est.	14est	4 Est	20 Est.	8 Est.	12 Est.	12 Est.
Kjeldahl Nitrogen Total (mg/L)		<0.2		<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.500	0.39	0.29	0.35	0.80	0.64	0.359	0.236	0.220	0.189
Orthophosphate Dissolved (mg/L as P)		0.006		<0.005	0.009	0.011	0.008	0.007	0.007	0.005
Oxygen, total dissolved Field (mg/L)	12.2	10.2	10.4	9.5	11.7	12.5	12.5	11.8	9.9	9.9
Oxygen, total dissolved Percent Saturation Field (%)	100	106	112	96	101	100	100	105	102	96
pH Field (SU)	7.6	7.8	8.2	7.7	7.6	7.1	7.3	7.6	7.7	7.6
Pheophytin a (µg/L)		1.8		1.6				4.4	2.5	0.8
Phosphate Total (mg/L as P)	0.02	0.01	<0.01	<0.01	0.01	0.03	0.02	0.01	0.02	0.01
Solids Total (mg/L)	48	54	59	65	51	46	47	45	57	59
Solids Total Suspended (mg/L)		<1			3	4	<1	<1	<1	<1
Temperature Field (°C)	7.0	17.3	19.4	16.3	9.1	6.2	6.1	10.6	16.9	14.7
Turbidity Field (NTU)		1		1	4	6	4	1.3	1	1
SAMPLE_DATE	11/03/1999	01/13/2000	03/29/2000	05/24/2000	07/13/2000	09/13/2000	11/29/2000	01/24/2001	03/22/2001	05/16/2001
SAMPLE_TIME	10:40	10:15	10:35	10:40	11:35	09:35	10:50	08:45	08:10	10:25
Alkalinity Field (mg/L)	20	16	19	20	22	27	18	19	17	20
Ammonia (mg/L)	0.03	0.02	<0.02	0.05	<0.02	<0.02	<0.02	0.04	0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	1.3	1.3	0.9	0.7	0.2	1.4	0.7	1.6	1.0
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	6
Chlorophyll a (µg/L)				0.5	1.2	1.2				1.5
Conductivity Field (µmhos/cm)	73	57	59	61	67	72	61	63	65	56
E. Coli MTEC (CFU/100 ml)	10 Est.	2EST	2EST	2EST	6EST	22EST	8EST	2EST	<2	14EST
Fecal Coliform Membrane filter (CFU/100 ml)	52	2EST	<2	4EST	12EST	30EST	4EST	6EST	8EST	8EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.662	0.465	0.298	0.306	0.229	0.331	0.543	0.458	0.527	0.387
Orthophosphate Dissolved (mg/L as P)	0.008	0.011	0.009	<0.005	0.006	0.009	0.007	0.010	0.010	0.007
Oxygen, total dissolved Field (mg/L)	12.0	12.8	12.6	11.1	11.0	9.2	12.1	11.9	12.2	11.8
Oxygen, total dissolved Percent Saturation Field (%)	100	100	103	104	109	92	99	96	98	102
pH Field (SU)	7.6	7.5	7.7	7.6	7.9	7.0	7.4	7.1	7.4	7.3
Pheophytin a (µg/L)				0.7	1.0	<0.1				1.2
Phosphate Total (mg/L as P)	0.01	0.03	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02
Solids Total (mg/L)	57	58	64	44	52	64	45	48	57	68
Solids Total Suspended (mg/L)	<1	4	<1	<1	<1	<1	<1	<1	<1	4
Temperature Field (°C)	7.6	4.9	6.8	12.3	15.7	16.0	7.1	6.4	6.1	9.2
Turbidity Field (NTU)	<1	8	0.9	0.7	0.5	1	1	1	6	4

**Wilson River at HWY 6**

SAMPLE_DATE	08/01/2001	09/26/2001	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/09/2002	09/18/2002
SAMPLE_TIME	09:45	08:10	09:05	08:45	08:35	09:25	08:47	07:47
Alkalinity Field (mg/L)	26	27	18	16	19	22	24	26
Ammonia (mg/L)	0.03	0.03	0.03	0.03	<0.02	<0.02	0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1.0	1.0	0.7	0.7	0.3	0.8	0.3
Chemical Oxygen Demand (mg/L)	<5	<5	6	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	1.5	1.6				2.2	1.2	0.9
Conductivity Field (µmhos/cm)	79	82	62	54	60	64	71	84
E. Coli MTEC (CFU/100 ml)	22EST	170	75	4EST	6EST	4est	11	41
Fecal Coliform Membrane filter (CFU/100 ml)	50	65	108	4EST	12EST	2est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.261	0.303	0.614	0.363	0.413	0.234	0.260	0.341
Orthophosphate Dissolved (mg/L as P)	0.005	0.006	0.012	0.014	0.008	<0.005	0.006	0.005
Oxygen, total dissolved Field (mg/L)	9.4	9.1	11.8	12.1	11.8	12.1	9.7	8.8
Oxygen, total dissolved Percent Saturation Field (%)	96	89	98	100	97	103	97	85
pH Field (SU)	7.5	7.4	7.0	7.4	7.3	7.7	7.5	7.3
Pheophytin a (µg/L)	1.8	2.8				1.2	2.3	2.0
Phosphate Total (mg/L as P)	0.01	0.02	0.06	0.11	0.01	0.01	0.01	0.02
Solids Total (mg/L)	59	57	59	72	47	42	51	57
Solids Total Suspended (mg/L)	1	<1	7	32	<1	1	1	<1
Temperature Field (°C)	16.7	14.9	7.3	7.8	6.8	8.3	15.8	14.7
Turbidity Field (NTU)	1	1	9	42	2	1	<1	1

**LASAR:13424**



**Trask River at HWY 101**

	02/09/1993	03/10/1993	06/09/1993	09/22/1993	12/15/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995
SAMPLE_DATE	12:25	11:05	10:20	09:35	10:10	08:45	17:00	10:50	10:45	11:50
SAMPLE_TIME										
Alkalinity Field (mg/L)		24	32	38	24	33	36	22	20	29
Ammonia (mg/L)	<0.02	<0.020	0.020	0.020	0.040	<0.02	0.050	0.04	0.05	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.7	1.9	1.3	0.9	1	0.7	0.4	0.7	1.2	0.4
Chemical Oxygen Demand (mg/L)		<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			1.4	0.7		2.5	1.7			7.5
Conductivity Field (µmhos/cm)		71	80	94	84	79	97	92	66	79
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	46	17	79	49	49	110	110	350	22	70
Kjeldahl Nitrogen Total (mg/L)		<0.200	0.200	<0.200	0.200	<0.2	0.400	0.3	0.2	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.710	0.63	0.57	0.41	1.10	0.51	0.53	1.0	0.65	0.50
Orthophosphate Dissolved (mg/L as P)		0.010	0.009	0.006	0.012	0.010	0.008		0.012	0.007
Oxygen, total dissolved Field (mg/L)	12.7	12.4	10.7	10	11.9	9.8	10.1	12.0	12.2	11.2
Oxygen, total dissolved Percent Saturation Field (%)	112	107	101	91	101	94	105	95	104	106
pH Field (SU)	6.9	7.30	7.40	7.40	7.30	7.6	7.50	7.2	7.3	7.3
Pheophytin a (µg/L)			2.80	2.60		4.4	4.70			16
Phosphate Total (mg/L as P)	0.02	0.030	0.020	0.030	0.040	0.03	0.030	0.06	0.05	0.02
Solids Total (mg/L)	63	61	57	81	53	44	75	83	58	66
Solids Total Suspended (mg/L)		1	2	3	2	1	<1	6	4	1
Temperature Field (°C)	10.0	9	13	11.5	8.5	14.0	17.5	5.5	8.5	13.0
Turbidity Field (NTU)		1	1	2	2	1	2	6	7	6
SAMPLE_DATE	09/13/1995	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	04/16/1997	09/11/1997	12/10/1997	03/18/1998
SAMPLE_TIME	09:30	09:35	10:45	11:30	10:50	10:40	10:30	11:00	09:45	11:10
Alkalinity Field (mg/L)	41	25	31	38	21	17		36	23	24
Ammonia (mg/L)	0.03	<0.020	0.040	0.040	0.020	0.030	0.020	0.02	0.05	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.7	1.4	0.3	0.2	0.6	1.0	1	0.7	1.2
Chemical Oxygen Demand (mg/L)	<5	<5	6	<5	<5	<5		<5	<5	<5
Chlorophyll a (µg/L)	6		13	1.7				3.4		
Conductivity Field (µmhos/cm)	100	74	85	104	67	56		98	75	75
E. Coli MTEC (CFU/100 ml)		48 Est.	16 Est.	72 Est.	8 Est.	320 Est.		240	72 Est.	16 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	350	105	32 Est.	60 Est.	12 Est.	140 Est.	110	255	112	42 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.200	0.200	<0.200	<0.200	<0.200		<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.42	0.50	0.31	0.31	0.83	0.50	0.50	0.36	0.76	0.71
Orthophosphate Dissolved (mg/L as P)	0.006	0.008	<0.005	<0.005	0.013	0.011		<0.005	0.015	0.012
Oxygen, total dissolved Field (mg/L)	8.6	11.8	11.8	9.2	11.7	11.5	11.3	9.5	11.9	12.2
Oxygen, total dissolved Percent Saturation Field (%)	89	99	112	93	96	99	100	98	98	105
pH Field (SU)	7.4	8	7.60	7.40	7.40	7.30	7.30	7.4	7.4	7.3
Pheophytin a (µg/L)	16		4.60	4				6.3		
Phosphate Total (mg/L as P)	0.02	0.040	0.020	0.010	0.190	0.130	0.020	0.02	0.03	0.02
Solids Total (mg/L)	73	48	65	69	95	110 Est.	0.5	60	44	62
Solids Total Suspended (mg/L)	2	4	1	<1	29	50		<1	4	<1
Temperature Field (°C)	17.0	9	13.3	16.5	7.2	8.9	10.2	17	7.1	8.8
Turbidity Field (NTU)	1	4	<1	1	37	55		1	6	2

**Trask River at HWY 101**

	07/08/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999	11/03/1999	01/13/2000
SAMPLE_DATE	10:35	10:35	09:10	10:10	09:10	10:00	09:40	10:25	10:10	09:50
SAMPLE_TIME	34	34	23	22	21	24	30	35	27	15
Alkalinity Field (mg/L)	0.04	0.02	0.05	<0.02	0.03	0.05	0.03	0.04	0.02	0.03
Ammonia (mg/L)	0.7	0.7	1.4	1.5	1.5	1.4	0.7	0.5	1.0	1.2
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	<5	5	<5	<5	<5	5	14	<5	<5	<5
Chemical Oxygen Demand (mg/L)	3.8	2.1				2.9	1.2	0.6		
Chlorophyll a (µg/L)	92	97	82	72	68	74	88	97	93	70
Conductivity Field (µmhos/cm)	40	210	116	18 Est	10est	4 Est.	28 Est.		20 Est.	66
E. Coli MTEC (CFU/100 ml)	58	280	102	10 Est	18est	12 Est.	28 Est.	128	2 Est.	90
Fecal Coliform Membrane filter (CFU/100 ml)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Kjeldahl Nitrogen Total (mg/L)	0.45	0.29	1.1	0.80	0.491	0.374	0.293	0.261	0.768	0.639
Nitrate/nitrite Dissolved (mg/L as N)	0.006	<0.005	0.009	0.014	0.009	0.008	0.009	0.009	0.010	0.014
Orthophosphate Dissolved (mg/L as P)	9.8	9.1	11.4	12.4	12.3	11.2	9.4	9.2	11.6	12.4
Oxygen, total dissolved Field (mg/L)	98	92	98	99	98	101	93	89	96	98
Oxygen, total dissolved Pectent Saturation Field (%)	7.3	7.3	7.3	7.0	7.0	7.4	7.3	7.3	7.4	7.3
pH Field (SU)	3.6	2.6				6.3	2.7	1.2		
Pheophytin a (µg/L)	0.02	0.01	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.04
Phosphate Total (mg/L as P)	70	74	66	64	50	56	68	61	70	64
Solids Total (mg/L)	1		2	7	4	<1	1	1	1	2
Solids Total Suspended (mg/L)	15.9	16.3	9.0	6.2	6.2	11.0	15.6	14.5	7.4	5.6
Temperature Field (°C)	2	2	4	9	7	2.0	1	2	1	14
Turbidity Field (NTU)										
SAMPLE_DATE	05/15/2001	08/01/2001	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/08/2002	09/17/2002		
SAMPLE_TIME	17:55	09:15	08:30	08:10	08:10	08:50	17:30	16:58		
Alkalinity Field (mg/L)	23	35	22	20	23	28	32	33		
Ammonia (mg/L)	0.03	0.06	0.03	<0.02	<0.02	0.03	0.03	0.03		
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.4	1.1	<0.1	0.9	1.1	0.3	0.4		
Chemical Oxygen Demand (mg/L)	9	<5	<5	<5	<5	<5	<5	<5		
Chlorophyll a (µg/L)	1.5	1.3				3.4	0.5	0.8		
Conductivity Field (µmhos/cm)	72	99	79	68	72	79	90	97		
E. Coli MTEC (CFU/100 ml)	204 EST	1600	650	24EST	190EST	14est	33	121		
Fecal Coliform Membrane filter (CFU/100 ml)	254 EST	1450	700	14EST	190EST	16est				
Kjeldahl Nitrogen Total (mg/L)	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
Nitrate/nitrite Dissolved (mg/L as N)	0.571	0.344	0.905	0.631	0.536	0.340	0.289	0.288		
Orthophosphate Dissolved (mg/L as P)	0.010	0.008	0.014	0.016	0.008	0.005	0.008	0.008		
Oxygen, total dissolved Field (mg/L)	10.9	8.7	11.4	11.8	11.6	11.8	10.3	10.1		
Oxygen, total dissolved Pectent Saturation Field (%)	97	87	95	98	95	98	110	106		
pH Field (SU)	7.4	7.2	7.4	7.1	7.2	7.4	7.5	7.7		
Pheophytin a (µg/L)	1.2	2.6				0.8	1.0	2.1		
Phosphate Total (mg/L as P)	0.03	0.02	0.05	0.09	0.02	0.01	0.02	0.02		
Solids Total (mg/L)	67	66	63	74	51	54	60	64		
Solids Total Suspended (mg/L)	3	2	7	25	2	1	2	2		
Temperature Field (°C)	10.3	15.8	7.5	7.7	7.0	7.4	18.9	18.0		
Turbidity Field (NTU)	4	1	12	37	3	1	1	2		

**Tillamook River at Bewley Creek Road**
**LASAR:13440**

SAMPLE_DATE	03/10/1993	06/09/1993	09/22/1993	12/15/1993	06/22/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995	09/13/1995
SAMPLE_TIME	10:45	10:00	09:15	09:50	08:30	17:20	10:20	10:30	11:30	09:15
Alkalinity Field (mg/L)	14	19	27	14	22	21	12	12	18	26
Ammonia (mg/L)	0.020	0.020	0.030	0.040	0.02	0.060	0.24	0.07	0.05	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.8	1.4	2.5	1.6	0.9	0.6	1.1	1.2	0.5	0.9
Chemical Oxygen Demand (mg/L)	<5	5	7	6	<5	7	5	<5	<5	<5
Chlorophyll a (µg/L)		1.2	1		1.9	1.6			6.3	3
Conductivity Field (µmhos/cm)	64	64	89	75	66	77	66	57	62	81
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	13	540	>1600	33	540	350	350	110	350	>1600
Kjeldahl Nitrogen Total (mg/L)	0.200	0.300	0.600	0.400	<0.2	0.500	0.8	0.3	0.4	0.5
Nitrate/nitrite Dissolved (mg/L as N)	0.84	0.65	0.49	1.30	0.70	0.93	1.5	0.91	0.55	0.55
Orthophosphate Dissolved (mg/L as P)	0.007	0.009	0.032	0.011	0.007	0.012		0.007	0.008	0.012
Oxygen, total dissolved Field (mg/L)	12	11	10.5	11.6	10.7	10	11.8	11.8	11.1	9.2
Oxygen, total dissolved Percent Saturation Field (%)	106	103	94	93	99	102	94	104	105	91
pH Field (SU)	7	7.40	7.40	7.10	7.5	7.40	7.2	7.2	7.3	7.4
Pheophytin a (µg/L)		4.50	11		3.8	5.50			15	18
Phosphate Total (mg/L as P)	0.030	0.030	0.090	0.030	0.02	0.050	0.17	0.04	0.03	0.03
Solids Total (mg/L)	53	51	68	65	56	71	60	50	54	66
Solids Total Suspended (mg/L)	<1	4	4	2	2	1	2	3	2	2
Temperature Field (°C)	10	12.5	10.5	6	12.0	16.5	6.0	10.0	13.0	15.5
Turbidity Field (NTU)	1	2	3	2	2	3	1	3	3	2
SAMPLE_DATE	03/20/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/25/1997	09/11/1997	09/25/1997	12/10/1997	02/10/1998
SAMPLE_TIME	09:20	10:25	11:00	10:30	10:20	08:52	10:40	10:33	09:30	10:40
Alkalinity Field (mg/L)	16	18		12	11	16	25	16	15	
Ammonia (mg/L)	0.020	0.020	0.040	0.030	0.040	0.02	<0.02	0.020	0.04	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	1.6	1.0	0.3	0.5	1.2	0.6	0.8	0.9	1.1
Chemical Oxygen Demand (mg/L)	<5	10		7	<5	<5	<5	5	6	
Chlorophyll a (µg/L)		13				2.4	2	1.8		
Conductivity Field (µmhos/cm)	66	69		58	52	62	82	68	64	
E. Coli MTEC (CFU/100 ml)	76 Est.	156		80	340 Est.	640	>1200	>1200	600	
Fecal Coliform Membrane filter (CFU/100 ml)	205	240	1200	88	540	720	>1200	>1200	420	102
Kjeldahl Nitrogen Total (mg/L)	<0.200	0.200		0.200	0.200	<0.2	0.2	<0.200	<0.2	
Nitrate/nitrite Dissolved (mg/L as N)	0.72	0.49	0.46	0.92	0.68	0.51	0.40	0.74	0.92	0.87
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005		0.009	0.007	0.005	0.008	0.007	0.009	
Oxygen, total dissolved Field (mg/L)	12	12.5	8.8	11.1	10.9	11.0	9.5	10	11.7	11.3
Oxygen, total dissolved Percent Saturation Field (%)	101	117	88	93	96	100	96	97	98	96
pH Field (SU)	7.20	7.70	7.20	7.10	7.10	7.3	7.5	7.30	7.3	7.2
Pheophytin a (µg/L)		9.30				4.9	6.6	5.80		
Phosphate Total (mg/L as P)	0.020	0.020	0.050	0.030	0.030	0.02	0.03	0.020	0.03	0.04
Solids Total (mg/L)	40	62	57	53	54 Est.	50	51	29	26	65
Solids Total Suspended (mg/L)	<1	<1		4	6	3	3	2	5	
Temperature Field (°C)	8	12.7	15.8	8	9.8	11.7	16.5	14.6	7.8	8.3
Turbidity Field (NTU)	3	1		4	7	3	2	3	5	

**Tillamook River at Bewley Creek Road**
**LASAR:13440**

SAMPLE_DATE	03/18/1998	07/08/1998	09/14/1998	09/16/1998	11/18/1998	01/27/1999	03/31/1999	05/26/1999	07/21/1999	09/22/1999
SAMPLE_TIME	10:15	10:05	19:30	10:00	08:55	09:40	08:35	08:40	09:20	09:50
Alkalinity Field (mg/L)	14	21		24	10	13	12	14	19	23
Ammonia (mg/L)	<0.02	<0.02	0.03	0.03	0.05	<0.02	<0.02	0.03	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	1	3	3.1	1.4	0.9	1.7	1.2	0.8	1.0
Chemical Oxygen Demand (mg/L)	<5	<5		12	12	<5	<5	<5	5	5
Chlorophyll a (µg/L)		4		4.8				2.4	1.0	0.9
Conductivity Field (µmhos/cm)	63	72		87	65	60	59	63	70	80
E. Coli MTEC (CFU/100 ml)	52 Est.	228		>600	650	14 Est	78	140	>600	
Fecal Coliform Membrane filter (CFU/100 ml)	38 Est.	288	600	>600	730	10 Est	116	150	>600	>600
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2		0.8	0.3	<0.2	0.3	<0.2	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.82	0.60	0.46	0.48	1.2	1.0	0.740	0.564	0.451	0.322
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005		0.030	0.010	0.008	<0.005	0.007	0.008	0.014
Oxygen, total dissolved Field (mg/L)	12.1	11.2	8.8	8.6	11.1	12.0	12.2	11.6	10.5	8.9
Oxygen, total dissolved Percent Saturation Field (%)	103	106	89	84	97	98	100	101	100	85
pH Field (SU)	7.2	7.5	8.1	7.2	7.0	7.3	7.1	7.3	7.3	7.2
Pheophytin a (µg/L)		2.3		11.2				2.1	3.1	6.0
Phosphate Total (mg/L as P)	0.02	0.02	0.09	0.08	0.06	0.02	0.02	0.02	0.02	0.05
Solids Total (mg/L)	47	58	66	74	73	47	42	49	55	54
Solids Total Suspended (mg/L)	4	2			18	3	3	1	1	3
Temperature Field (°C)	8.6	13.1	16.6	15.2	9.3	7.0	6.8	9.3	13.4	13.5
Turbidity Field (NTU)	4	2		6	13	3	5	2.5	2	6
SAMPLE_DATE	11/03/1999	01/13/2000	03/29/2000	05/24/2000	07/13/2000	09/13/2000	01/23/2001	03/21/2001	05/15/2001	08/01/2001
SAMPLE_TIME	09:50	09:30	09:30	09:40	10:20	08:40	16:20	16:40	17:00	08:35
Alkalinity Field (mg/L)	16	10	15	15	18	25	15	14	14	21
Ammonia (mg/L)	0.03	0.04	<0.02	0.04	0.02	0.04	0.03	0.03	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.8	1.2	1.2	1.0	0.5	0.2	1.6	1.2	1.0	0.7
Chemical Oxygen Demand (mg/L)	8	5	<5	<5	<5	<5	<5	<5	8	5
Chlorophyll a (µg/L)				1.0	1.3	1.6			2.0	1.0
Conductivity Field (µmhos/cm)	78	58	62	63	71	82	68	66	61	82
E. Coli MTEC (CFU/100 ml)	>600	304	10EST	190	2500	620	30EST	30EST	>1000	320
Fecal Coliform Membrane filter (CFU/100 ml)	>600	236	28EST	230	3000	550	26EST	48	>1000	370
Kjeldahl Nitrogen Total (mg/L)	0.4	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.728	0.853	0.637	0.555	0.633	0.412	0.951	0.875	0.721	0.599
Orthophosphate Dissolved (mg/L as P)	0.013	0.011	0.006	0.007	0.006	0.009	0.008	0.006	0.008	0.009
Oxygen, total dissolved Field (mg/L)	11.5	11.9	12.3	11.0	10.1	9.0	11.8	11.3	10.6	9.4
Oxygen, total dissolved Percent Saturation Field (%)	95	98	101	102	98	87	98	100	97	90
pH Field (SU)	7.3	7.0	7.4	7.4	7.3	7.0	7.2	7.3	7.2	7.2
Pheophytin a (µg/L)				1.6	2.8	<0.1			2.5	4.2
Phosphate Total (mg/L as P)	0.04	0.03	0.01	0.02	0.02	0.02	0.01	0.02	0.04	0.03
Solids Total (mg/L)	63	56	61	45	51	63	46	44	68	52
Solids Total Suspended (mg/L)	4	5	2	1	1	<1	1	3	5	2
Temperature Field (°C)	7.5	6.9	7.0	11.8	14.6	14.0	7.5	10.1	11.3	13.4
Turbidity Field (NTU)	7	7	1.9	2.2	1.6	2	2	6	5	2

**Tillamook River at Bewley Creek Road**

SAMPLE_DATE	11/28/2001	01/09/2002	03/06/2002	05/08/2002	07/09/2002	09/17/2002
SAMPLE_TIME	08:00	07:40	07:45	08:30	09:26	16:35
Alkalinity Field (mg/L)	13	11	14	20	19	21
Ammonia (mg/L)	0.04	0.03	0.02	0.04	0.03	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.5	0.5	0.7	0.7	0.7	1.0
Chemical Oxygen Demand (mg/L)	8	7	5	<5	<5	7
Chlorophyll a (µg/L)				1.3	0.7	0.9
Conductivity Field (µmhos/cm)	65	59	63	69	75	83
E. Coli MTEC (CFU/100 ml)	3500	260	470	164	>2419	1733
Fecal Coliform Membrane filter (CFU/100 ml)	3300	300	630	182		
Kjeldahl Nitrogen Total (mg/L)	0.2	0.6	<0.2	<0.2	<0.2	0.4
Nitrate/nitrite Dissolved (mg/L as N)	1.20	0.990	0.800	0.567	0.624	0.470
Orthophosphate Dissolved (mg/L as P)	0.010	0.014	0.005	0.007	0.010	0.009
Oxygen, total dissolved Field (mg/L)	11.0	11.3	11.4	12.0	10.0	9.7
Oxygen, total dissolved Percent Saturation Field (%)	92	95	93	97	97	101
pH Field (SU)	7.3	6.9	7.4	7.3	7.4	7.3
Pheophytin a (µg/L)				1.3	1.6	2.3
Phosphate Total (mg/L as P)	0.06	0.04	0.02	0.01	0.02	0.03
Solids Total (mg/L)	71	46	39	42	52	55
Solids Total Suspended (mg/L)	11	7	2	2	2	2
Temperature Field (°C)	8.0	8.2	7.1	6.6	14.3	17.2
Turbidity Field (NTU)	11	8	4	2	2	2

**LASAR:13440**

## Appendix 2 - Mid Coast



**Siletz River 5 Miles d/s Siletz**
**LASAR: 10391**

SAMPLE_DATE	12/15/1992	03/09/1993	06/08/1993	09/21/1993	12/14/1993	03/22/1994	06/21/1994	09/13/1994	03/14/1995	06/20/1995
SAMPLE_TIME	15:25	15:00	15:10	14:00	12:30	13:20	12:45	08:45	14:30	18:10
Alkalinity Field (mg/L)	12		14	22	10	11	16	19	10	13
Ammonia (mg/L)	0.03	0.03	0.03	0.02	<0.020	<0.020	0.03	0.02	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	1.7	1.1	1.3	1.1	1.5	0.7	0.3	0.6	0.6
Chemical Oxygen Demand (mg/L)	5		<5	6	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			0.6	0.6			0.7	2		4.1
Conductivity Field (µmhos/cm)	46		48	54	50	44	52	62	42	45
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	13	2	17	4	11	17	33	49	13	23
Kjeldahl Nitrogen Total (mg/L)	<0.2		0.2	0.2	0.2	0.2	<0.200	0.3	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.05	0.67	0.46	0.08	0.81	0.54	0.34	0.19	0.5	0.29
Orthophosphate Dissolved (mg/L as P)	0.007		0.005	<0.005	0.007	0.01	<0.005	<0.005	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	11.9	12.3	11.4	10.8	11.7	12.7	10.3	9.1	11.6	10.8
Oxygen, total dissolved Percent Saturation Field (%)	101	107	112	105	101	100	101	88	103	104
pH Field (SU)	7.2	7.2	7.5	7.7	7.3	7.2	7.5	7.4	7.1	7.3
Pheophytin a (µg/L)			1.2	1.5			1.3	6.5		8.7
Phosphate Total (mg/L as P)	0.03	0.02	0.02	0.02	0.03	0.02	0.01	0.03	0.05	0.02
Solids Total (mg/L)	50	52	36	49	54	55	29	55	42	45
Solids Total Suspended (mg/L)	2		1	<1	2	1	<1	<1	6	1
Temperature Field (°C)	8.5	9.5	15	14.5	9	5.5	15	14	10	14
Turbidity Field (NTU)	3		2	1	3	4	1	1	7	2
SAMPLE_DATE	09/12/1995	03/19/1996	06/18/1996	09/10/1996	12/10/1996	03/18/1997	06/24/1997	09/10/1997	12/09/1997	03/17/1998
SAMPLE_TIME	13:00	12:40	13:45	13:35	13:25	14:45	12:30	14:20	12:05	14:06
Alkalinity Field (mg/L)	21	12	15	19	10	11	13	18	13	13
Ammonia (mg/L)	0.06	<0.020	0.03	0.03	0.03	0.02	<0.02	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.5	<0.1	0.8	0.2	0.1	0.6	1.3	0.2	0.7	0.6
Chemical Oxygen Demand (mg/L)	<5	<5	7	<5	<5	<5	5	5	<5	<5
Chlorophyll a (µg/L)	4		2	1.7			3.6	1.5		
Conductivity Field (µmhos/cm)	58	47	52	61	42	41	47	56	48	48
E. Coli MTEC (CFU/100 ml)		<4	<4	8 Est.	12 Est.	8 Est.	8 EST	20 Est.	32 Est.	8 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	4	<4	20 Est.	32 Est.	12 Est.	40 Est.	120	32 Est.	26 Est.	<4
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.200	0.2	<0.200	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.1	0.48	0.24	0.04	0.65	0.51	0.31	0.08	0.6	0.57
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	<0.005	<0.005	0.009	0.006	<0.005	0.006	0.009	0.007
Oxygen, total dissolved Field (mg/L)	9.7	11	10.5	9.3	11	11.4	11	9.8	11.9	11.9
Oxygen, total dissolved Percent Saturation Field (%)	103	98	103	101	95	100	106	105	97	105
pH Field (SU)	7.7	7.3	7.1	7.7	7.2	7.2	7.5	7.7	7.4	7.3
Pheophytin a (µg/L)	9		2.4	2.8			4.7	3.8		
Phosphate Total (mg/L as P)	0.01	0.01	<0.010	0.02	0.06	0.03	0.01	0.01	0.02	0.02
Solids Total (mg/L)	47	46	39	46	21	48 Est.	34	36	33	42
Solids Total Suspended (mg/L)	1	<1	<1	<1	19	5 Est.	1	5	<1	<1
Temperature Field (°C)	19	10.5	14.9	19.8	9	9.5	14.2	19.5	6.6	9.8
Turbidity Field (NTU)	1	2	1	<1	15	8	2	1	3	2



**Siletz River 5 Miles d/s Siletz**
**LASAR: 10391**

SAMPLE_DATE	07/07/1998	09/15/1998	11/17/1998	01/26/1999	03/30/1999	05/25/1999	07/20/1999	09/21/1999	11/02/1999	01/12/2000
SAMPLE_TIME	14:30	14:30	12:45	13:25	13:25	17:35	13:40	14:45	13:00	13:49
Alkalinity Field (mg/L)	17	24	12	10	11	11	16	18	14	12
Ammonia (mg/L)	0.04	0.03	0.02	0.02	<0.02	0.03	0.03	<0.02	<0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.5	0.9	0.8	1.1	0.9	0.1	0.1	1	0.5
Chemical Oxygen Demand (mg/L)	<5	5	<5	<5	<5	<5	4	5	<5	<5
Chlorophyll a (µg/L)	1	1.2				1.6	0.5	0.4		
Conductivity Field (µmhos/cm)	55	62	50	45	46	45	54	61	56	44
E. Coli MTEC (CFU/100 ml)	6 Est.	8 Est.	28est	10 Est	24 Est.	2 Est.	8 Est.	4 Est.	20 Est.	4EST
Fecal Coliform Membrane filter (CFU/100 ml)	8 Est.	6 Est.	24est	8 Est	24 Est.	<2	10 Est.	<2	36 Est.	8EST
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.26	0.08	0.69	0.72	0.523	0.308	0.115	0.0267	0.336	0.618
Orthophosphate Dissolved (mg/L as P)	<0.005	0.007	<0.005	0.008	0.006	0.007	0.005	<0.005	<0.005	0.01
Oxygen, total dissolved Field (mg/L)	9.6	9.5	11.5	11.9	12.3	10.8	9.2	9.5	11.8	12.1
Oxygen, total dissolved Percent Saturation Field (%)	104	101	99	98	98	105	98	102	100	97
pH Field (SU)	7.5	7.7	7.3	7.1	6.9	7.4	7.4	7.6	7.5	7.2
Pheophytin a (µg/L)	0.9	1.4				0.5	0.6	0.5		
Phosphate Total (mg/L as P)	0.02	0.01	0.01	0.03	0.03	0.01	0.01	0.02	0.01	0.05
Solids Total (mg/L)	45	43	49	47	49	40	45	50	50	62
Solids Total Suspended (mg/L)	<1		2	3	10	<1	<1	1	<1	13
Temperature Field (°C)	20	18.9	9.1	7	6	14.7	18.8	19.3	8.5	5.8
Turbidity Field (NTU)	1	1	2	9	9	1.8	1	1	1	16
SAMPLE_DATE	03/28/2000	05/23/2000	07/12/2000	09/12/2000	11/28/2000	01/23/2001	03/21/2001	05/15/2001	07/31/2001	09/25/2001
SAMPLE_TIME	14:40	13:40	14:25	13:40	13:10	13:40	13:00	13:55	14:20	13:05
Alkalinity Field (mg/L)	10	14	16		12	13	11	17	18	18
Ammonia (mg/L)	<0.02	0.03	0.02	0.02	<0.02	0.03	<0.02	0.03	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1	0.5	0.3	1.5	1.2	1.5	1.2	0.6	0.8
Chemical Oxygen Demand (mg/L)	<5	<5	6		8	<5	<5	10	<5	<5
Chlorophyll a (µg/L)		0.5	0.3					2	0.8	0.9
Conductivity Field (µmhos/cm)	47	47	50		48	49	48	42	57	63
E. Coli MTEC (CFU/100 ml)	4EST	8EST	8EST		24EST	8EST	2EST	140 EST	6EST	28EST
Fecal Coliform Membrane filter (CFU/100 ml)	6EST	4EST	6EST	12	24EST	10EST	<2	168 EST	8EST	20EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	6.5	<0.2		<0.2	<0.2	<0.2	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.358	0.295	0.0846	0.0571	0.514	0.494	0.587	0.387	0.124	0.0365
Orthophosphate Dissolved (mg/L as P)	<0.005	0.006	0.011		<0.005	0.007	0.007	0.006	<0.005	0.007
Oxygen, total dissolved Field (mg/L)	12	10.5	9.7	9.7	12.1	11.9	11.9	11	9.6	9.1
Oxygen, total dissolved Percent Saturation Field (%)	102	104	104	105	98	99	101	98	104	92
pH Field (SU)	7.4	7.4	7.6	7.2	7.3	7.2	7.3	7.2	7.6	7.4
Pheophytin a (µg/L)		0.6	0.4					1.9	1.3	2.2
Phosphate Total (mg/L as P)	0.01	<0.01	0.01	0.01	0.02	0.01	0.02	0.04	0.02	0.02
Solids Total (mg/L)	52	47	41	41	54	36	38	62	38	56
Solids Total Suspended (mg/L)	1	<1	<1		2	1	3	9	1	2
Temperature Field (°C)	8.6	15.3	19.6	20.2	6.7	7.3	8.8	10.6	19.9	16.5
Turbidity Field (NTU)	3	1.3	0.9		4	2	7	10	<1	1

**Siletz River 5 Miles d/s Siletz**

SAMPLE_DATE	11/27/2001	01/08/2002	03/05/2002	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	12:20	14:30	14:19	13:30	12:52	13:37
Alkalinity Field (mg/L)	12	8	13	14	16	
Ammonia (mg/L)	0.02	<0.02	<0.02	<0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	1	1.1	1.2	0.8	0.2
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	
Chlorophyll a (µg/L)				0.5	0.4	
Conductivity Field (µmhos/cm)	50	41	47	50	52	
E. Coli MTEC (CFU/100 ml)	18EST	40 est	4EST	4 EST	15	187
Fecal Coliform Membrane filter (CFU/100 ml)	22EST	50 est	<2	6 EST		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	
Nitrate/nitrite Dissolved (mg/L as N)	0.629	0.472	0.434	0.255	0.185	0.0568
Orthophosphate Dissolved (mg/L as P)	0.01	0.011	0.008	0.007	<0.005	
Oxygen, total dissolved Field (mg/L)	11.8	11.5	12	11.7	9.4	9.1
Oxygen, total dissolved Percent Saturation Field (%)	98	100	100	104	102	92
pH Field (SU)	7.3	6.9	7.3	7.5	7.6	7.4
Pheophytin a (µg/L)				0.5	0.8	
Phosphate Total (mg/L as P)	0.02	0.13	0.01	0.01	0.01	0.02
Solids Total (mg/L)	140	80	37	36	43	48
Solids Total Suspended (mg/L)	4	47	<1	1	2	
Temperature Field (°C)	7.4	9.6	7.4	9.8	20.2	16.6
Turbidity Field (NTU)	8	80	2	1	1	

**LASAR: 10391**

**Siuslaw River at HWY 126 (Mapleton)**

SAMPLE_DATE	12/15/1992	03/09/1993	06/08/1993	09/21/1993	12/14/1993	03/22/1994	06/21/1994	09/13/1994	03/14/1995	06/20/1995
SAMPLE_TIME	09:25	09:20	09:00	08:30	08:35	09:00	08:40	13:30	09:30	09:25
Alkalinity Field (mg/L)	11	12	15	18	10	11	16	16	10	13
Ammonia (mg/L)	0.02	0.03	0.02	0.03	0.02	<0.020	0.04	0.04	0.02	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	1.3	1	1	2.3	1.1	0.6	0.5	0.5	0.6
Chemical Oxygen Demand (mg/L)	7	<5	<5	7	6	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)			1.3	1.1			0.5	2.3		4.1
Conductivity Field (µmhos/cm)	35	42	44	55	68	44	50	153	42	44
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	33	<2	79	23	49	13	17	4	17	8
Kjeldahl Nitrogen Total (mg/L)	0.5	0.2	0.3	0.2	0.3	0.2	<0.200	0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.73Est	0.47	0.3	0.04	0.86	0.58	0.2	0.04	0.43	0.19
Orthophosphate Dissolved (mg/L as P)	0.008	0.007	0.009	0.007	0.007	0.008	<0.005	0.007	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	11.6	11.6	10.5	9.2	11.9	12	8.5	8.4	11.2	9.5
Oxygen, total dissolved Percent Saturation Field (%)	96	99	100	89	101	97	88	89	99	92
pH Field (SU)	7.1	7.2	7.4	7	7.1	7.5	7.3	7.3	7.2	7.03
Pheophytin a (µg/L)			1.7	1.2			1.8	3.5		12
Phosphate Total (mg/L as P)	0.09	0.02	0.04	0.02	0.04	0.02	0.02	0.03	0.04	0.02
Solids Total (mg/L)	50	49	49	48	43	57	43	98	43	46
Solids Total Suspended (mg/L)	4	2	4	1	6	3	1	<1	1	3
Temperature Field (°C)	7.5	8.5	13.5	14.5	8.5	6.5	17	19	10	14.5
Turbidity Field (NTU)	4	2	5	<1	6	3	1	1	5	4
SAMPLE_DATE	34954	35143	35234	35318	35409	35507	35605	35683	35773	35871
SAMPLE_TIME	0.350694444	0.395833333	0.385416667	0.395833333	0.361111111	0.40625	0.354166667	0.399305556	0.345833333	0.378472222
Alkalinity Field (mg/L)	17		13	16	9	10	13	13	12	13
Ammonia (mg/L)	0.05	0.02	0.04	0.06	0.03	0.05	0.03	0.02	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	0.1	0.9	<0.1	0.4	0.7	0.9	0.5	0.9	0.9
Chemical Oxygen Demand (mg/L)	<5		<5	<5	<5	<5	5	6	5	<5
Chlorophyll a (µg/L)	4		2	3.7			2.1	3.4		
Conductivity Field (µmhos/cm)	51		46	440	36	38	45	53	47	44
E. Coli MTEC (CFU/100 ml)			8 Est.	12 Est.	40 Est.	48 Est.	16 EST	32 Est.	16 Est.	16 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	17	28	4 Est.	215	135	20 Est.	40 EST	4 Est.	22 Est.	8 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3		0.3	<0.200	0.3	<0.200	0.2	0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.03	0.26	0.1	0.02	0.4	0.32	0.08	0.02	0.54	0.38
Orthophosphate Dissolved (mg/L as P)	<0.005		<0.005	<0.005	0.009	0.008	<0.005	<0.005	0.007	0.007
Oxygen, total dissolved Field (mg/L)	7.8	10.5	9.7	7.3	10.9	11.2	9.1	8	11.8	11.5
Oxygen, total dissolved Percent Saturation Field (%)	85	94	99	79	94	99	94	87	97	100
pH Field (SU)	7.3	7.3	7.2	7.1	7	7.3	7.3	6.6	7.3	7.4
Pheophytin a (µg/L)	7		3.7	3.4			4.3	4.6		
Phosphate Total (mg/L as P)	0.02	0.02	0.02	0.02	0.07	0.03	0.02	0.01	0.02	0.02
Solids Total (mg/L)	44	31	39	240	58	48 Est.	42	50	27	40
Solids Total Suspended (mg/L)	<1		<1	<1	20	8 Est.	1	<1	1	4
Temperature Field (°C)	20	10.5	14.5	19.8	9.2	9.8	16.9	20	7.1	9.5
Turbidity Field (NTU)	1		1	1	21	9	1	1	2	3

# Siuslaw River at HWY 126 (Mapleton)

SAMPLE_DATE	07/07/1998	09/15/1998	11/17/1998	01/26/1999	03/30/1999	05/25/1999	07/20/1999	09/21/1999	11/02/1999	01/11/2000
SAMPLE_TIME	09:10	09:05	08:50	09:00	08:40	12:15	08:40	09:45	08:50	17:20
Alkalinity Field (mg/L)	17	14	12	10	10	12	13	15	14	9
Ammonia (mg/L)	0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.03	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	0.5	0.7	0.7	0.9	1.1	0.2	0.1	1.1	0.7
Chemical Oxygen Demand (mg/L)	5	6	7	<5	5	<5	7	5	13	10
Chlorophyll a (µg/L)	1	0.8				1.6	1.6	1.6		
Conductivity Field (µmhos/cm)	50	121	58	38	40	44	47	393	58	39
E. Coli MTEC (CFU/100 ml)	32 Est.	22 Est.	28est	18 Est	40	2 Est.	12 Est.	24 Est.	14 Est.	20EST
Fecal Coliform Membrane filter (CFU/100 ml)	30 Est.	22 Est.	52	20 Est	30 Est.	8 Est.	24 Est.	18 Est.	20 Est.	26EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	0.2	0.4	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.08	0.03	0.94	0.43	0.34	0.184	0.0307	0.0135	0.361	0.482
Orthophosphate Dissolved (mg/L as P)	<0.005	0.009	<0.005	0.008	0.006	0.008	<0.005	<0.005	0.005	0.01
Oxygen, total dissolved Field (mg/L)	7.5	7.3	10.3	11.8	11.8	9.8	8.5	7.9	10.9	11.7
Oxygen, total dissolved Percent Saturation Field (%)	85	79	92	97	97	96	96	84	94	98
pH Field (SU)	7.2	7	7.2	7.4	7.5	7.3	7.3	7	7.4	7.2
Pheophytin a (µg/L)	1.3	0.7				0.9	0.9	0.5		
Phosphate Total (mg/L as P)	<0.01	0.01	0.01	0.04	0.04	0.01	0.02	0.02	0.02	0.09
Solids Total (mg/L)	38	74	56	51	52	36	41	220	52	73
Solids Total Suspended (mg/L)	<1		<1	12	11	<1	1	<1	1	32
Temperature Field (°C)	22.1	19.9	10	7.2	7	15.1	21.3	18.9	9.1	7.8
Turbidity Field (NTU)	1	1	1	12	11	1.7	2	1	2	35
SAMPLE_DATE	03/28/2000	05/23/2000	07/12/2000	09/12/2000	11/28/2000	01/23/2001	03/21/2001	05/15/2001	07/31/2001	09/25/2001
SAMPLE_TIME	09:15	09:45	09:45	09:25	08:55	08:30	08:50	08:45	09:15	08:41
Alkalinity Field (mg/L)	10	14	13		14	12	11	12	14	14
Ammonia (mg/L)	<0.02	0.05	0.04	0.04	<0.02	0.02	0.02	0.02	0.05	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	0.5	0.5	0.2	0.8	0.8	0.8	3.1	0.4	0.7
Chemical Oxygen Demand (mg/L)	5	6	7		7	5	6	8	5	5
Chlorophyll a (µg/L)		0.8	0.7					1.5	1.1	1.6
Conductivity Field (µmhos/cm)	43	43	46		52	49	49	44	49	1000
E. Coli MTEC (CFU/100 ml)	10EST	6EST	16EST		2EST	6EST	12EST	124 EST	8EST	20EST
Fecal Coliform Membrane filter (CFU/100 ml)	6EST	18EST	16EST	8	10EST	10EST	18EST	148 EST	14EST	16EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2		<0.2	0.2	<0.2	0.3	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.226	0.149	0.0582	0.0219	0.394	0.524	0.521	0.317	0.0493	0.0488
Orthophosphate Dissolved (mg/L as P)	<0.005	0.005	0.006		<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	11.4	9	8.3	8.9	11.4	11.4	11.2	10	8.7	6.8
Oxygen, total dissolved Percent Saturation Field (%)	98	93	92	95	93	95	95	93	92	72
pH Field (SU)	7.3	7.3	7.3	7	7.4	7.1	7.3	7.2	7.3	6.9
Pheophytin a (µg/L)		1.1	0.8					2.8	1.1	1.2
Phosphate Total (mg/L as P)	0.01	<0.01	0.02	0.02	0.01	0.01	0.01	0.03	0.02	0.02
Solids Total (mg/L)	47	47	39	38	43	34	38	54	51	560
Solids Total Suspended (mg/L)	1	1	1		1	<1	<1	11	<1	1
Temperature Field (°C)	9	17.1	21.1	19.2	6.9	7.4	8.4	12.5	18.7	18.6
Turbidity Field (NTU)	2.9	2	1.2		1	1	2	7	<1	1

**Siuslaw River at HWY 126 (Mapleton)**

SAMPLE_DATE	11/27/2001	01/08/2002	03/05/2002	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	08:15	09:30	09:00	08:45	16:50	09:25
Alkalinity Field (mg/L)	10	10	11	13	15	17
Ammonia (mg/L)	0.02	0.03	<0.02	0.04	0.03	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	0.6	1.2	0.3	0.8	0.4
Chemical Oxygen Demand (mg/L)	8	7	<5	<5	<5	7
Chlorophyll a (µg/L)				1	3.7	1.6
Conductivity Field (µmhos/cm)	53	42	43	46	49	2089
E. Coli MTEC (CFU/100 ml)	14EST	16 est	4EST	6 EST	7	77
Fecal Coliform Membrane filter (CFU/100 ml)	18EST	16 est	4EST	10 EST		
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.979	0.554	0.285	0.149	0.0443	0.0525
Orthophosphate Dissolved (mg/L as P)	0.008	0.011	0.007	0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	11.3	11.2	11.5	10.3	8.7	7
Oxygen, total dissolved Percent Saturation Field (%)	95	99	94	92	103	74
pH Field (SU)	7.3	7	7.2	7.1	7.6	6.8
Pheophytin a (µg/L)				1.4	2	1.6
Phosphate Total (mg/L as P)	0.04	0.06	0.01	0.01	0.01	0.02
Solids Total (mg/L)	51	49	36	35	43	1100
Solids Total Suspended (mg/L)	5	12	<1	2	1	3
Temperature Field (°C)	8	10.1	7.2	10.4	24.4	18.2
Turbidity Field (NTU)	5	14	2	2	1	2

**LASAR: 10392**

# Salmon River at Otis

# LASAR: 11241

SAMPLE_DATE	03/10/1993	06/08/1993	09/21/1993	12/15/1993	03/22/1994	06/21/1994	09/12/1994	12/07/1994	03/15/1995	06/21/1995
SAMPLE_TIME	08:50	13:40	15:40	08:30	14:35	14:10	19:00	09:00	08:55	09:15
Alkalinity Field (mg/L)	20		34	17	17		28	16	15	20
Ammonia (mg/L)	0.02	0.02	0.06	0.04	0.02	0.02	0.07	0.15	0.05	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.8	0.9	2.1	2.5	1	0.5	0.7	1	1	0.5
Chemical Oxygen Demand (mg/L)	<5		6	<5	<5		<5	<5	<5	<5
Chlorophyll a (µg/L)			0.3				1.6			5.6
Conductivity Field (µmhos/cm)	67		79	72	59		85	107	54	54
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	23	33	79	14	14	49	79	33	13	31
Kjeldahl Nitrogen Total (mg/L)	0.2		0.3	0.4	<0.200		0.2	0.5	0.2	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.62	0.45	0.28	0.91	0.67	0.44	0.33	1.2	0.53	0.3
Orthophosphate Dissolved (mg/L as P)	0.013		0.024	0.011	0.012		0.015	0.023	0.011	0.01
Oxygen, total dissolved Field (mg/L)	11.6	11.2	11.6	12	12.5	11	10.5	12.1	11.9	11.3
Oxygen, total dissolved Percent Saturation Field (%)	100	110	112	101	101	106	104	95	103	103
pH Field (SU)	7.3	7.6	7.6	7.2	7.4	7.8	7.6	7.2	7.2	7.3
Pheophytin a (µg/L)			1.1				4.6			11
Phosphate Total (mg/L as P)	0.03	0.03	0.04	0.04	0.03	0.02	0.04	0.09	0.04	0.02
Solids Total (mg/L)	60	56	69	68	54	58	68	86	54	53
Solids Total Suspended (mg/L)	2		<1	2	2		<1	2	1	1
Temperature Field (°C)	9	15	14	8	6.5	14	15.5	5	9	11.5
Turbidity Field (NTU)	1		<1	2	3		1	3	3	3
SAMPLE_DATE	09/12/1995	03/19/1996	06/19/1996	09/11/1996	12/11/1996	03/19/1997	06/24/1997	09/11/1997	12/09/1997	03/18/1998
SAMPLE_TIME	14:10	14:00	08:55	09:30	08:40	08:55	13:35	09:00	14:00	08:20
Alkalinity Field (mg/L)	32	20	27	28	16	14	20	29	19	20
Ammonia (mg/L)	0.06	0.03	0.02	0.06	0.03	0.04	<0.02	0.05	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.3	1.1	0.4	0.4	0.2	1.2	0.6	1.1	1.3
Chemical Oxygen Demand (mg/L)	<5	<5	6	<5	<5	<5	5	<5	5	<5
Chlorophyll a (µg/L)	3		6.2	1.5			2.6	1.6		
Conductivity Field (µmhos/cm)	83	70	79	89	58	52	65	85	67	69
E. Coli MTEC (CFU/100 ml)		40 Est.	60 Est.	110	28 Est.	28 Est.	20 EST	170	56	18 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	110	140	40 Est.	185	52 Est.	12 Est.	160	300	38 Est.	10 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.200	<0.200	<0.200	<0.200	<0.200	<0.2	0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.32	0.49	0.29	0.31	0.6	0.43	0.35	0.31	0.58	0.57
Orthophosphate Dissolved (mg/L as P)	0.02	0.012	<0.005	0.012	0.012	0.01	0.011	0.018	0.014	0.014
Oxygen, total dissolved Field (mg/L)	10.2	11.3	11.6	9.5	11.5	11.1	11.5	9.1	12.4	12.3
Oxygen, total dissolved Percent Saturation Field (%)	105	102	104	91	95	97	108	91	102	101
pH Field (SU)	7.5	7.6	8	7.4	7.5	7.4	7.6	7.5	7.6	7.6
Pheophytin a (µg/L)	10		21	4.8			3.8	5		
Phosphate Total (mg/L as P)	0.03	0.03	0.02	0.02	0.04	0.02	0.02	0.03	0.03	0.02
Solids Total (mg/L)	62	28	46	62	57	79 Est.	48	59	45	57
Solids Total Suspended (mg/L)	<1	2	2	<1	5	3	<1	<1	2	2
Temperature Field (°C)	17	11	11	14.2	7.4	9.6	13.1	16	7.2	7
Turbidity Field (NTU)	1	3	<1	1	6	5	3	2	5	2

# Salmon River at Otis

# LASAR: 11241

SAMPLE_DATE	07/08/1998	09/16/1998	11/17/1998	01/26/1999	03/30/1999	07/21/1999	09/22/1999	11/03/1999	03/29/2000	05/23/2000
SAMPLE_TIME	08:15	08:10	14:45	14:50	14:45	07:35	08:20	08:15	08:00	15:30
Alkalinity Field (mg/L)	26	30	16	19	17	23	29	20	19	21
Ammonia (mg/L)	0.03	0.03	0.03	0.02	<0.02	0.04	0.04	0.02	0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.7	0.8	1.4	0.9	0.4	0.5	1.1	1	0.8
Chemical Oxygen Demand (mg/L)	<5	5	<5	<5	<5	<5	<5	5	<5	5
Chlorophyll a (µg/L)	2.1	1.1				1.1	0.6			1
Conductivity Field (µmhos/cm)	79	88	60	67	62	78	88	78	66	70
E. Coli MTEC (CFU/100 ml)	224	550	10est	2 Est	30 Est.	66		46	66	48
Fecal Coliform Membrane filter (CFU/100 ml)	240	730	18est	2 Est	38 Est.	54	65	62	40	42
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	0.6	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.35	0.32	0.5	0.75	0.484	0.25	0.215	0.383	0.382	0.372
Orthophosphate Dissolved (mg/L as P)	0.009	0.013	0.007	0.014	0.01	0.014	0.013	0.012	0.011	0.013
Oxygen, total dissolved Field (mg/L)	10.4	9.1	11.8	12.2	12.2	9.6	9.3	11.7	12.4	10.9
Oxygen, total dissolved Percent Saturation Field (%)	99	87	100	100	100	92	86	97	99	106
pH Field (SU)	7.5	7.5	7.4	7.2	7.1	7.3	7.3	7.4	7.6	7.7
Pheophytin a (µg/L)	2.8	2.2				1.7	1.1			0.2
Phosphate Total (mg/L as P)	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Solids Total (mg/L)	66	75	47	53	57	60	56	56	69	63
Solids Total Suspended (mg/L)	<1		2	3	<1	<1	1	<1	1	1
Temperature Field (°C)	13.5	13.3	8.7	7.2	6.8	13.9	12.2	7.3	5.9	14.5
Turbidity Field (NTU)	1	2	2	4	4	1	1	1	2.3	1.3
SAMPLE_DATE	07/13/2000	09/12/2000	11/28/2000	01/23/2001	03/21/2001	05/15/2001	07/31/2001	09/25/2001	11/27/2001	01/08/2002
SAMPLE_TIME	08:25	15:05	14:40	14:50	15:00	15:05	16:15	14:20	14:30	15:45
Alkalinity Field (mg/L)	24		15	20	17	15	27	26	19	12
Ammonia (mg/L)	<0.02	0.05	0.03	<0.02	0.03	0.04	0.06	0.03	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	0.8	1	1.5	1.5	1	1.3	0.9	1.5	0.7
Chemical Oxygen Demand (mg/L)	<5		6	<5	<5	6	5	<5	<5	6
Chlorophyll a (µg/L)	1.2					1	1.4	0.7		
Conductivity Field (µmhos/cm)	78		61	70	70	54	82	89	71	55
E. Coli MTEC (CFU/100 ml)	50		16EST	34EST	2EST	110 EST	12EST	180	30EST	70 est
Fecal Coliform Membrane filter (CFU/100 ml)	48	70	20EST	40	4EST	80 EST	36EST	186	6EST	140 est
Kjeldahl Nitrogen Total (mg/L)	<0.2		<0.2	<0.2	<0.2	0.6	<0.2	0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.237	0.227	0.536	0.522	0.573	0.43	0.238	0.268	0.731	0.547
Orthophosphate Dissolved (mg/L as P)	0.01		0.007	0.013	0.011	0.008	0.012	0.017	0.014	0.014
Oxygen, total dissolved Field (mg/L)	10	9.8	12.2	12	11.8	11.2	10.8	10.1	11.7	11.5
Oxygen, total dissolved Percent Saturation Field (%)	96	103	100	100	101	100	112	97	96	100
pH Field (SU)	7.2	7.3	7.4	7.3	7.5	7.2	7.8	7.5	7.5	7.1
Pheophytin a (µg/L)	1.6					0.8	2.1	2		
Phosphate Total (mg/L as P)	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.07
Solids Total (mg/L)	55	58	46	50	47	62	58	68	54	60
Solids Total Suspended (mg/L)	<1		1	1	2	3	<1	<1	4	20
Temperature Field (°C)	14.1	18.3	6.9	7.5	9.2	10.4	17.3	14	7.2	9.7
Turbidity Field (NTU)	1		3	2	5	5	<1	1	6	31

Salmon River at Otis	LASAR: 11241			
SAMPLE_DATE	03/05/2002	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	15:30	14:50	11:15	15:03
Alkalinity Field (mg/L)	21	23	24	26
Ammonia (mg/L)	<0.02	0.02	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.6	1.7	2.1	1.1
Chemical Oxygen Demand (mg/L)	<5	<5	<5	7
Chlorophyll a (µg/L)		1.7	0.7	0.8
Conductivity Field (µmhos/cm)	69	69	77	90
E. Coli MTEC (CFU/100 ml)	10EST	4 EST	53	866
Fecal Coliform Membrane filter (CFU/100 ml)	8EST	<2		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.511	0.285	0.29	0.306
Orthophosphate Dissolved (mg/L as P)	0.013	0.01	0.013	0.015
Oxygen, total dissolved Field (mg/L)	18	12.4	10.6	10.3
Oxygen, total dissolved Percent Saturation Field (%)	99	108	105	103
pH Field (SU)	7.4	7.8	7.5	7.7
Pheophytin a (µg/L)		0.9	1.5	2.3
Phosphate Total (mg/L as P)	0.02	0.02	0.02	0.03
Solids Total (mg/L)	52	45	56	72
Solids Total Suspended (mg/L)	2	1	2	2
Temperature Field (°C)	8	9.7	15.7	15.5
Turbidity Field (NTU)	3	1	1	3



# Alsea River at Thissell Road

# LASAR: 11263

SAMPLE_DATE	06/08/1993	12/14/1993	03/22/1994	06/21/1994	09/13/1994	03/14/1995	06/20/1995	09/12/1995	03/19/1996	06/18/1996
SAMPLE_TIME	11:20	10:35	11:05	10:45	11:30	11:45	14:45	10:05	10:45	11:20
Alkalinity Field (mg/L)	20	14	17	23	27	13	21	29	18	21
Ammonia (mg/L)	0.02	0.02	<0.020	0.02	0.05	0.02	0.04	0.05	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.3	0.8	0.8	0.8	1.1	0.5	0.6	0.1	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	6	<5	<5	<5	<5	9
Chlorophyll a (µg/L)	0.9			1.6	2		4.4	4		3.6
Conductivity Field (µmhos/cm)	58	60	51	65	79	53	60	72	58	63
E. Coli MTEC (CFU/100 ml)									44 Est.	105
Fecal Coliform Membrane filter (CFU/100 ml)	49	49	33	79	110	70	31	13	200	72 Est.
Kjeldahl Nitrogen Total (mg/L)	0.2	0.2	<0.200	<0.200	0.4	0.4	0.3	0.3	<0.200	<0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.48	0.94	0.69	0.22	0.1	0.62	0.24	0.11	0.42	0.19
Orthophosphate Dissolved (mg/L as P)	0.01	0.01	0.011	<0.005	0.013	0.01	0.008	0.013	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	10.7	11.7	12.1	9.3	9	11.1	8.5	11.1	10.6	
Oxygen, total dissolved Percent Saturation Field (%)	101	97	98	93	91	98	107	90	99	100
pH Field (SU)	7.5	7.3	7.4	7.6	7.7	7.2	7.4	7.6	7.4	7.4
Pheophytin a (µg/L)	2.1			4	9.4		14.3	16		6.6
Phosphate Total (mg/L as P)	0.03	0.04	0.02	0.02	0.05	0.09	0.03	0.04	0.04	0.02
Solids Total (mg/L)	49	56	61	55	72	54	58	56	38	48
Solids Total Suspended (mg/L)	2	6	5	<1	2	12	1	<1	<1	1
Temperature Field (°C)	13	7	6.5	16	16.5	10	14.5	19	10.5	13.1
Turbidity Field (NTU)	2	3	3	1	2	9	3	1	3	1
SAMPLE_DATE	09/10/1996	12/10/1996	03/18/1997	06/24/1997	09/10/1997	12/09/1997	03/17/1998	07/07/1998	09/15/1998	11/17/1998
SAMPLE_TIME	11:15	11:05	11:40	10:20	12:05	10:10	10:55	11:15	11:35	10:40
Alkalinity Field (mg/L)	26		15	21	25	17	19	24	25	20
Ammonia (mg/L)	0.03	<0.02	0.02	0.02	0.04	0.02	0.03	0.02	0.04	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	0.2	0.3	0.7	0.5	0.2	0.9	0.7	0.2	1
Chemical Oxygen Demand (mg/L)	<5		<5	<5	5	6	<5	5	5	7
Chlorophyll a (µg/L)	6.1			2.6	3.8			1.8	1.2	
Conductivity Field (µmhos/cm)	74		49	63	70	58	56	67	75	69
E. Coli MTEC (CFU/100 ml)	8 Est.		12 Est.	80	16 Est.	72	4 Est.	88	18 Est.	44
Fecal Coliform Membrane filter (CFU/100 ml)	4 Est.	220	36 Est.	195	28 Est.	78	20 Est.	96	10 Est.	16est
Kjeldahl Nitrogen Total (mg/L)	0.3		<0.200	0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.06	0.58	0.43	0.14	0.06	0.65	0.49	0.15	0.09	0.73
Orthophosphate Dissolved (mg/L as P)	0.006		0.01	0.007	0.008	0.012	0.01	0.005	0.012	0.009
Oxygen, total dissolved Field (mg/L)	8.6	10.7	11.1	10	8.7	11.3	11.7	8.9	8.2	10.9
Oxygen, total dissolved Percent Saturation Field (%)	91	93	97	99	93	93	102	95	87	96
pH Field (SU)	7.6	7.2	7.3	7.4	7.4	7.5	7.2	7.4	7.3	7.5
Pheophytin a (µg/L)	7.4			6.4	6.5			2.4	2	
Phosphate Total (mg/L as P)	0.02	0.09	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.02
Solids Total (mg/L)	52	85	25 Est.	44	60	13	52	58	51	64
Solids Total Suspended (mg/L)	1		5 Est.	2	<1	2	2	<1		2
Temperature Field (°C)	18.3	9.3	9.7	15.3	19	7.1	9.4	19.2	18.5	9.9
Turbidity Field (NTU)	1		6	2	1	3	3	2	1	2

# Aalse River at Thissell Road

# LASAR: 11263

SAMPLE_DATE	01/26/1999	03/30/1999	05/25/1999	07/20/1999	09/21/1999	11/02/1999	01/12/2000	03/28/2000	05/23/2000	07/12/2000
SAMPLE_TIME	11:00	11:00	15:15	10:40	11:30	10:40	11:00	12:20	11:40	11:45
Alkalinity Field (mg/L)	14	14	16	22	24	20	12	15	19	22
Ammonia (mg/L)	<0.02	<0.02	<0.02	0.02	0.02	<0.02	0.02	<0.02	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	1.4	1.2	0.2	0.2	1.2	0.9	1.4	0.7	0.4
Chemical Oxygen Demand (mg/L)	<5	5	5	6	<5	8	<5	<5	<5	5
Chlorophyll a (µg/L)			2.7	0.6	3.8				0.7	0.8
Conductivity Field (µmhos/cm)	50	50	56	65	73	71	50	57	57	62
E. Coli MTEC (CFU/100 ml)	14 Est	24 Est.	4 Est.	20 Est.	6 Est.	34 Est.	16EST	24EST	10EST	18EST
Fecal Coliform Membrane filter (CFU/100 ml)	14 Est	44	14 Est.	14 Est.	8 Est.	38 Est.	24EST	16EST	22EST	26EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2	<0.2	0.5	<0.2	0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.59	0.499	0.228	0.0905	0.0575	0.444	0.54	0.285	0.219	0.0924
Orthophosphate Dissolved (mg/L as P)	0.011	0.009	0.006	0.006	0.006	0.005	0.011	0.007	0.008	0.007
Oxygen, total dissolved Field (mg/L)	11.9	12	10.6	8.6	8.9	11.2	12.1	11.9	10.2	9
Oxygen, total dissolved Percent Saturation Field (%)	98	97	105	91	92	95	97	103	100	95
pH Field (SU)	7.2	7.2	7.3	7.5	7.6	7.5	7.3	7.6	7.5	7.4
Pheophytin a (µg/L)			2.5	1.2	1				1.6	1.5
Phosphate Total (mg/L as P)	0.04	0.06	0.02	0.02	0.02	0.02	0.04	0.02	0.01	0.02
Solids Total (mg/L)	60	66	42	58	54	55	61	10	53	53
Solids Total Suspended (mg/L)	15	19	<1	1	<1	<1	11	1	1	1
Temperature Field (°C)	7.2	6.3	15.8	19.1	17.4	8.3	6	9.2	15.2	18.7
Turbidity Field (NTU)	9	18	1.4	1	2	1	9	2.1	1.6	1.4
SAMPLE_DATE	09/12/2000	11/28/2000	01/23/2001	03/21/2001	05/15/2001	07/31/2001	09/25/2001	11/27/2001	01/08/2002	03/05/2002
SAMPLE_TIME	11:25	10:45	10:45	10:40	11:20	11:20	10:55	10:20	11:30	11:10
Alkalinity Field (mg/L)		20	18	17	18	24	26	15	12	19
Ammonia (mg/L)	0.04	<0.02	<0.02	0.02	0.04	0.04	0.04	0.19	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	1.1	0.8	1.3	0.9	0.6	0.8	1.2	0.8	1
Chemical Oxygen Demand (mg/L)		8	<5	<5	8	6	<5	<5	9	<5
Chlorophyll a (µg/L)					2.4	1.1	1.3			
Conductivity Field (µmhos/cm)		65	60	61	55	69	78	61	50	57
E. Coli MTEC (CFU/100 ml)		38EST	20EST	6EST	268 EST	10EST	16EST	30EST	16 est	28EST
Fecal Coliform Membrane filter (CFU/100 ml)	6	72EST	20EST	10EST	276 EST	32EST	28EST	32EST	18 est	32EST
Kjeldahl Nitrogen Total (mg/L)		<0.2	<0.2	<0.2	0.3	0.2	0.2	<0.2	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0508	0.312	0.512	0.495	0.347	0.0947	0.0869	0.845	0.594	0.391
Orthophosphate Dissolved (mg/L as P)		0.008	0.009	0.008	0.008	0.009	0.012	0.011	0.014	0.009
Oxygen, total dissolved Field (mg/L)	8.8	11.6	11.5	11.7	10.4	9.1	8.5	11.8	11.1	11.4
Oxygen, total dissolved Percent Saturation Field (%)	94	94	95	101	96	95	89	98	99	93
pH Field (SU)	7.1	7.4	7.3	7.4	7.3	7.5	7.5	7.4	7	7.3
Pheophytin a (µg/L)					4.7	2.5	2.7			
Phosphate Total (mg/L as P)	0.09	0.02	0.02	0.02	0.04	0.03	0.03	0.03	0.08	0.01
Solids Total (mg/L)	49	51	43	43	59	73	58	52	71	42
Solids Total Suspended (mg/L)		1	1	1	8	2	3	3	27	<1
Temperature Field (°C)	19	6.7	7.6	8.9	11.9	17.6	17.4	7.7	10.3	7.2
Turbidity Field (NTU)		2	1	2	5	1	2	4	29	1

**Alsea River at Thissell Road**
**LASAR: 11263**

SAMPLE_DATE	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	11:05	14:55	11:15
Alkalinity Field (mg/L)	20	23	26
Ammonia (mg/L)	0.04	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.5	0.6
Chemical Oxygen Demand (mg/L)	<5	<5	6
Chlorophyll a (µg/L)	1.1	0.7	1
Conductivity Field (µmhos/cm)	60	67	82
E. Coli MTEC (CFU/100 ml)	18 EST	10	55
Fecal Coliform Membrane filter (CFU/100 ml)	18 EST		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.224	0.0891	0.0636
Orthophosphate Dissolved (mg/L as P)	0.008	0.008	0.006
Oxygen, total dissolved Field (mg/L)	11.2	9.4	8.8
Oxygen, total dissolved Percent Saturation Field (%)	99	108	89
pH Field (SU)	7.6	7.9	7.5
Pheophytin a (µg/L)	1.3	1.1	3.3
Phosphate Total (mg/L as P)	0.02	0.02	0.02
Solids Total (mg/L)	44	53	66
Solids Total Suspended (mg/L)	1	3	<1
Temperature Field (°C)	9.8	22.2	16.6
Turbidity Field (NTU)	1	1	2

**Yaquina River Downstream of Chitwood**
**LASAR: 11476**

SAMPLE_DATE	12/15/1992	03/09/1993	06/08/1993	09/21/1993	12/14/1993	03/22/1994	06/21/1994	09/13/1994	03/14/1995	06/20/1995
SAMPLE_TIME	14:30	14:10	16:00	13:10	11:50	12:30	12:00	09:30	13:05	16:10
Alkalinity Field (mg/L)	12	13	17	30	12	13	21	26	11	18
Ammonia (mg/L)	<0.02	0.02	0.02	0.04	0.03	<0.020	0.03	0.04	0.04	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	1.2	1	1	1.1	1.3	0.6	0.6	0.9	0.4
Chemical Oxygen Demand (mg/L)	<5	<5	<5	12	<5	<5	<5	8	<5	<5
Chlorophyll a (µg/L)			0.5	0.9			1.1	1.8		4.8
Conductivity Field (µmhos/cm)	61	59	63	76	70	60	68	87	61	65
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	13	49	79	17	23	46	33	33	49	49
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	0.2	0.4	0.4	0.3	<0.200	0.4	0.4	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.77	1.6	1.3	0.16	2	0.16	0.76	0.16	1.5	0.72
Orthophosphate Dissolved (mg/L as P)	0.012	0.011	0.011	0.017	0.01	0.012	0.012	0.02	0.009	0.011
Oxygen, total dissolved Field (mg/L)	11.5	11.8	10.7	8.9	11.3	12	9.5	7.9	11.1	10.3
Oxygen, total dissolved Percent Saturation Field (%)	99	103	105	87	99	98	95	76	100	100
pH Field (SU)	6.9	7.1	7.3	7.3	7.1	7.2	7.4	7.3	7.1	7.3
Pheophytin a (µg/L)			1.7	2.4			2.6	5.9		10.7
Phosphate Total (mg/L as P)	0.05	0.03	0.04	0.05	0.06	0.07	0.03	0.06	0.14	0.03
Solids Total (mg/L)	65	61	65	74	68	81	59	72	110	61
Solids Total Suspended (mg/L)	10	3	6	3	12	23	2	1	55	2
Temperature Field (°C)	9	9.5	15	15	9.5	7	16	14	11	14.5
Turbidity Field (NTU)	5	2	4	2	6	9	2	3	35	6
SAMPLE_DATE	09/12/1995	03/19/1996	06/18/1996	09/10/1996	12/10/1996	03/18/1997	06/24/1997	09/10/1997	12/09/1997	03/17/1998
SAMPLE_TIME	11:40	12:00	13:00	12:55	12:30	14:00	11:50	13:40	11:25	13:00
Alkalinity Field (mg/L)	31	13	18	25	10	12	17	24	14	14
Ammonia (mg/L)	0.04	0.03	0.04	0.05	0.02	0.03	0.03	0.03	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.3	0.8	0.5	0.2	0.2	0.9	0.5	0.9	0.7
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	7	<5	5	9	6	<5
Chlorophyll a (µg/L)	21		1.8	4.1			1.7	2		
Conductivity Field (µmhos/cm)	83	62	66	83	56	55	65	79	64	62
E. Coli MTEC (CFU/100 ml)		20 Est.	80	28 Est.	108	24 Est.	160	20 Est.	46	8 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	22	145	80	72 Est.	155	145	300	60 Est.	58	8 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.200	0.2	0.3	0.4	<0.200	0.2	0.3	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.2	1.2	0.75	0.11	1.5	1.2	0.63	0.19	1.5	1.4
Orthophosphate Dissolved (mg/L as P)	0.018	0.008	0.007	0.014	0.011	0.011	0.012	0.016	0.012	0.011
Oxygen, total dissolved Field (mg/L)	7.9	10.9	10.6	8.1	10.4	10.8	10.3	8.2	11.8	11.6
Oxygen, total dissolved Percent Saturation Field (%)	83	98	101	86	91	96	101	87	97	101
pH Field (SU)	7.4	7.3	7.3	7.3	7	7.1	7.4	7.3	7.3	7.2
Pheophytin a (µg/L)	10		<0.10	5			5.6	4.5		
Phosphate Total (mg/L as P)	0.04	0.03	0.02	0.04	0.13	0.05	0.03	0.04	0.04	0.03
Solids Total (mg/L)	63	41	47	68	99	72 Est.	45	68	52	56
Solids Total Suspended (mg/L)	1	2	<1	2	46	15 Est.	2	<1	9	4
Temperature Field (°C)	18	11	13.6	18.7	9.5	10.2	14.8	19	7.1	9.7
Turbidity Field (NTU)	2	4	2	1	30	12	3	1	7	5

# Yaquina River Downstream of Chitwood

# LASAR: 11476

SAMPLE_DATE	07/07/1998	09/15/1998	11/17/1998	01/26/1999	03/30/1999	05/25/1999	07/20/1999	09/21/1999	11/02/1999	01/12/2000
SAMPLE_TIME	13:20	13:45	11:57	12:45	12:30	16:55	12:35	14:00	12:05	13:00
Alkalinity Field (mg/L)	21	25	16	12	14	14	19	23	20	11
Ammonia (mg/L)	0.03	0.04	<0.02	<0.02	<0.02	0.04	0.03	0.04	<0.02	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.9	1	0.9	1.2	0.8	0.2	0.5	1.5	0.8
Chemical Oxygen Demand (mg/L)	7	8	5	<5	<5	<5	10	9	10	<5
Chlorophyll a (µg/L)	1	7.5				1.6	0.7	1.6		
Conductivity Field (µmhos/cm)	72	83	77	57	58	60	69	82	94	58
E. Coli MTEC (CFU/100 ml)	24 Est.	26 Est.	60	14 Est	48	18 Est.	10 Est.	2 Est.	6 Est.	22
Fecal Coliform Membrane filter (CFU/100 ml)	20 Est.	24 Est.	60	24 Est	102	30 Est.	30 Est.	4 Est.	10 Est.	18EST
Kjeldahl Nitrogen Total (mg/L)	0.4	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.6	0.2	1.7	1.5	1.29	0.997	0.371	0.141	0.665	1.32
Orthophosphate Dissolved (mg/L as P)	0.013	0.022	0.01	0.011	0.01	0.011	0.013	0.013	0.006	0.012
Oxygen, total dissolved Field (mg/L)	9.3	8.1	10.7	11.7	11.6	10.8	8.6	8.1	10.2	11.8
Oxygen, total dissolved Percent Saturation Field (%)	98	84	95	97	96	105	91	84	88	97
pH Field (SU)	7.4	7.3	7.2	7.1	7	7.4	7.4	7.3	7.3	7.1
Pheophytin a (µg/L)	2	2.2				1.3	1.2	1.1		
Phosphate Total (mg/L as P)	0.03	0.04	0.02	0.07	0.08	0.02	0.03	0.04	0.04	0.07
Solids Total (mg/L)	58	60	64	76	90	46	53	59	74	84
Solids Total Suspended (mg/L)	2		1	27	36	<1	1	2	<1	29
Temperature Field (°C)	18.2	17.4	9.8	7.6	7.6	14.4	17.8	17.7	8.9	6.8
Turbidity Field (NTU)	2	3	3	17	27	2.1	2	3	2	23
SAMPLE_DATE	03/28/2000	05/23/2000	07/12/2000	09/12/2000	11/28/2000	01/23/2001	05/15/2001	07/31/2001	09/25/2001	11/27/2001
SAMPLE_TIME	13:50	12:55	13:45	13:05	12:10	13:05	12:55	13:10	12:18	11:20
Alkalinity Field (mg/L)	12	17	20		17	16	17	24	26	14
Ammonia (mg/L)	<0.02	0.05	0.04	0.03	0.02	0.02	0.04	0.05	0.03	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.9	0.6	0.7	1.2	0.8	1.1	0.6	1.1	0.9
Chemical Oxygen Demand (mg/L)	<5	<5	6		9	<5	7	7	7	<5
Chlorophyll a (µg/L)		0.8	0.9				1.5	1.6	2.6	
Conductivity Field (µmhos/cm)	60	60	65		76	68	62	77	90	68
E. Coli MTEC (CFU/100 ml)	4EST	26EST	26EST		48	4EST	240 EST	48	60	74
Fecal Coliform Membrane filter (CFU/100 ml)	2EST	38EST	8EST	40	62	6EST	384 EST	62	64	78
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2		<0.2	0.3	<0.2	0.2	0.3	0.2
Nitrate/nitrite Dissolved (mg/L as N)	1.13	0.834	0.425	0.193	1.22	1.17	0.775	0.277	0.127	1.63
Orthophosphate Dissolved (mg/L as P)	0.009	0.011	0.013		0.01	0.012	0.012	0.019	0.02	0.012
Oxygen, total dissolved Field (mg/L)	12	10.2	9.4	8.6	11.3	11.5	10.3	9	7.7	11.2
Oxygen, total dissolved Percent Saturation Field (%)	103	100	99	92	93	95	94	95	76	94
pH Field (SU)	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.3	7.3	7.3
Pheophytin a (µg/L)		1.7	1.7				3.6	1.9	2.3	
Phosphate Total (mg/L as P)	0.02	0.02	0.03	0.04	0.02	0.02	0.04	0.04	0.05	0.04
Solids Total (mg/L)	52	56	54	57	60	50	71	68	71	55
Solids Total Suspended (mg/L)	2	1	1		2	1	5	3	3	10
Temperature Field (°C)	9.1	15	18.5	18.8	7.2	7.6	11.7	17.8	15.4	8.1
Turbidity Field (NTU)	3.2	2.6	2.1		4	3	6	2	3	7

**Yaquina River Downstream of Chitwood**

**LASAR: 11476**

SAMPLE_DATE	01/08/2002	03/05/2002	05/07/2002	07/09/2002	09/17/2002
SAMPLE_TIME	13:40	13:30	12:35	13:32	12:46
Alkalinity Field (mg/L)	10	15	17	21	26
Ammonia (mg/L)	0.02	<0.02	0.03	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1.6	0.5	0.5	1.4
Chemical Oxygen Demand (mg/L)	7	<5	<5	5	10
Chlorophyll a (µg/L)			0.9	0.7	3.6
Conductivity Field (µmhos/cm)	60	62	65	73	87
E. Coli MTEC (CFU/100 ml)	30 est	6EST	16 EST	17	248
Fecal Coliform Membrane filter (CFU/100 ml)	46	10EST	22 EST		
Kjeldahl Nitrogen Total (mg/L)	0.4	<0.2	<0.2	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	1.53	1.11	0.715	0.378	0.0887
Orthophosphate Dissolved (mg/L as P)	0.013	0.012	0.012	0.016	0.008
Oxygen, total dissolved Field (mg/L)	10.9	11.7	11.4	8.9	7.5
Oxygen, total dissolved Percent Saturation Field (%)	96	97	101	97	75
pH Field (SU)	6.8	7.3	7.5	7.5	7.1
Pheophytin a (µg/L)			1.4	1.3	2.9
Phosphate Total (mg/L as P)	0.12	0.02	0.02	0.03	0.05
Solids Total (mg/L)	92	48	45	56	70
Solids Total Suspended (mg/L)	35	<1	2	4	<1
Temperature Field (°C)	10.2	7.7	10.1	20.2	16
Turbidity Field (NTU)	46	3	3	2	3

## Appendix 3 - Mid - South Coast

## North Fork Coquille River at HWY 42

## LASAR: 10393

SAMPLE_DATE	03/10/1993	06/09/1993	09/22/1993	12/08/1993	03/30/1994	06/28/1994	09/13/1994	12/21/1994	03/15/1995	06/28/1995
SAMPLE_TIME	09:45	08:50	09:25	09:10	08:55	16:30	16:50	09:10	10:15	09:50
Alkalinity Field (mg/L)	14	20	38	18	19	25	29	14	14	21
Ammonia (mg/L)	0.02	0.03	0.03	0.02	0.03	0.02	0.05	0.02	0.03	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.9	0.9	1.7	1	0.7	0.6	0.3	1.1	1
Chemical Oxygen Demand (mg/L)	<5	<5	7	21	<5	<5	9	<5	6	<5
Chlorophyll a (µg/L)		0.4	0.2			1.8	2.1			3.8
Conductivity Field (µmhos/cm)	61	57	96	77	61	68	86	56	52	61
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	33	33	110	920	49	49	49	33	540	33
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	0.2	0.7	0.3	0.2	0.2	0.4	0.5	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.46	0.38	0.07	1.3	0.61	0.2	0.11	0.75	0.66	0.23
Orthophosphate Dissolved (mg/L as P)	0.007	0.009	0.013	0.019	0.007	0.009	0.015	0.007	0.008	0.009
Oxygen, total dissolved Field (mg/L)	10.3	10.2	8.9	10.9	10.8	9.2	8	10.2	10.8	8.5
Oxygen, total dissolved Percent Saturation Field (%)	93	96	85	93	98	102	84	89	96	90
pH Field (SU)	6.4	7.4	7.3	7.3	7.1	7.4	7.4	7	7.1	7.3
Pheophytin a (µg/L)		1.3	1.4			3.6	5.1			10.2
Phosphate Total (mg/L as P)	0.07	0.04	0.04	0.1	0.05	0.03	0.05	0.05	0.1	0.02
Solids Total (mg/L)	59	48	70	120	41	61	73	48	92	57
Solids Total Suspended (mg/L)	6	6	2	52	6	<1	2	10	34	3
Temperature Field (°C)	11	13	13.5	8.5	11	21	18	9.5	10.5	19
Turbidity Field (NTU)	4	4	2	27	4	2	3	7	26	4 EST

SAMPLE_DATE	09/13/1995	12/13/1995	03/06/1996	06/19/1996	09/11/1996	01/29/1997	03/12/1997	06/18/1997	09/11/1997	12/10/1997
SAMPLE_TIME	10:45	10:40	11:10	08:45	09:30	09:40	09:43	10:20	09:30	10:08
Alkalinity Field (mg/L)	37	11	13	22	39	12	16	24	35	18
Ammonia (mg/L)	0.08	0.02	<0.020	0.02	0.03	0.03	0.04	0.02	0.04	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1.4	0.5	0.7	0.5	0.1	0.4	0.4	0.5	0.9
Chemical Oxygen Demand (mg/L)	<5	<5	<5	6	5	<5	<5	5	5	6
Chlorophyll a (µg/L)	2			1.7	1.8			3.4	2.5	
Conductivity Field (µmhos/cm)	95	51	45	68	99	48	53	70	95	66
E. Coli MTEC (CFU/100 ml)		490	92 Est.	20 Est.	100	60 Est.	155	36 Est.	200	60 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	33	320	160 Est.	40 Est.	220	245	230	110	255	44 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3	0.3	0.4	0.2	0.2	<0.200	0.2	<0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.07	0.79	0.57	0.2	0.05	0.5	0.36	0.12	0.11	0.81
Orthophosphate Dissolved (mg/L as P)	0.014	0.013	0.007	0.006	0.013	0.009	0.006	0.009	0.015	0.008
Oxygen, total dissolved Field (mg/L)	6.6	9.4	11	9.4	7.4	10.5	10.9	8.5	7.3	11.3
Oxygen, total dissolved Percent Saturation Field (%)		85	95	90	78	92	94	90	77	94
pH Field (SU)	7.3	6.9	7.1	7.3	7	7	7	7.5	7.3	7
Pheophytin a (µg/L)	6			2.2	3.6			4.3	6.7	
Phosphate Total (mg/L as P)	0.04	0.08	0.07	0.02	0.03	0.05	0.04	0.03	0.04	0.03
Solids Total (mg/L)	69	98	68	64	53	77	60 Est.	44	63	91
Solids Total Suspended (mg/L)	1	34	18	<1	<1	22	18	4	3	8
Temperature Field (°C)	19	11	9	14.1	18.7	9.6	9	18.6	18.1	7.6
Turbidity Field (NTU)	2	50	17	3	1	22	15	3	7	9



# North Fork Coquille River at HWY 42

# LASAR: 10393

SAMPLE_DATE	03/19/1998	07/15/1998	09/23/1998	11/04/1998	01/11/1999	03/15/1999	05/06/1999	07/14/1999	09/16/1999	11/17/1999
SAMPLE_TIME	09:35	12:13	10:30	10:25	15:00	15:45	11:15	10:20	11:10	11:00
Alkalinity Field (mg/L)	18	25	34	24	19	17	12	24	37	28
Ammonia (mg/L)	<0.02	0.02	0.02	0.02	<0.02	<0.02	<0.02	0.04	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.3	0.6	1.1	0.6	0.7	1.3	0.9	0.8	1
Chemical Oxygen Demand (mg/L)	<5	5	<5	7	<5	<5	6	8	5	20
Chlorophyll a (µg/L)		1.3	1.1				1.1	1	0.4	
Conductivity Field (µmhos/cm)	64	73	90	78	59	55	51	75	98	76
E. Coli MTEC (CFU/100 ml)	10 Est.	68	76	52	20 Est	6 Est.	82	40	55	510
Fecal Coliform Membrane filter (CFU/100 ml)	38 Est.	90	102	28est	34 Est	6 Est.	280	58	50	550
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.3	<0.2	<0.2	<0.2	0.4	0.2	0.3	0.3	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.53	0.09	0.1	0.36	0.6	0.456	0.441	0.0761	0.0234	0.729
Orthophosphate Dissolved (mg/L as P)	0.01	0.007	0.012	0.01	0.008	<0.005	0.008	0.009	0.013	0.011
Oxygen, total dissolved Field (mg/L)	10.5	8.5	7.8	10.1	11.6	11.1	11	8.1	8	9.8
Oxygen, total dissolved Percent Saturation Field (%)	93	94	79	92	94	96	97	86	80	89
pH Field (SU)	7.1	7.4	7.4	7.4	7	7.1	7.1	7.4	7.4	7.1
Pheophytin a (µg/L)		1.3	1.9				1.6	1.6	0.8	
Phosphate Total (mg/L as P)	0.05	0.02	0.03	0.03	0.04	0.06	0.07	0.03	0.03	0.07
Solids Total (mg/L)	42	53	59	59	68	78	61	50	100	79
Solids Total Suspended (mg/L)	13	7		4	10	22	13	1	2	17
Temperature Field (°C)	10.3	21	16.6	11.4	6.7	9.1	10	18.9	15.9	10.9
Turbidity Field (NTU)	16	3	2	7	14	18	16	2	2.5	15

SAMPLE_DATE	01/26/2000	03/23/2000	05/17/2000	07/26/2000	09/27/2000	11/08/2000	01/25/2001	03/14/2001	05/23/2001	07/19/2001
SAMPLE_TIME	10:35	09:30	11:20	11:30	10:30	10:40	09:45	10:15	10:42	09:55
Alkalinity Field (mg/L)	10	15	17	26	36	22	20	19	20	28
Ammonia (mg/L)	0.02	0.03	0.04	0.05	0.02	0.02	<0.02	<0.02	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.4	0.5	0.4	0.6	0.4	1.1	0.7	0.3	0.7
Chemical Oxygen Demand (mg/L)	7	<5	7	5	9	7	5	<5	7	8
Chlorophyll a (µg/L)					0.7				0.8	1.1
Conductivity Field (µmhos/cm)	49	54	59	76	90	78	68	70	62	82
E. Coli MTEC (CFU/100 ml)	60	102	54	200	140	78	16EST	4e	68	100
Fecal Coliform Membrane filter (CFU/100 ml)	60	94	54	138	144	104	32EST	14e	46	105
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.658	0.459	0.484	0.0064	0.0265	0.402	0.512	0.526	0.5	0.0091
Orthophosphate Dissolved (mg/L as P)	0.009	0.005	0.006	0.007	0.015	0.009	0.008	0.006	0.011	0.011
Oxygen, total dissolved Field (mg/L)	10.9	11.1	10.2	7.9	8.6	10.2	11.2	11.3	8.9	7.5
Oxygen, total dissolved Percent Saturation Field (%)	93	95	94	88	83	90	92	97	84	80
pH Field (SU)	7	7.2	7.2	7.5	7.4	7.3	7.3	7.3	7.3	7.2
Pheophytin a (µg/L)					1.6				1.3	2.2
Phosphate Total (mg/L as P)	0.05	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Solids Total (mg/L)	88	51	60	61	60	57	60	47	61	60
Solids Total Suspended (mg/L)	34	8	14	1	2	3	3	1	4	2
Temperature Field (°C)	8.7	8.4	11.9	20.8	14.3	10	7.2	8.8	15.7	19.1
Turbidity Field (NTU)	32	12	11	2.5	3.4	4	5	4	4	3

# North Fork Coquille River at HWY 42

## LASAR: 10393

SAMPLE_DATE	09/20/2001	11/29/2001	01/16/2002	03/13/2002	05/22/2002	07/18/2002	09/11/2002
SAMPLE_TIME	11:48	09:00	10:15	11:20	10:57	10:00	11:35
Alkalinity Field (mg/L)	40	11	16	13	21	30	40
Ammonia (mg/L)	0.03	0.02	0.03	0.03	0.07	0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	1.1	0.8	1.4	0.8	0.5	0.4
Chemical Oxygen Demand (mg/L)	5	7	<5	9	<5	6	6
Chlorophyll a (µg/L)	0.6				0.9	1.4	0.7
Conductivity Field (µmhos/cm)	102	60	64	56	67	80	110
E. Coli MTEC (CFU/100 ml)	64	370	16 est	230	56	137	73
Fecal Coliform Membrane filter (CFU/100 ml)	80	390	36 est	260	60		
Kjeldahl Nitrogen Total (mg/L)	0.2	0.3	<0.2	0.2	<0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0058	1.02	0.635	0.617	0.217	0.0184	0.0139
Orthophosphate Dissolved (mg/L as P)	0.014	0.01	0.009	0.011	0.01	0.011	0.013
Oxygen, total dissolved Field (mg/L)	8.1	10.7	11.6	11.2	10.1	7.2	7.3
Oxygen, total dissolved Percent Saturation Field (%)	81	91	92	93	94	79	77
pH Field (SU)	7.5	6.9	7	7.2	7.3	7.5	7.3
Pheophytin a (µg/L)	1.4				1.3	1.9	1.1
Phosphate Total (mg/L as P)	0.04	0.05	0.05	0.07	0.02	0.03	0.03
Solids Total (mg/L)	62	64	46	81	60	63	69
Solids Total Suspended (mg/L)	3	11	10	22	4	2	2
Temperature Field (°C)	16.2	8.7	5.7	7.5	12.4	20.6	18.6
Turbidity Field (NTU)	4	41	11	42	4	3	3

# Sixes River at HWY 101

	12/16/1992	06/08/1993	09/21/1993	12/07/1993	03/29/1994	06/28/1994	09/14/1994	12/20/1994	03/14/1995	06/27/1995
SAMPLE_DATE	09:00	16:35	16:15	14:55	15:30	14:45	09:45	17:15	16:10	16:00
SAMPLE_TIME	25	26	34		25	30	32	19	17	28
Alkalinity Field (mg/L)	<0.020	0.02	<0.020	0.03	0.02	0.02	0.03	0.02	0.03	0.02
Ammonia (mg/L)	0.8	0.8	0.9	3.5	0.8	0.4	0.4	0.4	0.7	0.9
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	5	<5	<5			<5	<5	<5	6	<5
Chemical Oxygen Demand (mg/L)	0.4	0.4	0.3			1.3	3.4			2.1
Chlorophyll a (µg/L)	73	71	92		75	89	90	67	53	81
Conductivity Field (µmhos/cm)	8	2	140	350	2	4	27	13	130	<2
E. Coli MTEC (CFU/100 ml)	<0.200	<0.2	<0.200			0.3	<0.200	0.2	0.7	<0.2
Fecal Coliform Membrane filter (CFU/100 ml)	0.51	0.24	0.14	0.64	0.4	0.18	0.13	0.49	0.27	0.15
Kjeldahl Nitrogen Total (mg/L)	0.008	0.007	0.007		0.01	0.006	0.009	0.007	0.01	0.006
Nitrate/nitrite Dissolved (mg/L as N)	11.1	10.4	10.1	11.7	11.3	9.5	8.9	10.2	11.1	9.4
Orthophosphate Dissolved (mg/L as P)	95	104	106	104	103	101	88	91	100	102
Oxygen, total dissolved Field (mg/L)	6.6	7.5	7.5	7.3	7.5	7.5	7.5	7.5	7.4	7.5
Oxygen, total dissolved Percent Saturation Field (%)	0.02	0.02	0.01	0.51	<0.01	0.01	0.01	0.03	0.49	0.01
pH Field (SU)	65	55	59	330	62	65	63	54	240	58
Pheophytin a (µg/L)	2	2	2		<1	<1	<1	4	220	<1
Phosphate Total (mg/L as P)	8.5	16	18	10.5	11.5	19	15.5	10.5	11	20
Solids Total (mg/L)	4	2	<1		2	1	<1	6	155	<1
Solids Total Suspended (mg/L)										
Temperature Field (°C)										
Turbidity Field (NTU)										

# LASAR: 10533

	12/12/1995	03/05/1996	06/18/1996	09/10/1996	06/17/1997	09/10/1997	12/09/1997	03/18/1998	07/14/1998	09/22/1998
SAMPLE_DATE	16:00	17:15	14:15	16:40	16:25	19:20	15:25	16:15	16:10	15:55
SAMPLE_TIME	15	15	28	29	30	32	20	24	31	31
Alkalinity Field (mg/L)	0.03	<0.020	0.02	0.05	0.03	0.02	0.02	<0.02	0.03	0.02
Ammonia (mg/L)	0.8	0.6	0.6	0.1	0.4	0.3	1.4	0.4	0.2	0.4
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	6	<5	5	<5	<5	<5	5	<5	<5	<5
Chemical Oxygen Demand (mg/L)			2.1	0.7	0.9	1.3			0.8	0.4
Chlorophyll a (µg/L)	60	54	83	92	87	98	78	79	92	92
Conductivity Field (µmhos/cm)	100	28 Est.	4 Est.	24 Est.	<4	4 Est.	28 Est.	<2	4 Est.	16 Est.
E. Coli MTEC (CFU/100 ml)	>600	36 Est.	<4	180	8 Est.	20 Est.	28 Est.	<2	14 Est.	18 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	0.7	0.4	0.2	<0.200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Kjeldahl Nitrogen Total (mg/L)	0.41	0.28	0.1	0.09	0.11	0.11	0.43	0.32	0.13	0.09
Nitrate/nitrite Dissolved (mg/L as N)	0.012	0.007	<0.005	<0.005	<0.005	0.009	0.009	0.008	<0.005	0.009
Orthophosphate Dissolved (mg/L as P)	10.5	11.4	10.9	9.2	10.2	6.4	11.9	11	9.4	9.5
Oxygen, total dissolved Field (mg/L)	97	98	112	101	107	68	104	104	104	101
Oxygen, total dissolved Percent Saturation Field (%)	7.3	7.4	7.6	7.4	7.6	7.1	7.2	7.4	7.6	7.5
pH Field (SU)			2.2	1.9	1.6	3			1.4	1
Pheophytin a (µg/L)	0.26	0.14	<0.010	0.01	0.01	0.01	0.03	0.02	<0.01	<0.01
Phosphate Total (mg/L as P)	280	74	52	55	55	76	53	57	64	72
Solids Total (mg/L)	220	21	<1	<1	<1	<1	6	<1	2	
Solids Total Suspended (mg/L)	11.7	9	17.1	20.4	18	19.4	9.4	12.7	21.1	18.7
Temperature Field (°C)	199	30	1	<1	1	1.2	11	3	2	1
Turbidity Field (NTU)										

## Sixes River at HWY 101

SAMPLE_DATE	11/03/1998	01/12/1999	03/16/1999	05/05/1999	07/13/1999	09/15/1999	11/16/1999	01/25/2000	03/22/2000	05/16/2000
SAMPLE_TIME	15:25	11:00	09:30	16:15	14:45	17:15	15:40	16:25	15:40	17:20
Alkalinity Field (mg/L)	31	23	18	18	28	28	20	16	22	23
Ammonia (mg/L)	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	0.04	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	1.1	1.4	1.2	0.2	0.1	0.4	0.6	<0.1	0.2
Chemical Oxygen Demand (mg/L)	<5	<5	<5	5	<5	<5	5	8	<5	<5
Chlorophyll a (µg/L)				0.5	0.4	0.3				
Conductivity Field (µmhos/cm)	99	74	64	66	90	93	78	53	68	75
E. Coli MTEC (CFU/100 ml)	2est	16 Est.	2 Est.	12 Est.	<2	24 Est.	122	24	2EST	10EST
Fecal Coliform Membrane filter (CFU/100 ml)	10 Est.	22 Est.	2 Est.	10 Est.	<2	26 Est.	154	46	2EST	46
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.08	0.41	0.242	0.226	0.123	0.106	0.328	0.226	0.218	0.198
Orthophosphate Dissolved (mg/L as P)	0.007	0.011	0.008	0.008	0.006	0.009	0.007	0.011	0.005	0.008
Oxygen, total dissolved Field (mg/L)	11.5	11.1	11.4	11.2	9.3	9.2	10.1	11.4	11.2	10.3
Oxygen, total dissolved Percent Saturation Field (%)	110	96	96	105	101	97	92	100	100	99
pH Field (SU)	7.9	7.1	7.1	7.4	7.6	7.5	7.5	7.4	7.2	7.5
Pheophytin a (µg/L)				0.3	0.7	0.8				
Phosphate Total (mg/L as P)	0.01	0.02	0.01	0.02	<0.01	0.02	0.03	0.09	0.01	0.02
Solids Total (mg/L)	46	69	35	55	58	57	68	100	54	62
Solids Total Suspended (mg/L)	<1	1	3	3	<1	<1	3	48	1	4
Temperature Field (°C)	13.7	9.1	8.2	12.5	19.9	18.7	11.6	9.6	10.3	14
Turbidity Field (NTU)	1	4	6	8	1	1	8	57	3	7

## LASAR: 10533

SAMPLE_DATE	07/25/2000	09/26/2000	11/07/2000	01/24/2001	03/13/2001	05/22/2001	07/18/2001	09/19/2001	11/28/2001	01/15/2002
SAMPLE_TIME	17:00	16:10	16:53	15:50	16:00	16:30	15:55	14:10	16:20	16:05
Alkalinity Field (mg/L)	28	27	29	26	24	27	30	33	20	25
Ammonia (mg/L)	0.04	0.03	<0.02	<0.02	0.04	<0.02	0.03	0.02	0.05	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.1	0.2	0.4	1.3	0.1	0.2	0.4	2	0.4
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	7	<5	<5	<5	35	<5
Chlorophyll a (µg/L)	0.5	0.3				0.3	0.5	0.4		
Conductivity Field (µmhos/cm)	87	86	96	84	86	82	95	98	74	79
E. Coli MTEC (CFU/100 ml)	<2	28EST	2EST	<2	<2	2EST	<2	26EST	98	2 est
Fecal Coliform Membrane filter (CFU/100 ml)	<2	34EST	10EST	2EST	<2	2EST	<2	38EST	122	6 est
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.8	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.109	0.0961	0.206	0.335	0.334	0.315	0.138	0.0872	0.399	0.434
Orthophosphate Dissolved (mg/L as P)	<0.005	0.009	0.007	0.008	0.007	0.009	0.007	0.010Est	0.03	0.01
Oxygen, total dissolved Field (mg/L)	8.9	9.2	11	11.5	11.5	9.3	9.3	9.1	11.7	11.3
Oxygen, total dissolved Percent Saturation Field (%)	101	98	103	100	105	98	104	97	97	94
pH Field (SU)	7.5	7.4	7.5	7.3	7.5	7.5	7.5	7.6	7.2	7.3
Pheophytin a (µg/L)	0.4	0.6				0.4	0.9	1		
Phosphate Total (mg/L as P)	0.01	<0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.39	0.04
Solids Total (mg/L)	58	52	51	50	53	58	60	75	92	20
Solids Total Suspended (mg/L)	<1	<1	<1	<1	<1	<1	<1	<1	19	10
Temperature Field (°C)	21.8	19.4	12.7	9.4	11.3	18.5	21.3	19	10	7.6
Turbidity Field (NTU)	0.8	<1	1	2	2	<1	<1	1	46	7

# Sixes River at HWY 101

LASAR: 10533

SAMPLE_DATE	03/12/2002	05/21/2002	07/17/2002	09/10/2002
SAMPLE_TIME	15:30	17:40	15:50	18:00
Alkalinity Field (mg/L)	17	28	30	28
Ammonia (mg/L)	<0.02	<0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	<0.1	0.1	<0.1
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5
Chlorophyll a (µg/L)		0.1	0.3	0.2
Conductivity Field (µmhos/cm)	58	85	88	91
E. Coli MTEC (CFU/100 ml)	28est	<2	38	10
Fecal Coliform Membrane filter (CFU/100 ml)	26est	<2		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.175	0.113	0.137	0.0799
Orthophosphate Dissolved (mg/L as P)	0.012	0.006	0.007	0.006
Oxygen, total dissolved Field (mg/L)	11.3	10.9	8.7	8.9
Oxygen, total dissolved Percent Saturation Field (%)	97	106	99	95
pH Field (SU)	7.4	7.6	7.5	7.6
Pheophytin a (µg/L)		0.2	0.6	0.8
Phosphate Total (mg/L as P)	0.1	0.01	0.01	0.01
Solids Total (mg/L)	91	59	59	58
Solids Total Suspended (mg/L)	32	<1	<1	<1
Temperature Field (°C)	9.2	14.5	22.1	18.7
Turbidity Field (NTU)	61	1	1	<1

# Coquille River at Sturdivant Park Dock

# LASAR: 10596

SAMPLE_DATE	12/15/1992	03/10/1993	06/09/1993	09/22/1993	12/08/1993	03/30/1994	06/28/1994	09/13/1994	12/21/1994	03/15/1995
SAMPLE_TIME	11:10	10:35	08:13	09:55	08:35	08:25	15:55	16:10	08:25	10:50
Alkalinity Field (mg/L)	22	21	24	55	24	25	39	59	18	20
Ammonia (mg/L)	0.02	0.03	0.03	0.05	0.03	0.03	0.02	0.02	<0.020	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	1.5	0.6	0.6	2.1	1.3	0.7	0.8	0.6	0.7
Chemical Oxygen Demand (mg/L)	11	6	8	<5	24	<5	<5	6	<5	7
Chlorophyll a (µg/L)			0.6	0.3			11.8	23		
Conductivity Field (µmhos/cm)	72	69	69	142	86	78	97	166	67	60
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	110	1600	79	23	540	23	8	49	240	170
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	0.2	0.3	1.1	0.2	0.2	0.3	0.4	0.6
Nitrate/nitrite Dissolved (mg/L as N)	0.8	0.25	0.31	0.23	0.89	0.44	0.13	0.03	0.52	0.44
Orthophosphate Dissolved (mg/L as P)	0.014	0.01	0.01	0.016	0.02	0.007	0.012	0.009	0.007	0.009
Oxygen, total dissolved Field (mg/L)	10.6	10.8	10.3	6.8	11	10.8	8.4	7.4	10.5	11.1
Oxygen, total dissolved Percent Saturation Field (%)	90	96	99	70	94	98	93	81	91	100
pH Field (SU)	7	6.6	7.3	7.1	7.4	7.3	7.4	7.6	7.3	7.3
Pheophytin a (µg/L)			1.2	2.4			1.8	8.6		
Phosphate Total (mg/L as P)	0.07	0.04	0.05	0.05	0.23	0.03	0.03	0.07	0.05	0.16
Solids Total (mg/L)	82	71	59	100	210	58	78	120	55	120
Solids Total Suspended (mg/L)	16	10	7	5	110	4	4	9	9	49
Temperature Field (°C)	8.5	10	14	17	8.5	11	21	20.5	9	11.5
Turbidity Field (NTU)	13	6	6	4	60	4	3	7	10	51

SAMPLE_DATE	06/28/1995	09/13/1995	12/13/1995	03/06/1996	06/19/1996	09/11/1996	01/29/1997	03/12/1997	06/18/1997	09/11/1997
SAMPLE_TIME	10:15	11:10	11:20	11:35	08:15	10:00	10:10	10:10	10:45	09:55
Alkalinity Field (mg/L)	33	55	16	16	35		17	18	33	51
Ammonia (mg/L)	0.05	0.03	0.05	0.02	0.03	0.03	0.03	0.04	0.05	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.7	1.9	0.4	0.7	0.2	<0.1	0.6	0.2	0.3
Chemical Oxygen Demand (mg/L)	5	<5	8	<5	<5		<5	6	5	6
Chlorophyll a (µg/L)	2.9	52			2.5				0.2	23
Conductivity Field (µmhos/cm)	84	141	64	55	95		57	61	94	138
E. Coli MTEC (CFU/100 ml)			>600	140	16 Est.		60 Est.	175	44 Est.	28 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	49	540	300	140 Est.	<4	20	500	300	116	20 Est.
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	0.6	0.3	0.2		0.2	<0.200	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.13	0.02	0.6	0.47	0.13	0.06	0.37	0.26	0.07	<0.02
Orthophosphate Dissolved (mg/L as P)	0.009	0.01	0.024	0.01	0.009		0.009	0.009	0.012	0.011
Oxygen, total dissolved Field (mg/L)	8	7.7	9.5	11.5	8.8	7	10.6	10.9	7.8	7.2
Oxygen, total dissolved Percent Saturation Field (%)	89		86	99	94	77	93	94	87	80
pH Field (SU)	7.3	7.5	7.1	7.2	7.4	7.3	7.2	7	7.4	7.4
Pheophytin a (µg/L)	4.4	13			1.5				5.2	4.1
Phosphate Total (mg/L as P)	0.03	0.05	0.21	0.09	0.02	0.04	0.13	0.05	0.03	0.04
Solids Total (mg/L)	68	98	230	82	75	95	95	80 Est.	53	88
Solids Total Suspended (mg/L)	5	9	150	25	8		54	22	3	2
Temperature Field (°C)	21	20.5	11	9	16.8	20.4	9.6	9	21.1	21
Turbidity Field (NTU)	5 EST	8	184	28	4		65	23	3	5.4

# Coquille River at Sturdivant Park Dock

SAMPLE_DATE	12/10/1997	03/19/1998	07/15/1998	09/23/1998	11/04/1998	01/11/1999	03/15/1999	05/06/1999	07/14/1999	09/16/1999
SAMPLE_TIME	09:25	08:45	11:20	09:45	09:55	15:30	16:15	10:40	09:40	10:25
Alkalinity Field (mg/L)	26	27	38	59	40	28	22	17	38	51
Ammonia (mg/L)	0.03	<0.02	<0.02	0.02	0.05	<0.02	<0.02	<0.02	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.2	0.9	0.8	0.9	1.3	1.1	1.3	1.3	0.2
Chemical Oxygen Demand (mg/L)	8	<5	6	7	7	<5	7	7	6	<5
Chlorophyll a (µg/L)			10.5	6.6				0.8	6	1.8
Conductivity Field (µmhos/cm)	82	82	103	148	116	79	71	60	106	144
E. Coli MTEC (CFU/100 ml)	96	6 Est.	18 Est.	38 Est.	10est	46	26 Est.	58	28 Est.	18 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	64 Est.	28 Est.	26 Est.	140	28est	60	44	68	42	10 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	0.2	<0.2	<0.2	<0.2	0.5	<0.2	0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.61	0.36	0.05	0.03	0.17	0.47	0.302	0.333	<0.0050	0.12
Orthophosphate Dissolved (mg/L as P)	0.011	0.009	0.006	0.009	0.016	0.012	0.006	0.009	<0.005	0.018
Oxygen, total dissolved Field (mg/L)	11.3	10.2	8.1	7.6	9.2	11.7	11.2	11.1	8.1	7.4
Oxygen, total dissolved Percent Saturation Field (%)	94	91	92	81	85	95	97	99	91	78
pH Field (SU)	7.3	7.3	7.4	7.6	7.4	6.8	7.2	7.3	7.5	7.7
Pheophytin a (µg/L)			0.1	1.5				1.2	2.2	0.6
Phosphate Total (mg/L as P)	0.04	0.04	0.02	0.04	0.04	0.04	0.07	0.06	0.03	0.04
Solids Total (mg/L)	37	63	71	99	82	80	83	63	74	91
Solids Total Suspended (mg/L)	8	11	2		8	10	18	12	6	5
Temperature Field (°C)	7.4	10.4	22.2	19.1	11.9	6.6	9.1	10.3	21.6	18.4
Turbidity Field (NTU)	15	9	3	7	10	13	19	24	5	5.1

# LASAR: 10596

SAMPLE_DATE	11/17/1999	01/26/2000	03/23/2000	05/17/2000	07/26/2000	09/27/2000	11/08/2000	01/25/2001	03/14/2001	05/23/2001
SAMPLE_TIME	10:10	10:00	08:45	10:40	10:55	11:00	10:15	09:05	09:36	10:05
Alkalinity Field (mg/L)	25	15	21	24	39	48	34	24	25	27
Ammonia (mg/L)	0.03	0.04	0.02	0.02	0.04	0.03	0.05	0.02	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	<0.1	0.9	0.6	0.7	0.9	0.3	1.1	0.7	0.3
Chemical Oxygen Demand (mg/L)	7	7	<5	8	5	8	10	<5	<5	7
Chlorophyll a (µg/L)					7.5	23.2				0.3
Conductivity Field (µmhos/cm)	91	54	67	72	109	125	103	87	85	80
E. Coli MTEC (CFU/100 ml)	100	76	24EST	190EST	30EST	42	38EST	12EST	10e	20EST
Fecal Coliform Membrane filter (CFU/100 ml)	86	80	30EST	460	32EST	64	22EST	18EST	6e	24EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	<0.2	<0.2	0.3	0.3	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.327	0.457	0.319	0.316	<0.0050	<0.0050	0.405	0.415	0.416	0.369
Orthophosphate Dissolved (mg/L as P)	0.014	0.009	0.007	0.007	<0.005	0.007	0.015	0.01	0.009	0.011
Oxygen, total dissolved Field (mg/L)	9.4	11.3	11.2	10.2	7.9	8.4	9.1	11.2	11	8.6
Oxygen, total dissolved Percent Saturation Field (%)	87	96	95	95	90	89	82	93	96	89
pH Field (SU)	7.3	7.2	7.2	7.4	7.7	7.5	7.4	7.2	7.4	7.3
Pheophytin a (µg/L)					1.1	6.1				0.8
Phosphate Total (mg/L as P)	0.04	0.11	0.04	0.05	0.03	0.05	0.04	0.02	0.02	0.03
Solids Total (mg/L)	67	120	59	77	82	88	69	65	56	66
Solids Total Suspended (mg/L)	<1	57	7	19	3	14	6	2	<1	3
Temperature Field (°C)	11.8	8.5	8.7	12.4	22.4	18.9	11.2	7.4	9.3	17.1
Turbidity Field (NTU)	8	61	17	26	3.2	13.4	6	4	3	4

**Coquille River at Sturdivant Park Dock**

**LASAR: 10596**

SAMPLE_DATE	07/19/2001	09/20/2001	11/29/2001	01/16/2002	03/13/2002	05/22/2002	07/18/2002	09/11/2002
SAMPLE_TIME	09:15	10:55	08:15	09:45	10:30	10:01	10:30	10:50
Alkalinity Field (mg/L)	41	54	18	25	19	32	41	56
Ammonia (mg/L)	0.03	0.02	0.04	0.04	0.03	0.05	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	0.7	2	0.9	1.2	0.3	1.1	0.8
Chemical Oxygen Demand (mg/L)	7	6	15	5	8	<5	8	9
Chlorophyll a (µg/L)	7.8	12.9				0.4	8.7	8.7
Conductivity Field (µmhos/cm)	110	150	70	81	66	93	110	300
E. Coli MTEC (CFU/100 ml)	16EST	4EST	800EST	230	560	42	10	10
Fecal Coliform Membrane filter (CFU/100 ml)	12EST	8EST	800EST	420	560	40		
Kjeldahl Nitrogen Total (mg/L)	0.3	0.3	0.6	<0.2	0.2	<0.2	0.3	0.3
Nitrate/nitrite Dissolved (mg/L as N)	<0.0050	0.0095	0.593	0.503	0.375	0.121	<0.0050	0.014
Orthophosphate Dissolved (mg/L as P)	0.01	0.01	0.012	0.012	0.011	0.012	<0.005	0.006
Oxygen, total dissolved Field (mg/L)	7.5	7.8	10.7	10.9	11.3	9	7.3	8
Oxygen, total dissolved Percent Saturation Field (%)	84	83	92	88	95	87	84	87
pH Field (SU)	7.5	7.6	7.5	7.1	7.4	7.3	7.5	7.7
Pheophytin a (µg/L)	4.3	3.8				0.9	3.3	4.2
Phosphate Total (mg/L as P)	0.05	0.06	0.18	0.05	0.08	0.02	0.02	0.05
Solids Total (mg/L)	96	92	190	54	93	68	70	180
Solids Total Suspended (mg/L)	20	7	130	12	26	3	6	17
Temperature Field (°C)	21.6	19	8.9	6.3	8	14.7	23	20.2
Turbidity Field (NTU)	17	9	120	13	60	3	5	10



# Middle Fork Coquille River at HWY 42

	12/15/1992	03/10/1993	06/09/1993	09/22/1993	12/08/1993	03/30/1994	06/28/1994	09/13/1994	12/21/1994	03/15/1995
SAMPLE_DATE	12:45	09:25	09:10	08:35	09:35	09:15	16:55	17:15	09:45	09:55
SAMPLE_TIME	20	18	23	44	18	23	33	37	17	18
Alkalinity Field (mg/L)	<0.020	0.02	0.03	0.02	0.03	0.03	<0.020	0.04	0.02	0.03
Ammonia (mg/L)	1.3	1.8	0.8	1.8	2.7	1.1	0.3	0.7	0.3	1.1
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	10	<5	<5	<5	22	<5	<5	6	<5	6
Chemical Oxygen Demand (mg/L)	68	63	64	116	74	70	85	112	65	63
Chlorophyll a (µg/L)	49	220	79	33	1600	33	79	23	240	79
Conductivity Field (µmhos/cm)	0.3	0.3	0.2	0.5	1.5	0.2	0.3	0.3	0.3	0.4
E. Coli MTEC (CFU/100 ml)	0.57	0.2	0.31	<0.02	1.2	0.4	0.06	<0.02	0.47	0.41
Fecal Coliform Membrane filter (CFU/100 ml)	0.008	0.005	0.008	<0.005	0.017	<0.005	0.006	0.006	0.007	0.008
Kjeldahl Nitrogen Total (mg/L)	11.7	11	10.4	9.3	11.1	11.3	9.5	10.3	10.8	11.4
Nitrate/nitrite Dissolved (mg/L as N)	101	97	99	88	96	103	108	112	93	101
Orthophosphate Dissolved (mg/L as P)	7	6.8	7.4	7.5	7.4	7.6	7.9	8.1	7.4	7.5
Oxygen, total dissolved Field (mg/L)	0.06	0.03	0.04	0.08	0.22	0.03	0.02	0.04	0.04	0.09
Oxygen, total dissolved Percent Saturation Field (%)	73	65	65	106	240	70	71	77	55	100
pH Field (SU)	12	4	7	21	150	2	<1	<1	6	34
Pheophytin a (µg/L)	9	10	13.5	13	9	11	22	20	9	10
Phosphate Total (mg/L as P)	13	5	7	5	72	4	1	1	11	37
Solids Total (mg/L)										
Solids Total Suspended (mg/L)										
Temperature Field (°C)										
Turbidity Field (NTU)										

# LASAR: 11485

	06/28/1995	09/13/1995	12/13/1995	03/06/1996	06/19/1996	09/11/1996	01/29/1997	03/12/1997	06/18/1997	09/11/1997
SAMPLE_DATE	09:25	09:50	10:05	10:40	09:05	09:10	09:15	09:20	09:50	09:10
SAMPLE_TIME	29	42	14	16	27	45	17	16	27	36
Alkalinity Field (mg/L)	0.02	0.03	0.02	0.02	0.02	0.03	0.04	<0.020	0.05	<0.02
Ammonia (mg/L)	1.2	0.4	1.1	0.8	0.8	0.7	0.8	0.1	0.4	1
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	5	<5	12	<5	7	<5	5	<5	5	6
Chemical Oxygen Demand (mg/L)	4.5	2			2	4.5			1.5	8.5
Chlorophyll a (µg/L)	78	114	54	55	82	122	56	60	81	107
Conductivity Field (µmhos/cm)			147	16 Est.	<4	68 Est.	20 Est.	68 Est.	16 Est.	600
E. Coli MTEC (CFU/100 ml)	13	33	150	36 Est.	4 Est.	195	175	115	40 Est.	1020
Fecal Coliform Membrane filter (CFU/100 ml)	0.3	0.3	0.7	0.3	0.2	0.2	0.3	<0.200	<0.2	0.2
Kjeldahl Nitrogen Total (mg/L)	0.1	0.02	0.57	0.38	0.06	<0.02	0.3	0.22	0.06	0.04
Nitrate/nitrite Dissolved (mg/L as N)	<0.005	0.005	0.012	0.007	<0.005	0.007	0.009	0.006	0.005	<0.005
Orthophosphate Dissolved (mg/L as P)	9	8.1	11	12	10	8.2	11.4	11.5	9.2	8.4
Oxygen, total dissolved Field (mg/L)	97		97	101	98	85	98	98	99	88
Oxygen, total dissolved Percent Saturation Field (%)	7.7	7.5	7.4	7.5	7.5	7.3	7.4	7.3	7.7	7.6
pH Field (SU)	10.9	9			2.4	4.5			2.9	7.6
Pheophytin a (µg/L)	0.01	0.02	0.22	0.07	0.01	0.02	0.08	0.03	0.02	0.03
Phosphate Total (mg/L as P)	65	79	270	71	67	70	98	66 Est.	52	65
Solids Total (mg/L)	<1	<1	190	15	<1	<1	43	11	2	9
Solids Total Suspended (mg/L)	19.5	18	10	8	15	17.5	8.9	8.5	19.3	18.9
Temperature Field (°C)	7 EST	1	189	20	2	1	40	17	2	9
Turbidity Field (NTU)										

# Middle Fork Coquille River at HWY 42

SAMPLE_DATE	12/10/1997	03/19/1998	07/15/1998	09/23/1998	11/04/1998	01/11/1999	03/15/1999	05/06/1999	07/14/1999	09/16/1999
SAMPLE_TIME	11:15	09:55	13:30	10:55	10:50	14:15	15:15	11:40	10:40	11:50
Alkalinity Field (mg/L)	21	22	30	40	35	22	21	16	29	39
Ammonia (mg/L)	0.02	<0.02	0.02	0.02	<0.02	<0.02	0.02	<0.02	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.6	0.8	0.8	1.8	0.9	1.3	1.1	0.9	0.4
Chemical Oxygen Demand (mg/L)	8	<5	6	6	8	<5	<5	5	8	<5
Chlorophyll a (µg/L)			1.7	3.5				1.5	4.8	1.5
Conductivity Field (µmhos/cm)	76	73	88	110	108	68	63	59	90	113
E. Coli MTEC (CFU/100 ml)	44 Est.	14 Est.	10 Est.	32 Est.	40	12 Est	16 Est.	50	22 Est.	53
Fecal Coliform Membrane filter (CFU/100 ml)	32 Est.	32 Est.	14 Est.	120	16est	12 Est	22 Est.	110	26 Est.	75
Kjeldahl Nitrogen Total (mg/L)	0.2	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.57	0.32	0.02	<0.02	0.1	0.38	0.232	0.332	0.0056	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.008	0.006	<0.005	0.007	0.005	0.01	0.006	0.009	<0.005	0.008
Oxygen, total dissolved Field (mg/L)	11.9	11.1	9	9	11.3	12.5	11.8	11.4	8.8	8.6
Oxygen, total dissolved Percent Saturation Field (%)	99	98	100	93	105	100	102	101	97	87
pH Field (SU)	7.4	7.3	7.8	7.6	7.8	7.1	7.4	7.4	7.6	7.7
Pheophytin a (µg/L)			0.8	2				1.7	1.7	1
Phosphate Total (mg/L as P)	0.03	0.03	0.01	0.02	0.02	0.02	0.06	0.04	0.02	0.02
Solids Total (mg/L)	51	40	70	74	74	62	63	61	54	74
Solids Total Suspended (mg/L)	6	16	1		2	2	6	9	1	<1
Temperature Field (°C)	7.4	10.3	23.5	16.8	11.8	6.2	9	10.1	20.4	16.7
Turbidity Field (NTU)	13	14	2	1	4	9	12	17	2	1.3

# LASAR: 11485

SAMPLE_DATE	11/17/1999	01/26/2000	03/23/2000	05/17/2000	07/26/2000	09/27/2000	11/08/2000	01/25/2001	03/14/2001	05/23/2001
SAMPLE_TIME	11:40	11:05	10:00	12:45	11:55	09:50	11:00	10:15	10:53	11:20
Alkalinity Field (mg/L)	25	15	19	22	32	41	29	24	22	26
Ammonia (mg/L)	0.02	<0.02	0.04	0.02	0.04	0.02	0.02	<0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	1.4	1.3	0.7	0.6	0.3	0.7	1.4	1.3	0.6
Chemical Oxygen Demand (mg/L)	16	6	5	7	<5	6	10	<5	<5	8
Chlorophyll a (µg/L)					2.3	2.5				1.3
Conductivity Field (µmhos/cm)	95	55	62	71	93	109	100	82	78	79
E. Coli MTEC (CFU/100 ml)	360	34EST	40	50	12EST	48	6EST	48	10e	4EST
Fecal Coliform Membrane filter (CFU/100 ml)	490	36EST	34EST	52	16EST	72	18EST	70	10e	12EST
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.528	0.403	0.293	0.386	<0.0050	<0.0050	0.322	0.435	0.488	0.323
Orthophosphate Dissolved (mg/L as P)	0.009	0.01	<0.005	0.006	<0.005	0.01	<0.005	0.005	<0.005	0.007
Oxygen, total dissolved Field (mg/L)	10.3	11.9	11.5	10.8	8.3	8.7	11	12	12	9.9
Oxygen, total dissolved Percent Saturation Field (%)	94	99	98	102	94	85	99	98	103	102
pH Field (SU)	7.6	7.1	7.2	7.5	7.7	7.4	7.7	7.2	7.6	7.6
Pheophytin a (µg/L)					<0.1	1.6				1.6
Phosphate Total (mg/L as P)	0.07	0.06	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.02
Solids Total (mg/L)	100	95	62	63	70	68	64	67	51	63
Solids Total Suspended (mg/L)	13	35	7	4	<1	1	1	1	<1	2
Temperature Field (°C)	11.4	7.7	8.7	13	22.2	14.8	10.8	7	9	17.1
Turbidity Field (NTU)	29	59	16	14	1	1.2	2	6	4	3

**Middle Fork Coquille River at HWY 42**

**LASAR: 11485**

SAMPLE_DATE	07/19/2001	09/20/2001	11/29/2001	01/16/2002	03/13/2002	05/22/2002	07/18/2002	09/11/2002
SAMPLE_TIME	10:25	12:15	09:25	10:40	11:55	11:50	09:20	12:07
Alkalinity Field (mg/L)	33	42	15	20	19	27	36	42
Ammonia (mg/L)	0.02	<0.02	0.04	0.02	0.03	0.11	<0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1	1.7	<0.1	1.1	0.6	0.4	0.5
Chemical Oxygen Demand (mg/L)	8	5	32	5	10	<5	6	6
Chlorophyll a (µg/L)	2.4	1.3				1	1.9	1
Conductivity Field (µmhos/cm)	96	113	67	73	68	82	98	120
E. Coli MTEC (CFU/100 ml)	32EST	40	330	8 est	178	40	13	19
Fecal Coliform Membrane filter (CFU/100 ml)	52	32EST	280	22 est	176	40		
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	0.9	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.0050	<0.0050	0.77	0.48	0.42	0.094	0.0065	0.0055
Orthophosphate Dissolved (mg/L as P)	<0.005	0.01	0.009	0.008	0.011	0.005	0.006	0.014
Oxygen, total dissolved Field (mg/L)	7.9	8.8	10.9	12.5	11.8	10.5	7.3	8.1
Oxygen, total dissolved Percent Saturation Field (%)	86	91	94	98	97	99	81	86
pH Field (SU)	7.4	7.5	7	7.3	7.5	7.4	7.6	7.5
Pheophytin a (µg/L)	2	1.1				1.2	1.6	1.2
Phosphate Total (mg/L as P)	0.02	0.03	0.23	0.03	0.08	0.02	0.02	0.03
Solids Total (mg/L)	58	64	150	36	94	60	71	76
Solids Total Suspended (mg/L)	<1	<1	53	4	23	2	2	2
Temperature Field (°C)	20.2	17.1	9	5.2	7.1	13.2	21.1	18.5
Turbidity Field (NTU)	1	1	120	7	42	3	3	2

# South Fork Coquille River at Broadbent

SAMPLE_DATE	12/15/1992	03/10/1993	06/09/1993	09/22/1993	12/08/1993	03/30/1994	06/28/1994	09/13/1994	12/21/1994	03/15/1995
SAMPLE_TIME	12:15	09:00	09:40	09:00	10:00	09:40	17:10	17:50	10:10	09:20
Alkalinity Field (mg/L)	28	20	33	63	22	33	47		22	21
Ammonia (mg/L)	0.020	0.02	0.03	0.02	0.03	0.03	<0.020	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	1.1	0.9	0.8	1.6	1.2	<0.1	0.5	0.3	1.2
Chemical Oxygen Demand (mg/L)	12	<5	<5	<5	21	<5	<5		<5	<5
Chlorophyll a (µg/L)			2.8	0.1			0.8			
Conductivity Field (µmhos/cm)	78	65	76	145	68	82	114		70	57
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	46	79	49	170	350	33	7	33	33	33
Kjeldahl Nitrogen Total (mg/L)	0.2	0.2	0.2	0.2	0.8	0.2	<0.200		0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.32	0.08	0.1	<0.02	0.45	0.13	0.02	0.03	0.25	0.19
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	<0.005	<0.005	0.019	<0.005	<0.005		0.008	0.007
Oxygen, total dissolved Field (mg/L)	11.7	11.3	10.2	9.1	11.4	11.5	8.9	9	10.9	11.9
Oxygen, total dissolved Percent Saturation Field (%)	101	97	97	88	98	102	102	98	94	104
pH Field (SU)	7.1	6.8	7.6	7.3	7.6	7.6	7.8	7.9	7.5	7.6
Pheophytin a (µg/L)			1.8	0.7			2			
Phosphate Total (mg/L as P)	0.03	0.02	0.03	0.02	0.26	0.01	0.02	0.03	0.04	0.11
Solids Total (mg/L)	66	60	57	96	220	66	83	99	55	110
Solids Total Suspended (mg/L)	4	3	<1	<1	130	2	1		8	35
Temperature Field (°C)	9	9	13.5	14	9	10	22.5	20	9	9.5
Turbidity Field (NTU)	6	4	3	1	74	2	1		9	36

# LASAR: 11486

SAMPLE_DATE	06/28/1995	09/13/1995	12/13/1995	03/06/1996	06/19/1996	09/11/1996	01/29/1997	03/12/1997	06/18/1997	09/11/1997
SAMPLE_TIME	09:00	09:00	09:30	10:10	09:20	08:45	08:50	09:00	09:25	08:45
Alkalinity Field (mg/L)	40	62	20	22	39	65	22	16	43	61
Ammonia (mg/L)	0.02	0.03	0.02	<0.020	0.03	0.02	0.04	0.03	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	0.3	0.9	1	0.7	1.4	0.9	0.5	<0.1	0.6
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	7	<5	<5	5	<5	<5
Chlorophyll a (µg/L)	1.7	3			0.7	1.4			0.7	2
Conductivity Field (µmhos/cm)	89	145	58	61	102	158	61	69	109	155
E. Coli MTEC (CFU/100 ml)			60 EST	64 Est.	20 Est.	92	20 Est.	64 Est.	32 Est.	170
Fecal Coliform Membrane filter (CFU/100 ml)	49	33	320	110	12 Est.	120	64 Est.	200	135	215
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	0.5	0.3	0.2	<0.200	0.3	<0.200	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.02	0.02	0.27	0.18	0.02	<0.02	0.12	0.08	<0.02	0.02
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	0.012	0.014	<0.005	<0.005	0.009	0.005	0.005	<0.005
Oxygen, total dissolved Field (mg/L)	8.6	7.7	11.5	12	9.2	8.9	11.5	11.6	8.2	7.5
Oxygen, total dissolved Percent Saturation Field (%)	93		102	100	95	95	98	97	89	81
pH Field (SU)	7.8	7.7	7.2	7.4	7.6	7.4	7.5	7.2	7.6	7.8
Pheophytin a (µg/L)	5.1	5			0.92	2			1.1	3.6
Phosphate Total (mg/L as P)	<0.01	0.01	0.26	0.06	<0.010	0.01	0.1	0.03	0.01	0.02
Solids Total (mg/L)	67	90	260	67	72	96	110	68 Est.	56	78
Solids Total Suspended (mg/L)	<1	<1	200	11	<1	<1	57	13	1	13
Temperature Field (°C)	20	19	10	7.5	16.3	19.1	8.7	8	20.2	19.8
Turbidity Field (NTU)	5 EST	1	177	19	1	1	63	19	1	2.3

# South Fork Coquille River at Broadbent

SAMPLE_DATE	12/10/1997	03/19/1998	07/15/1998	09/23/1998	11/04/1998	01/11/1999	03/15/1999	05/06/1999	07/14/1999	09/16/1999
SAMPLE_TIME	10:50	10:20	14:10	11:20	11:15	13:50	14:35	12:05	11:05	12:20
Alkalinity Field (mg/L)	31	30	47	61	52	41	27	23	46	59
Ammonia (mg/L)	0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	0.6	<0.1	0.6	0.7	0.8	1.5	0.9	0.5	0.4
Chemical Oxygen Demand (mg/L)	5	<5	<5	<5	<5	<5	<5	<5	7	<5
Chlorophyll a (µg/L)			0.5	0.6				0.8	0.6	0.4
Conductivity Field (µmhos/cm)	86	81	120	151	138	84	69	67	121	154
E. Coli MTEC (CFU/100 ml)	28 Est.	16 Est.	4 Est.	28 Est.	12est	12 Est	4 Est.	30 Est.	24 Est.	12 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	4 Est.	28 Est.	16 Est.	88	20est	<2	8 Est.	28 Est.	56	6 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.27	0.1	<0.02	<0.02	<0.02	0.18	0.119	0.106	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.007	0.006	<0.005	<0.005	<0.005	0.01	0.005	0.006	<0.005	0.005
Oxygen, total dissolved Field (mg/L)	12	11.2	8.3	8.4	10.7	12.2	11.9	11.4	8	8.6
Oxygen, total dissolved Percent Saturation Field (%)	98	99	99	88	100	99	103	101	88	91
pH Field (SU)	7.4	7.2	7.7	7.7	7.8	7.6	7.5	7.6	7.6	7.8
Pheophytin a (µg/L)			0.3	0.6				0.9	0.4	0.3
Phosphate Total (mg/L as P)	0.03	0.02	0.02	0.01	0.01	0.02	0.09	0.02	0.02	0.01
Solids Total (mg/L)	57	63	83	92	75	71	65	53	68	85
Solids Total Suspended (mg/L)	2	5	<1		2	4	7	3	1	1
Temperature Field (°C)	6.8	10.2	24.8	18.1	12.3	6.5	9	10.1	21.3	18.7
Turbidity Field (NTU)	10	11	1	1	6	5	10	7	1	1.5

# LASAR: 11486

SAMPLE_DATE	11/17/1999	01/26/2000	03/23/2000	05/17/2000	07/26/2000	09/27/2000	11/08/2000	01/25/2001	03/14/2001	05/23/2001
SAMPLE_TIME	12:05	11:25	10:20	13:10	12:20	09:00	11:35	10:45	11:14	11:50
Alkalinity Field (mg/L)	29	18	26	27	50	63	41	34	30	39
Ammonia (mg/L)	0.03	<0.02	0.03	0.02	0.04	0.02	<0.02	<0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	1	1.6	0.9	0.2	0.3	0.7	1.1	0.6	0.4
Chemical Oxygen Demand (mg/L)	13	6	<5	6	<5	<5	5	<5	<5	8
Chlorophyll a (µg/L)					0.9	1				0.9
Conductivity Field (µmhos/cm)	95	58	73	76	127	148	120	96	91	94
E. Coli MTEC (CFU/100 ml)	76	8EST	112	16EST	26EST	120	72	22EST	2e	22EST
Fecal Coliform Membrane filter (CFU/100 ml)	92	22EST	154	18EST	40	96	64	18EST	2e	58
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.216	0.169	0.104	0.105	<0.0050	<0.0050	<0.0050	0.107	0.137	0.0259
Orthophosphate Dissolved (mg/L as P)	0.01	0.009	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	10.5	12.1	11.8	10.9	7.7	8.2	10.5	11.7	11.5	9.1
Oxygen, total dissolved Percent Saturation Field (%)	94	100	100	102	89	81	95	96	101	97
pH Field (SU)	7.6	7.5	7.4	7.7	7.7	7.6	7.7	7.5	7.7	8
Pheophytin a (µg/L)					0.1	0.2				1.2
Phosphate Total (mg/L as P)	0.03	0.05	0.02	0.02	0.02	0.01	0.01	<0.01	<0.01	0.01
Solids Total (mg/L)	70	100	56	56	84	89	65	66	53	67
Solids Total Suspended (mg/L)	4	49	3	3	<1	1	<1	1	<1	<1
Temperature Field (°C)	11	7.5	8.4	12.5	23.2	15.7	11.2	7.1	9.6	18.9
Turbidity Field (NTU)	11	46	8	7	1.1	2	2	3	2	2

South Fork Coquille River at Broadbent				LASAR: 11486				
SAMPLE_DATE	07/19/2001	09/20/2001	11/29/2001	01/16/2002	03/13/2002	05/22/2002	07/18/2002	09/11/2002
SAMPLE_TIME	10:42	12:38	10:00	11:05	12:20	12:18	08:45	12:40
Alkalinity Field (mg/L)	52	67	19	29	23	40	59	65
Ammonia (mg/L)	0.03	0.03	0.02	0.02	0.03	<0.02	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	2.1	1.9	0.6	1.3	0.6	0.8	0.2
Chemical Oxygen Demand (mg/L)	<5	<5	13	<5	7	<5	<5	<5
Chlorophyll a (µg/L)	0.7	0.7				0.3	4.2	0.4
Conductivity Field (µmhos/cm)	130	160	68	85	69	102	137	170
E. Coli MTEC (CFU/100 ml)	10EST	<2	150EST	16 est	200	<2	17	42
Fecal Coliform Membrane filter (CFU/100 ml)	20EST	10EST	190EST	12 est	290	12 est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.0050	<0.0050	0.316	0.193	0.139	0.009	<0.0050	0.0069
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	0.012	0.007	0.012	0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	7.8	8.8	11.4	12.2	12.1	10	7.1	7.9
Oxygen, total dissolved Percent Saturation Field (%)	89	93	98	95	99	97	81	86
pH Field (SU)	7.6	7.7	7.3	7.5	7.6	7.4	7.7	7.6
Pheophytin a (µg/L)	0.7	0.6				0.7	0.8	0.4
Phosphate Total (mg/L as P)	0.01	0.01	0.16	0.02	0.06	0.01	0.02	0.01
Solids Total (mg/L)	82	86	210	61	87	64	91	100
Solids Total Suspended (mg/L)	<1	<1	94	2	20	<1	5	2
Temperature Field (°C)	21.7	18.7	9	5.1	6.8	14.6	22.6	20.2
Turbidity Field (NTU)	<1	2	78	5	34	2	5	2

Floras Creek at HWY 101				LASAR: 12590						
SAMPLE_DATE	12/12/1995	03/05/1996	06/18/1996	09/10/1996	06/17/1997	09/10/1997	12/09/1997	03/18/1998	07/14/1998	09/22/1998
SAMPLE_TIME	16:30	17:40	14:40	17:05	16:55	19:40	16:00	16:40	16:40	16:25
Alkalinity Field (mg/L)	10	14	34	59	40	64	22	24	44	59
Ammonia (mg/L)	0.03	0.02	0.04	0.04	0.06	0.03	0.02	<0.02	0.06	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.4	0.9	0.5	0.7	0.3	1	0.7	0.6	0.2	1
Chemical Oxygen Demand (mg/L)	5	<5	12	<5	<5	<5	5	<5	<5	5
Chlorophyll a (µg/L)			1.9	1.2	0.7	0.8			1.1	0.9
Conductivity Field (µmhos/cm)	63	54	98	156	109	169	82	82	120	156
E. Coli MTEC (CFU/100 ml)	>600	64 Est.	4 Est.	<4	4 Est.	8 Est.	18 Est.	<2	4 Est.	2 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	>600	145	28 Est.	<4	16 Est.	12 Est.	30 Est.	2 Est.	46	10 Est.
Kjeldahl Nitrogen Total (mg/L)	1.3	0.5	0.3	<0.200	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.72	0.57	0.21	<0.02	0.16	<0.02	0.87	0.53	0.1	<0.02
Orthophosphate Dissolved (mg/L as P)	0.017	0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	11.2	11.8	10.5	8.9	9.6	10.3	11.7	11.1	10	10.7
Oxygen, total dissolved Percent Saturation Field (%)	102	102	109	98	105	114	100	103	114	114
pH Field (SU)	7.3	7.4	7.6	7.5	7.6	7.4	7.5	7.4	7.5	7.7
Pheophytin a (µg/L)			1.9	0.91	1	0.9			0.6	0.5
Phosphate Total (mg/L as P)	0.43	0.23	<0.010	0.01	0.01	0.01	0.02	0.02	<0.01	<0.01
Solids Total (mg/L)	530	120	69	73	61	110	64	59	72	97
Solids Total Suspended (mg/L)	450	52	<1	<1	<1	<1	4	1	<1	
Temperature Field (°C)	11.6	9	17.3	20.5	20.3	21.3	8.6	11.7	22.5	19
Turbidity Field (NTU)	396	55	1	1	1	1.2	9	4	1	1

SAMPLE_DATE	11/03/1998	01/12/1999	05/05/1999	07/13/1999	09/15/1999	11/16/1999	01/25/2000	03/22/2000	05/16/2000	07/25/2000
SAMPLE_TIME	16:05	10:28	16:40	15:15	17:50	16:20	14:55	16:15	17:55	17:30
Alkalinity Field (mg/L)	45	23	17		59	21	14	21	24	44
Ammonia (mg/L)	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.04	<0.02	0.03	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	2.1	1.3	0.1	0.8	0.8	0.7	0.4	0.6	0.5
Chemical Oxygen Demand (mg/L)	<5	6	6	<5	<5	10	11	<5	5	<5
Chlorophyll a (µg/L)			0.7	0.5	0.8					0.5
Conductivity Field (µmhos/cm)	136	80	68	127	160	87	52	70	79	122
E. Coli MTEC (CFU/100 ml)	18est	14 Est.	32 Est.	2 Est.	6 Est.	280	23	120	40	8EST
Fecal Coliform Membrane filter (CFU/100 ml)	12est	30 Est.	34 Est.	<2	8 Est.	350	16EST	100	58	4EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.36	0.63	0.47	0.0818	0.0071	0.721	0.548	0.456	0.602	0.0981
Orthophosphate Dissolved (mg/L as P)	<0.005	0.01	0.006	<0.005	<0.005	0.005	0.008	<0.005	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	13	11.5	11.3	9.4	10.4	10.4	11.8	11.3	10.7	9.9
Oxygen, total dissolved Percent Saturation Field (%)	121	99	103	106	110	95	102	99	100	114
pH Field (SU)	7.8	7.1	7.5	7.6	7.9	7.6	7.4	7.2	7.5	7.8
Pheophytin a (µg/L)			0.5	0.5	0.3					0.1
Phosphate Total (mg/L as P)	0.01	0.03	0.02	<0.01	0.02	0.03	0.07	0.02	0.02	0.02
Solids Total (mg/L)	76	72	57	73	99	80	120	57	63	77
Solids Total Suspended (mg/L)	<1	3	3	1	<1	9	52	6	4	<1
Temperature Field (°C)	12.7	9.1	11.6	21.5	18.3	11.5	9	9.7	12.3	23.3
Turbidity Field (NTU)	1	9	9	1	1.5	14	71	10	9	1.5

# Floras Creek at HWY 101

SAMPLE_DATE	09/26/2000	11/07/2000	01/24/2001	03/13/2001	05/22/2001	07/18/2001	09/19/2001	11/28/2001	01/15/2002	03/12/2002
SAMPLE_TIME	16:50	17:21	16:05	16:40	17:11	16:20	14:50	16:55	16:25	16:05
Alkalinity Field (mg/L)	59	37	25	25	30	44	58	15	23	14
Ammonia (mg/L)	0.02	<0.02	0.03	0.06	0.02	0.02	0.03	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	3.4	0.8	1.1	0.1	0.4	1.1	1.9	0.9	1.4
Chemical Oxygen Demand (mg/L)	<5	6	6	5	5	<5	<5	16	<5	8
Chlorophyll a (µg/L)	0.1				0.3	0.7	1.2			
Conductivity Field (µmhos/cm)	150	120	92	92	88	120	147	76	79	61
E. Coli MTEC (CFU/100 ml)	4EST	12EST	30EST	<2	6EST	16EST	8EST	66	6 est	270
Fecal Coliform Membrane filter (CFU/100 ml)	2EST	18EST	28EST	4EST	14EST	8EST	18EST	110	10 est	360
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	0.4	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.0050	0.561	0.688	0.692	0.608	0.114	0.0051	0.736	0.712	0.535
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	0.005	<0.005	0.007	<0.005	<0.005	0.009	0.008	0.01
Oxygen, total dissolved Field (mg/L)	9.3	13	11.7	11.7	9.3	9.9	10.7	11.1	12	11.8
Oxygen, total dissolved Percent Saturation Field (%)	98	117	99	102	99	113	113	98	97	99
pH Field (SU)	7.6	8	7.4	7.5	7.6	7.7	7.8	7.2	7.3	7.5
Pheophytin a (µg/L)	0.2				0.2	0.7	1			
Phosphate Total (mg/L as P)	<0.01	<0.01	0.01	<0.01	0.01	0.01	0.01	0.12	0.02	0.11
Solids Total (mg/L)	89	66	57	57	54	74	89	110	51	102
Solids Total Suspended (mg/L)	<1	<1	1	<1	<1	<1	<1	45	3	43
Temperature Field (°C)	18.4	10.9	8.7	9.5	19.3	22.7	18.3	9.9	6.6	8
Turbidity Field (NTU)	1	1	5	2		1	5	69	8	73

SAMPLE_DATE	05/21/2002	07/17/2002	09/10/2002
SAMPLE_TIME	18:10	16:35	18:32
Alkalinity Field (mg/L)	34	46	57
Ammonia (mg/L)	<0.02	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.4	1.1
Chemical Oxygen Demand (mg/L)	<5	6	<5
Chlorophyll a (µg/L)	0.2	0.5	0.2
Conductivity Field (µmhos/cm)	101	119	150
E. Coli MTEC (CFU/100 ml)	86	2	17
Fecal Coliform Membrane filter (CFU/100 ml)	94		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.203	0.0733	<0.0050
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	10.4	10.3	9.6
Oxygen, total dissolved Percent Saturation Field (%)	102	120	103
pH Field (SU)	7.6	7.9	7.8
Pheophytin a (µg/L)	0.4	0.4	0.4
Phosphate Total (mg/L as P)	0.01	0.01	0.01
Solids Total (mg/L)	63	80	91
Solids Total Suspended (mg/L)	<1	1	1
Temperature Field (°C)	15.2	23.6	19.4
Turbidity Field (NTU)	1	2	1



# **Millicoma River at Rooke Higgins Boat Ramp**

SAMPLE_DATE	01/29/1997	03/12/1997	06/18/1997	09/11/1997	12/10/1997	07/15/1998	09/23/1998	11/04/1998	01/11/1999	03/15/1999
SAMPLE_TIME	14:20	09:00	09:55	10:50	07:45	09:55	08:05	08:05	16:39	17:45
Alkalinity Field (mg/L)		8	14	27	11	18	24	15	15	9
Ammonia (mg/L)	0.02	0.03	0.07	0.06	0.03	<0.02	0.07	<0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.4	0.9	0.2	0.9	1.8	0.7	1.7	0.9	1.1
Chemical Oxygen Demand (mg/L)		<5	6	7	5	9	8	7	<5	<5
Chlorophyll a (µg/L)			11	9.8		26.2	2.5			
Conductivity Field (µmhos/cm)		42.6	53	2380	54	93	1000	72	46	44
E. Coli MTEC (CFU/100 ml)		16 Est.	120	36 Est.	64 Est.	36 Est.	66	34est	22 Est	4 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	20	32 Est.	105	72 Est.	20 Est.	82	130	50	28 Est	4 Est.
Kjeldahl Nitrogen Total (mg/L)		0.2	0.3	0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.49	0.45	0.21	0.1	0.76	0.14	0.13	0.67	0.67	0.441
Orthophosphate Dissolved (mg/L as P)		0.016	<0.005	<0.005	0.007	<0.005	0.008	<0.005	0.007	<0.005
Oxygen, total dissolved Field (mg/L)	11.2	11.5	7	6.4	11.5	8.3	7.1	9.6	11.9	11.3
Oxygen, total dissolved Percent Saturation Field (%)	98	99.1	78	70	95	92	75	86	95	97
pH Field (SU)	6.9	7	6.9	7.1	7.1	7.1	7.1	7	7.1	7.2
Pheophytin a (µg/L)			4.5	9.6		1.5	2.4			
Phosphate Total (mg/L as P)	0.02	0.03	0.03	0.03	0.01	0.03	0.03	0.02	0.02	0.02
Solids Total (mg/L)	44	37 Est.	47	1400	47	70	580	52	45	47
Solids Total Suspended (mg/L)		18	<1	6	<1	9		5	4	2
Temperature Field (°C)	9.5	9	21	20.3	7.3	21.1	17.9	10.9	6.2	8.7
Turbidity Field (NTU)		8	4	4.8	1	4	6	6	3	4

# **LASAR: 13570**

SAMPLE_DATE	05/06/1999	07/14/1999	09/16/1999	11/17/1999	01/26/2000	03/22/2000	05/17/2000	07/26/2000	09/27/2000	11/08/2000
SAMPLE_TIME	09:05	08:20	08:10	08:20	08:00	18:10	08:39	08:45	12:30	08:50
Alkalinity Field (mg/L)	8	25	29	11	10	10	11	18	26	15
Ammonia (mg/L)	<0.02	0.04	0.06	0.03	<0.02	<0.02	0.03	0.05	0.04	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1	0.2	0.5	1	0.4	0.7	0.5	1.1	0.6
Chemical Oxygen Demand (mg/L)	<5	8	7	7	5	<5	5	5	11	9
Chlorophyll a (µg/L)	0.9	4.4	2.7					2.8	18	
Conductivity Field (µmhos/cm)	44	1456	3555	79	40	44	50	144	2650	97
E. Coli MTEC (CFU/100 ml)	18 Est.	140	10 Est.	82	20	2EST	10EST	28EST	86	24EST
Fecal Coliform Membrane filter (CFU/100 ml)	40	132	30 Est.	140	20	4EST	12EST	28EST	90	52
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	0.3	<0.2	<0.2	<0.2	<0.2	0.3	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.465	0.076	0.131	0.725	0.578	0.48	0.405	0.11	0.096	0.66
Orthophosphate Dissolved (mg/L as P)	0.005	0.008	0.008	0.008	0.009	<0.005	<0.005	0.006	0.008	0.005
Oxygen, total dissolved Field (mg/L)	11	8.4	6.9	9.5	11.6	11	10.4	6.6	8.1	9.3
Oxygen, total dissolved Percent Saturation Field (%)	98	90	73	87	97	96	96	74	85	83
pH Field (SU)	7	7.3	7.2	7	7.3	6.9	7	7.1	7.3	7.1
Pheophytin a (µg/L)	1.2	5	1.8					0.5	8.2	
Phosphate Total (mg/L as P)	0.01	0.06	0.04	0.02	0.03	0.01	<0.01	0.04	0.06	0.02
Solids Total (mg/L)	42	81	2000	49	48	40	38	99	1600	61
Solids Total Suspended (mg/L)	2	16	4	<1	10	1	1	2	17	2
Temperature Field (°C)	10.6	19.3	17.7	11.3	7.8	9.6	12.1	21.5	18	10.6
Turbidity Field (NTU)	3	9	4.9	2	11	2	2	3.5	21	3

# Millicoma River at Rooke Higgins Boat Ramp

SAMPLE_DATE	01/25/2001	03/14/2001	05/23/2001	07/19/2001	09/20/2001	11/29/2001	01/16/2002	03/13/2002	05/22/2002	07/18/2002
SAMPLE_TIME	07:40	08:00	08:00	07:50	08:38	11:20	08:20	08:30	08:40	12:15
Alkalinity Field (mg/L)	12	11	13	17	26	8	16	9	16	20
Ammonia (mg/L)	<0.02	0.02	<0.02	0.06	0.07	0.03	0.04	0.03	<0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.7	0.5	1.8	0.8	1.1	0.3	1.1	0.5	0.4
Chemical Oxygen Demand (mg/L)	5	<5	5	11	7	10	<5	<5	<5	9
Chlorophyll a (µg/L)			0.8	21.5	4.4				1.6	4.3
Conductivity Field (µmhos/cm)	54	56	50	72	2638	50	51	46	56	381
E. Coli MTEC (CFU/100 ml)	14EST	4e	18EST	48	26EST	170EST	22 est	24 EST	18 est	13
Fecal Coliform Membrane filter (CFU/100 ml)	42	8e	22EST	44	26EST	160EST	24 est	24 EST	22 est	
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	0.5	0.4	0.3	<0.2	<0.2	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.586	0.654	0.547	0.138	0.18	0.95	0.646	0.59	0.248	0.123
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	<0.005	<0.005	0.01	0.008	0.007	0.008	0.006	0.008
Oxygen, total dissolved Field (mg/L)	11.3	11.2	9.2	6.5	7	10.9	11.8	11.6	9.3	6.2
Oxygen, total dissolved Percent Saturation Field (%)	94	95	92	71	74	95	93	96	89	72
pH Field (SU)	7.3	7.3	7.1	6.7	7.2	7	7	7	7.4	7.2
Pheophytin a (µg/L)			1.4	9.7	3.9				2.7	3.1
Phosphate Total (mg/L as P)	<0.01	<0.01	0.02	0.04	0.05	0.08	0.02	0.03	0.02	0.03
Solids Total (mg/L)	44	39	48	63	1500	52	39	49	45	220
Solids Total Suspended (mg/L)	1	<1	1	13	<1	11	2	5	2	6
Temperature Field (°C)	7.6	8.5	16.1	19.8	17.8	9.6	5.6	7.4	13.5	23.6
Turbidity Field (NTU)	2	1	2	11	10	13	2	22	2	7

# LASAR: 13570

SAMPLE_DATE	09/11/2002
SAMPLE_TIME	09:10
Alkalinity Field (mg/L)	26
Ammonia (mg/L)	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4
Chemical Oxygen Demand (mg/L)	10
Chlorophyll a (µg/L)	5
Conductivity Field (µmhos/cm)	5100
E. Coli MTEC (CFU/100 ml)	6
Fecal Coliform Membrane filter (CFU/100 ml)	
Kjeldahl Nitrogen Total (mg/L)	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.13
Orthophosphate Dissolved (mg/L as P)	0.006
Oxygen, total dissolved Field (mg/L)	6.9
Oxygen, total dissolved Percent Saturation Field (%)	75
pH Field (SU)	7.1
Pheophytin a (µg/L)	3.9
Phosphate Total (mg/L as P)	0.03
Solids Total (mg/L)	300
Solids Total Suspended (mg/L)	21
Temperature Field (°C)	19
Turbidity Field (NTU)	10

# South Fork Coos River at Anson Rogers Bridge

SAMPLE_DATE	03/06/1996	06/19/1996	09/11/1996	01/29/1997	03/12/1997	06/18/1997	09/11/1997	12/10/1997	07/15/1998	09/23/1998
SAMPLE_TIME	12:30	11:40	09:44	13:10	10:00	09:00	11:30	08:30	08:40	08:45
Alkalinity Field (mg/L)	11	19	30	16	10	21	38	15	22	31
Ammonia (mg/L)	<0.020	0.08	0.06	0.02	0.04	0.04	0.04	0.03	<0.02	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1.1	0.4	0.5	0.6	1.6	0.5	0.8	1.1	0.8
Chemical Oxygen Demand (mg/L)	<5	6	6	<5	6	8	9	8	8	9
Chlorophyll a (µg/L)		14				31	9.7		10.5	2.1
Conductivity Field (µmhos/cm)	42	61	192	45	43	69	8150	76	753	2840
E. Coli MTEC (CFU/100 ml)	4 Est.	32 Est.	68 Est.	<4	8 Est.	36 Est.	40 Est.	48 Est.	6 Est.	28 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	8 Est.	56 Est.	295	195	52 Est.	120	115	20 Est.	24 Est.	20 Est.
Kjeldahl Nitrogen Total (mg/L)	0.2	0.3	0.3	<0.200	<0.200	0.4	0.3	0.3	0.3	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.29	0.11	0.09	0.24	0.21	0.03	0.12	0.6	0.02	0.1
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	0.007	0.006	0.013	<0.005	<0.005	0.006	<0.005	0.009
Oxygen, total dissolved Field (mg/L)	11.8	8.6	7	11.1	11.3	7.2	6.2	11.2	8	7
Oxygen, total dissolved Percent Saturation Field (%)	103.1	91	74.1	97	96.2	78	68	93	90	75
pH Field (SU)	7	7.1	7.1	7.1	7.2	7.2	7	7	7.2	7.2
Pheophytin a (µg/L)		4.2				4.3	6.2		1.4	1.5
Phosphate Total (mg/L as P)	0.02	0.03	0.04	0.04	0.03	0.06	0.03	0.02	0.02	0.03
Solids Total (mg/L)	46	66	1100	54	43 Est.	51	5500	64	450	1600
Solids Total Suspended (mg/L)	3	7	5	9	5	14	16	2	<1	
Temperature Field (°C)	9.5	17.9	18.5	9.6	8.5	20	20.7	7.4	21.7	18.4
Turbidity Field (NTU)	6	5	2	13	8	6	5	3	9	5

# LASAR: 13574

SAMPLE_DATE	11/04/1998	01/12/1999	03/15/1999	05/06/1999	07/14/1999	09/16/1999	11/17/1999	01/26/2000	03/22/2000	05/17/2000
SAMPLE_TIME	09:05	08:37	17:10	09:55	08:50	09:25	09:10	09:00	17:30	09:40
Alkalinity Field (mg/L)	25	14	14	12	21	35	14	9	13	15
Ammonia (mg/L)	0.04	<0.02	<0.02	<0.02	<0.02	0.05	0.04	<0.02	0.03	0.13
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	1.9	1.1	1.2	1.4	0.2	0.3	0.7	0.2	0.9
Chemical Oxygen Demand (mg/L)	8	<5	6	5	10	10	10	6	5	8
Chlorophyll a (µg/L)				1.1	7.6	1.7				
Conductivity Field (µmhos/cm)	268	60	51	50	199	6270	125	44	55	56
E. Coli MTEC (CFU/100 ml)	38est	26 Est.	8 Est.	14 Est.	52	12 Est.	130	20EST	8EST	7EST
Fecal Coliform Membrane filter (CFU/100 ml)	64	20 Est.	12 Est.	20 Est.	26 Est.	8 Est.	300	12EST	20EST	16EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2	<0.2	0.2	0.3	<0.2	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.25	0.37	0.208	0.205	0.005	0.119	0.639	0.296	0.262	0.224
Orthophosphate Dissolved (mg/L as P)	0.01	0.01	<0.005	0.006	<0.005	0.008	0.009	0.008	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	9.1	12	11.5	11.1	7.6	6.6	9.3	11.6	11	10.4
Oxygen, total dissolved Percent Saturation Field (%)	84	97	99	99	85	72	85	97	96	98
pH Field (SU)	7.2	7.6	7.3	7.2	7.2	7.2	7	7.2	7.3	7.3
Pheophytin a (µg/L)				1.4	3.5	1.2				
Phosphate Total (mg/L as P)	0.04	0.02	0.02	0.02	0.04	0.03	0.03	0.04	0.02	0.01
Solids Total (mg/L)	160	62	56	51	120	3700	78	60	51	46
Solids Total Suspended (mg/L)	11	1	7	1	8	4	2	12	2	2
Temperature Field (°C)	11.8	6.6	9.3	10.3	21.3	18.3	11.7	7.9	9.7	13.1
Turbidity Field (NTU)	13	3	7	6	4	5.1	3	12	4	2

# South Fork Coos River at Anson Rogers Bridge

SAMPLE_DATE	07/26/2000	09/27/2000	11/08/2000	01/25/2001	03/14/2001	05/23/2001	07/19/2001	09/20/2001	11/29/2001	01/16/2002
SAMPLE_TIME	10:00	11:55	09:25	08:20	08:37	08:07	08:30	09:20	12:05	08:55
Alkalinity Field (mg/L)	24	36	20	17	16	18	21	38	10	14
Ammonia (mg/L)	0.06	0.05	0.04	<0.02	0.03	0.02	<0.02	0.1	0.04	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	<0.1	0.6	0.3	1.1	0.7	1	4.3	0.7	0.8	0.6
Chemical Oxygen Demand (mg/L)	7	12	8	5	5	8	13	9	19	<5
Chlorophyll a (µg/L)	3	8.3				1.3	23.9	2.4		
Conductivity Field (µmhos/cm)	1358	5910	820	68	73	60	130	6	55	57
E. Coli MTEC (CFU/100 ml)	18EST	96	36EST	20EST	6e	32EST	54	40	160EST	4 est
Fecal Coliform Membrane filter (CFU/100 ml)	36EST	52	32EST	18EST	14e	36EST	22EST	36EST	170EST	4 est
Kjeldahl Nitrogen Total (mg/L)	0.2	0.3	0.2	<0.2	<0.2	0.2	0.5	0.4	0.5	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.101	0.0847	0.583	0.395	0.365	0.326	<0.0050	0.164	0.609	0.402
Orthophosphate Dissolved (mg/L as P)	0.011	0.009	0.008	0.006	0.006	0.008	<0.005	0.008	0.009	0.007
Oxygen, total dissolved Field (mg/L)	6.4	7.8	9.3	11.2	10.9	8.4	8.8	6.4	10.6	11.9
Oxygen, total dissolved Percent Saturation Field (%)	73	82	84	92	94	87	97	70	92	95
pH Field (SU)	7.2	7.3	7.1	7	7.1	7.1	7.1	7.1	6.8	7.1
Pheophytin a (µg/L)	1.4	3.2				1.9	10	4.7		
Phosphate Total (mg/L as P)	0.04	0.05	0.04	0.01	0.01	0.03	0.04	0.04	0.1	0.02
Solids Total (mg/L)	780	3800	440	56	47	56	96	3700	83	38
Solids Total Suspended (mg/L)	5	18	7	1	<1	3	18	6	18	2
Temperature Field (°C)	22.6	18.4	11	7.1	9.1	17.4	21.2	18.4	9.5	5.9
Turbidity Field (NTU)	6.6	19	6	3	1	2	11	11	28	3

SAMPLE_DATE	03/13/2002	05/22/2002	07/18/2002	09/11/2002
SAMPLE_TIME	09:20	08:00	11:35	09:58
Alkalinity Field (mg/L)	20	18	29	35
Ammonia (mg/L)	0.02	0.05	0.07	0.09
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.7	0.2	0.4
Chemical Oxygen Demand (mg/L)	8	<5	9	14
Chlorophyll a (µg/L)		1.9	2.3	3.6
Conductivity Field (µmhos/cm)	52	72	174	9500
E. Coli MTEC (CFU/100 ml)	26 EST	32 est	19	5
Fecal Coliform Membrane filter (CFU/100 ml)	24 EST	38 est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.369	0.0876	0.159	0.127
Orthophosphate Dissolved (mg/L as P)	0.008	0.008	0.014	<0.005
Oxygen, total dissolved Field (mg/L)	11.6	8.6	5.3	6.6
Oxygen, total dissolved Percent Saturation Field (%)	96	83	62	74
pH Field (SU)	7.2	7.1	7.2	7.1
Pheophytin a (µg/L)		2.8	2	4.2
Phosphate Total (mg/L as P)	0.03	0.02	0.03	0.03
Solids Total (mg/L)	63	59	980	6012
Solids Total Suspended (mg/L)	6	4	5	19
Temperature Field (°C)	7.4	14.5	23.4	19.5
Turbidity Field (NTU)	21	2	7	8

## Appendix 4 - Umpqua



# Umpqua River at Elkton

SAMPLE_DATE	12/15/1992	03/10/1993	04/20/1993	06/09/1993	07/13/1993	09/22/1993	10/12/1993	12/08/1993	04/24/1996	06/27/1994
SAMPLE_TIME	09:10	14:15	09:20	13:40	08:30	13:15	08:50	12:55	09:05	11:50
Alkalinity Field (mg/L)	29	22	31	31	40	40	33	33		29
Ammonia (mg/L)	0.020	0.02	0.020	0.020	0.020	<0.020	0.040	0.020	0.030	<0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.6	2.9	<0.1	1	0.8	1.2	0.6	2.2	0.7	0.9
Chemical Oxygen Demand (mg/L)	14	5	8		8	5	<5	12		<5
Chlorophyll a (µg/L)					0.2		0.5			0.9
Conductivity Field (µmhos/cm)	74	60	72		115	104	86	101		81
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	130	21	170	79	13	8	280	240	4	2
Kjeldahl Nitrogen Total (mg/L)	0.300	0.2	0.200		0.200	0.200	0.200	0.300		0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.24	0.06	0.05	0.04	<0.02	<0.02	0.02	0.11	0.02	0.02
Orthophosphate Dissolved (mg/L as P)	0.021	0.015	0.017		0.008	0.010	0.018	0.024		0.021
Oxygen, total dissolved Field (mg/L)	12.1	13.1	11.2	10.4	8.4	10.4	9.3	11.8	10.0	9.1
Oxygen, total dissolved Percent Saturation Field (%)	98	116	99	102	89	96	93	99	96	101
pH Field (SU)	7.20	7.0	7.60	7.50	7.40	8.20	7.50	7.70	7.00	7.80
Pheophytin a (µg/L)					0.10		0.90			1.60
Phosphate Total (mg/L as P)	0.070	0.04	0.040	0.060	0.020	0.020	0.040	0.070	0.030	0.030
Solids Total (mg/L)	82	64	70	66	83	74	57	100	64	69
Solids Total Suspended (mg/L)	6	2	14		<1	<1	1	10		<1
Temperature Field (°C)	6.5	10.0	10	15	19	12	16	8	14	21
Turbidity Field (NTU)	13	5	14		<1	<1	1	12		1

# LASAR: 10437

SAMPLE_DATE	07/25/1994	09/19/1994	10/10/1994	12/21/1994	03/15/1995	04/24/1995	06/28/1995	07/24/1995	09/13/1995	10/23/1995
SAMPLE_TIME	12:30	14:10	11:45	13:45	14:30	15:25	14:05	12:00	14:30	18:00
Alkalinity Field (mg/L)	32	33	37	28	28	31	29	32	32	40
Ammonia (mg/L)	0.030	0.050	0.020	<0.020	0.03	0.02	0.04	<0.02	0.06	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	0.4	0.2	0.1	1.3	1.5	0.9	0.4	0.5	1.1
Chemical Oxygen Demand (mg/L)	13	<5	7	<5	<5	5	<5	<5	<5	<5
Chlorophyll a (µg/L)		0.9	0.8				4.1	5	2	1
Conductivity Field (µmhos/cm)	131	197	98	64	69	74	71	81	83	88
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	2	2	2	23	34	13	<2	4	2	<2
Kjeldahl Nitrogen Total (mg/L)	0.500	0.300	<0.200	0.300	0.2	0.2	0.2	0.2	0.4	0.4
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.02	0.02	0.10	0.07	0.06	0.02	0.03	0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	0.007	0.017	0.015	0.016	0.018	0.013	0.014	0.018	0.014	0.023
Oxygen, total dissolved Field (mg/L)	8.8	9	9.4	11.1	11.2	11.3	8.8	8.7	9.1	11.1
Oxygen, total dissolved Percent Saturation Field (%)	104	103	94	93	101	109	104	99		107
pH Field (SU)	8.80	8.40	7.90	7.70	7.6	7.9	7.8	8.2	8.1	8.1
Pheophytin a (µg/L)		1.90	2.50				3.1	2	3	2
Phosphate Total (mg/L as P)	0.040	0.050	0.030	0.050	0.07	0.04	0.03	0.03	0.03	0.03
Solids Total (mg/L)	92	67	79	52	77	81	65	64	70	71
Solids Total Suspended (mg/L)	<1	<1	<1	3	8	4	2	<1	<1	<1
Temperature Field (°C)	24	22.5	16	8	11.0	14.0	24.0	22.0	23.0	14.0
Turbidity Field (NTU)	2	1	<1	7	13	8	4 EST	<1	1	1

# Umpqua River at Elkton

# LASAR: 10437

SAMPLE_DATE	12/13/1995	03/04/1996	04/10/1996	06/19/1996	07/15/1996	09/11/1996	10/07/1996	12/10/1996	01/13/1997	03/12/1997
SAMPLE_TIME	13:35	12:30	11:40	13:50	11:40	12:35	11:55	13:55	10:55	14:06
Alkalinity Field (mg/L)	19	28	30	33	35	33	36	21	30	24
Ammonia (mg/L)	0.03	<0.020	0.030	0.110	<0.020	0.030	0.060	0.040	0.040	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.6	0.4	<0.1	0.7	0.2	0.2	0.4	0.8	1 Est.	0.3
Chemical Oxygen Demand (mg/L)	7	<5	<5	10	7	<5	7	<5	<5	<5
Chlorophyll a (µg/L)				2.6	4.8	0.5	0.7			
Conductivity Field (µmhos/cm)	53	72	80	86	88	82	84	55	75	68
E. Coli MTEC (CFU/100 ml)	170 EST	68 Est.	24 Est.	8 Est.	4 Est.	12 Est.	<4	92 Est.	24 Est.	56
Fecal Coliform Membrane filter (CFU/100 ml)	>300	110	12 Est.	12 Est.	16 Est.	36 Est.	45 Est.	1020	32 Est.	125
Kjeldahl Nitrogen Total (mg/L)	0.9	0.200	<0.200	0.200	0.300	<0.200	0.200	0.700	0.700	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.12	0.09	0.03	0.02	<0.02	<0.02	<0.02	0.09	0.10	0.05
Orthophosphate Dissolved (mg/L as P)	0.031	0.017	0.014	0.013	0.014	0.019	0.025	0.029	0.021	0.017
Oxygen, total dissolved Field (mg/L)	11.0	11.4	10.2	9.7	8	8.9	9.5	11.1	12.4	11.4
Oxygen, total dissolved Percent Saturation Field (%)	97	97	97	103	94	100	101	94	97	98
pH Field (SU)	7.5	7.80	7.70	7.90	8	8	7.90	7.40	7.60	7.4
Pheophytin a (µg/L)				1.10	1	1.10	1.60			
Phosphate Total (mg/L as P)	0.33	0.050	0.030	0.020	0.030	0.030	0.050	0.290	0.050	0.04
Solids Total (mg/L)	510	77	62	69	68	48	72	270	61	67 Est.
Solids Total Suspended (mg/L)	380	5	2	<1	<1	<1	<1	180	7	12
Temperature Field (°C)	10.0	8.5	13.5	19.2	24.2	21.5	18.5	8.6	5.3	9
Turbidity Field (NTU)	279	12	4	1	1	<1	1	202	16	15
SAMPLE_DATE	04/29/1997	06/16/1997	07/07/1997	09/11/1997	10/13/1997	12/10/1997	01/06/1998	03/17/1998	04/13/1998	07/13/1998
SAMPLE_TIME	11:30	11:55	17:05	14:25	12:05	13:45	09:30	12:55	13:30	11:05
Alkalinity Field (mg/L)	26	31	33	29	32	35	28	28	33	36
Ammonia (mg/L)	<0.02	0.04	0.02	0.03	0.03	0.03	0.02	<0.02	0.02	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.5	0.5	0.3	0.6	1.1	1.3	0.6	1.9	0.9
Chemical Oxygen Demand (mg/L)	5	<5	<5	9	8	6	11	<5	6	<5
Chlorophyll a (µg/L)		2.7	1.7	1	3.3					1.2
Conductivity Field (µmhos/cm)	66	79	85	82	92	92	79	83	81	91
E. Coli MTEC (CFU/100 ml)	24 EST	4 Est.	<4	4 Est.	24 Est.	44 Est.	155		78	2 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	56 EST	16 Est.	<4	8 Est.	56 Est.	20 Est.	190	32 Est.	96	2 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	<0.02	0.02	0.04	0.04	0.14	0.07	0.04	0.03
Orthophosphate Dissolved (mg/L as P)	0.019	0.010	0.011	0.022	0.020	0.020	0.023	0.018	0.016	0.023
Oxygen, total dissolved Field (mg/L)	10.7	9	8.9	8.8	10.6	12.4	11.9	11.1	11.8	8.8
Oxygen, total dissolved Percent Saturation Field (%)	101	101	105	97	98	102	95	100	102	100
pH Field (SU)	7.9	8.2	8.4	7.7	7.8	7.9	7.5	7.6	7.7	8
Pheophytin a (µg/L)		0.8	1.2	1.8	8.7					0.5
Phosphate Total (mg/L as P)	0.04	0.03	0.02	0.04	0.05	0.04	0.08	0.04	0.04	0.02
Solids Total (mg/L)	59	64	67	57	84	57	110	78	97	75
Solids Total Suspended (mg/L)	4	<1	<1	<1	3	2	15	14	6	2
Temperature Field (°C)	13.1	21.5	24.2	20.4	12.1	7.2	6.2	11.1	9.2	21.8
Turbidity Field (NTU)	8	1	0.9	0.7	6	6		9	18	1



# Umpqua River at Elkton

SAMPLE_DATE	09/21/1998	11/02/1998	01/11/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999	11/15/1999	01/26/2000	03/23/2000
SAMPLE_TIME	11:15	11:30	11:25	13:30	12:50	11:20	09:35	11:15	14:20	12:30
Alkalinity Field (mg/L)	33	36	33	28	25	25	32	36	25	26
Ammonia (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	0.02	0.03	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	1.2	1.5	1.6	1.5	0.1	0.4	0.6	1.1	1.5
Chemical Oxygen Demand (mg/L)	6	<5	<5	<5	8	5	<5	8	11	<5
Chlorophyll a (µg/L)	0.6				1.2	1.5	0.9			
Conductivity Field (µmhos/cm)	84	97	80	70	64	67	81	108	66	67
E. Coli MTEC (CFU/100 ml)	8 Est.	4est	20 Est	2 Est.	60	2 Est.	2 Est.	2 Est.	72	10EST
Fecal Coliform Membrane filter (CFU/100 ml)	14 Est.	<4	32 Est	2 Est.	58	2 Est.	<2	10 Est.	90	6EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	0.3	<0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	0.11	0.0590	<0.0050	0.0090	0.0087	0.0339	0.116	0.0264
Orthophosphate Dissolved (mg/L as P)	0.017	0.030	0.024	0.017	0.015	0.014	0.021	0.028	0.020	0.015
Oxygen, total dissolved Field (mg/L)	9.1	11.0	12.6	11.9	11.3	8.4	8.5	10.1	11.8	11.7
Oxygen, total dissolved Percent Saturation Field (%)	97	100	100	103	101	96	91	95	100	101
pH Field (SU)	7.8	8.0	7.0	7.7	7.8	7.9	7.8	7.8	7.7	7.8
Pheophytin a (µg/L)	0.5				1.6	0.5	0.3			
Phosphate Total (mg/L as P)	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.05	0.03
Solids Total (mg/L)	67	76	75	72	55	57	60	88	81	61
Solids Total Suspended (mg/L)		<1	2	3	6	<1	<1	1	12	2
Temperature Field (°C)	19.2	11.4	5.5	8.8	10.4	22.6	19.5	13.2	8.6	9.2
Turbidity Field (NTU)	1	1	6	9	6	2	1.2	2	21	10

SAMPLE_DATE	05/15/2000	07/24/2000	11/06/2000	01/25/2001	03/12/2001	05/23/2001	07/17/2001	09/18/2001	11/29/2001	01/16/2002
SAMPLE_TIME	13:00	12:15	11:45	13:20	10:25	14:15	10:45	11:00	15:00	14:20
Alkalinity Field (mg/L)	27	32	35	33	33	26	28	32	24	28
Ammonia (mg/L)	0.05	0.04	0.02	<0.02	<0.02	<0.02	0.02	0.02	0.05	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.2	0.8	2.0	1.1	0.6	1.0	0.9	2.3	0.8
Chemical Oxygen Demand (mg/L)	<5	5	<5	<5	8	8	<5	6	23	7
Chlorophyll a (µg/L)		1.7				0.3	1.3	0.5		
Conductivity Field (µmhos/cm)	68	80	100	93	94	62	79	81	87	78
E. Coli MTEC (CFU/100 ml)	16EST	6EST	8EST	6EST	6EST	2EST	2EST	4EST	600EST	50 est
Fecal Coliform Membrane filter (CFU/100 ml)	14EST	6EST	16EST	6EST	4EST	4EST	4EST	<2	1600EST	150 est
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	0.2	0.9	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.0050	0.0060	0.0138	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.412	0.136
Orthophosphate Dissolved (mg/L as P)	0.014	0.014	0.026	0.013	0.013	0.019	0.024	0.022	0.024	0.019
Oxygen, total dissolved Field (mg/L)	10.6	8.2	10.8	12.5	11.3	9.1	8.8	8.4	11.2	12.3
Oxygen, total dissolved Percent Saturation Field (%)	101	96	99	102	99	103	100	91	94	98
pH Field (SU)	7.6	8.0	8.0	8.0	7.8	7.9	8.2	8.1	7.3	7.7
Pheophytin a (µg/L)		0.3				0.7	0.6	0.7		
Phosphate Total (mg/L as P)	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.19	0.04
Solids Total (mg/L)	62	64	72	72	71	56	51	80	160	62
Solids Total Suspended (mg/L)	2		<1	1	2	1	<1	1	67	3
Temperature Field (°C)	13.8	23.9	11.5	6.9	9.3	21.2	21.8	19.8	7.8	5.9
Turbidity Field (NTU)	7	1.0	0.8	3	3	2	1	1	72	7

**Umpqua River at Elkton**

**LASAR: 10437**

SAMPLE_DATE	03/11/2002	05/20/2002	07/18/2002	09/09/2002
SAMPLE_TIME	11:10	16:45	15:15	11:55
Alkalinity Field (mg/L)	29	28	30	28
Ammonia (mg/L)	<0.02	0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	1.4	0.3	0.3
Chemical Oxygen Demand (mg/L)	5	<5	7	<5
Chlorophyll a (µg/L)		0.1	1.3	0.4
Conductivity Field (µmhos/cm)	79	74	75	79
E. Coli MTEC (CFU/100 ml)	22EST	12est	2	4
Fecal Coliform Membrane filter (CFU/100 ml)	32EST	34est		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0304	0.0064	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.013	0.013	0.010	0.010
Oxygen, total dissolved Field (mg/L)	12.1	10.0	8.5	9.0
Oxygen, total dissolved Percent Saturation Field (%)	102	100	101	98
pH Field (SU)	7.8	7.9	8.7	8.5
Pheophytin a (µg/L)		0.2	0.8	0.6
Phosphate Total (mg/L as P)	0.03	0.03	0.02	0.03
Solids Total (mg/L)	54	68	67	70
Solids Total Suspended (mg/L)	21	2	<1	<1
Temperature Field (°C)	8.1	16.1	25.1	20.2
Turbidity Field (NTU)	5	2	2	<1

Elk Creek at Elkton		LASAR: 10441								
SAMPLE_DATE	12/15/1992	03/10/1993	04/20/1993	06/09/1993	07/13/1993	09/22/1993	10/12/1993	12/08/1993	04/26/1994	06/27/1994
SAMPLE_TIME	08:35	13:50	08:50	13:15	09:15	12:50	09:20	12:25	08:40	11:10
Alkalinity Field (mg/L)	25	24	26	29	37	47	47	27	35	42
Ammonia (mg/L)	0.020	0.02	0.030	0.030	0.020	<0.020	0.030	0.030	0.020	<0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	1.9	<0.1	0.9	0.8	1.2	0.8	2.8	2	1
Chemical Oxygen Demand (mg/L)	13	5	<5	<5	6	5	7	24	<5	7
Chlorophyll a (µg/L)				1.7	0.8	0.2	1.2			1.7
Conductivity Field (µmhos/cm)	71	78	68	73	89	160	183	101	100	133
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	79	79	33	70	2	13	920	170	17	8
Kjeldahl Nitrogen Total (mg/L)	0.300	0.3	0.300	0.200	0.200	0.300	0.300	1.300	0.300	0.300
Nitrate/nitrite Dissolved (mg/L as N)	0.44	0.14	0.16	0.12	0.02	<0.02	0.02	0.67	0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	0.017	0.013	0.017	0.014	0.013	<0.005	0.006	0.024	0.011	0.008
Oxygen, total dissolved Field (mg/L)	11.6	11.5	10.9	10.3	8.8	10.2	8.5	11.4	10.4	9.7
Oxygen, total dissolved Percent Saturation Field (%)	97	104	98	101	96	100	84	96	96	110
pH Field (SU)	6.80	7.0	7.60	7.40	8.20	7.80	7.50	7.50	7.70	9
Pheophytin a (µg/L)				2	0.40	0.90	1.70			4
Phosphate Total (mg/L as P)	0.050	0.05	0.050	0.060	0.030	0.020	0.020	0.160	0.040	0.020
Solids Total (mg/L)	82	69	76	70	65	99	110	160	76	86
Solids Total Suspended (mg/L)	4	2	8	4	<1	<1	1	41	<1	<1
Temperature Field (°C)	8	11.0	11	15	20	15	15.5	8	12	22
Turbidity Field (NTU)	16	7	14	10	<1	1	1	30	4	1

SAMPLE_DATE	07/25/1994	09/19/1994	10/10/1994	12/21/1994	03/15/1995	04/24/1995	06/28/1995	07/24/1995	09/13/1995	10/23/1995
SAMPLE_TIME	11:55	15:40	11:05	14:05	14:00	15:45	13:40	11:35	14:10	18:20
Alkalinity Field (mg/L)	37	25	34	23	25	28	39	33	38	50
Ammonia (mg/L)	0.020	0.050	0.030	0.050	0.04	0.03	0.04	<0.02	0.05	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.6	1.2	1	<0.1	1.1	1.3	1.2	1.2	1.2	1.1
Chemical Oxygen Demand (mg/L)	7	12	8	<5	<5	5	<5	8	<5	<5
Chlorophyll a (µg/L)		2.3	2.2				2.8	6	8	4
Conductivity Field (µmhos/cm)	140	137	151	73	74	76	111	114	156	168
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	4	17	13	23	170	17	33	49	23	33
Kjeldahl Nitrogen Total (mg/L)	0.300	0.600	0.500	0.300	0.2	0.2	0.3	0.5	0.4	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.02	<0.02	<0.02	0.31	0.18	0.12	<0.02	0.02	0.03	<0.02
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	0.007	0.017	0.018	0.014	0.005	0.009	0.007	0.018
Oxygen, total dissolved Field (mg/L)	8.4	7.5	9	10.2	11.2	11.4	9.5	7.8	8.7	10.7
Oxygen, total dissolved Percent Saturation Field (%)	93	85	87	89	102	110	112	87		101
pH Field (SU)	7.60	7.50	7.60	7.50	7.5	7.7	8.2	7.6	7.6	7.8
Pheophytin a (µg/L)		3.30	4.50				5.3	8	8	10
Phosphate Total (mg/L as P)	0.030	0.030	0.030	0.060	0.07	0.05	0.02	0.05	0.02	0.04
Solids Total (mg/L)	65	85	110	61	85	80	84	87	100	110
Solids Total Suspended (mg/L)	<1	<1	1	3	8	4	2	4	<1	1
Temperature Field (°C)	21	22	14	9.5	11.5	14.0	24.0	21.0	22.5	13.0
Turbidity Field (NTU)	1	2	1	12	18	13	3 EST	8	1	2

Elk Creek at Elkton				LASAR: 10441						
SAMPLE_DATE	12/13/1995	03/04/1996	04/10/1996	06/19/1996	07/15/1996	09/11/1996	10/07/1996	12/10/1996	01/13/1997	03/12/1997
SAMPLE_TIME	13:55	11:50	11:00	13:30	11:15	12:55	11:25	13:30	16:35	13:40
Alkalinity Field (mg/L)	16	20	29	35	38	35	43	16	23	20
Ammonia (mg/L)	0.02	<0.020	0.020	0.020	0.020	0.040	0.040	0.030	0.040	0.040
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.5	0.5	0.5	0.6	0.6	0.8	0.7	0.4	0.9 Est.	0.8
Chemical Oxygen Demand (mg/L)	11	<5	<5	<5	5	10	10	<5	<5	<5
Chlorophyll a (µg/L)				0.9	3	1.3	1.2			
Conductivity Field (µmhos/cm)	55	66	88	109	130	146	174	53	75	68
E. Coli MTEC (CFU/100 ml)	310	200	24 Est.	4 Est.	4 Est.	28 Est.	28 Est.	100	36 Est.	115
Fecal Coliform Membrane filter (CFU/100 ml)	150	320	76 Est.	4 Est.	215	80	260	260	32 Est.	225
Kjeldahl Nitrogen Total (mg/L)	0.6	0.300	0.300	0.200	0.300	0.300	0.300	0.300	0.800	<0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.29	0.16	0.05	<0.02	<0.02	<0.02	<0.02	0.18	0.15	0.15
Orthophosphate Dissolved (mg/L as P)	0.023	0.017	0.011	0.005	0.006	0.006	0.008	0.016	0.014	0.014
Oxygen, total dissolved Field (mg/L)	10.8	11	10.3	10.3	8.8	8.4	8.9	10.8	12.4	11.5
Oxygen, total dissolved Percent Saturation Field (%)	96	96	97	107	104	91	93	94	97	99
pH Field (SU)	7.2	7.40	7.60	7.90	8.20	7.50	7.40	7.30	7.60	7.20
Pheophytin a (µg/L)				1.40	2.20	1.90	3.30			
Phosphate Total (mg/L as P)	0.18	0.070	0.050	0.020	0.020	0.020	0.030	0.160	0.040	0.060
Solids Total (mg/L)	190	76	72	86	84	77	120	130	64	74 Est.
Solids Total Suspended (mg/L)	100	10	2	<1	<1	1	<1	100	4	14 Est.
Temperature Field (°C)	10.0	9.5	13	17.6	23.7	20	17.5	9.6	4.9	9
Turbidity Field (NTU)	104	22	8	2	1	1	1	79	13	26
SAMPLE_DATE	04/29/1997	06/16/1997	07/07/1997	09/11/1997	10/13/1997	12/10/1997	01/06/1998	03/17/1998	04/13/1998	07/13/1998
SAMPLE_TIME	11:50	11:15	17:25	14:00	11:35	14:08	08:55	12:30	13:00	10:15
Alkalinity Field (mg/L)	28	38	35	38	31	29	22	33	28	37
Ammonia (mg/L)	<0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.3	1.0	1	0.4	0.8	0.8	0.6	0.9	1.1
Chemical Oxygen Demand (mg/L)	<5	5	6	8	10	8	7	<5	5	5
Chlorophyll a (µg/L)		1	0.7	2.4	2					0.4
Conductivity Field (µmhos/cm)	80	122	127	172	106	96	74	93	78	122
E. Coli MTEC (CFU/100 ml)	72 EST	84	4 EST	28 Est.	52 Est.	32 Est.	76 Est.	20 Est.	60	14 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	145	235	20 EST	12 Est.	72 Est.	20 Est.	124	32 Est.	66	46
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.3	0.2	0.3	0.2	0.2	0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.07	<0.02	<0.02	0.02	0.37	0.28	0.37	0.18	0.17	0.02
Orthophosphate Dissolved (mg/L as P)	0.012	<0.005	0.004	<0.005	0.022	0.018	0.022	0.022	0.016	0.013
Oxygen, total dissolved Field (mg/L)	11.1	8.9	10.5	8.9	10.4	12.1	11.5	11.3	11.8	8.9
Oxygen, total dissolved Percent Saturation Field (%)	104	100	124	97	96	100	95	103	103	98
pH Field (SU)	7.8	8.2	9.1	7.5	7.7	7.8	7.3	7.7	7.6	7.8
Pheophytin a (µg/L)		1.5	0.5	3.9	5.8					0.6
Phosphate Total (mg/L as P)	0.04	0.01	0.01	0.02	0.14	0.05	0.07	0.05	0.04	<0.01
Solids Total (mg/L)	70	79	79	110	98	75	87	73	84	68
Solids Total Suspended (mg/L)	4	<1	<1	2	1	4	10	4	8	<1
Temperature Field (°C)	12.7	21.6	24.6	19.9	11.8	7.7	7.5	11.3	9.6	20.5
Turbidity Field (NTU)	15	1	1.1	1.1	14	14		17	18	1

Elk Creek at Elkton		LASAR: 10441								
SAMPLE_DATE	09/21/1998	11/02/1998	01/11/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999	11/15/1999	01/26/2000	05/15/2000
SAMPLE_TIME	10:50	10:55	10:35	13:50	11:50	10:55	08:40	10:35	14:43	12:00
Alkalinity Field (mg/L)	38	49	26	25	28	35	36	48	19	28
Ammonia (mg/L)	<0.02	<0.02	0.02	0.02	<0.02	0.02	<0.02	0.03	<0.02	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	0.9	1.4	1.5	1.5	0.1	3.6	0.8	1.4	0.2
Chemical Oxygen Demand (mg/L)	9	9	5	4	11	10	12	15	10	<5
Chlorophyll a (µg/L)	0.7				1.3	0.9	10.8			
Conductivity Field (µmhos/cm)	147	190	80	72	88	126	157	140	57	80
E. Coli MTEC (CFU/100 ml)	20 Est.	8est	62	10 Est.	490	4 Est.	20 Est.	12 Est.	34EST	106
Fecal Coliform Membrane filter (CFU/100 ml)	10 Est.	36est	94	14 Est.	550	8 Est.	20 Est.	14 Est.	52	94
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	<0.2	0.3	0.2	<0.2	0.5	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	0.22	0.178	0.0581	0.0061	<0.0050	0.129	0.195	0.0970
Orthophosphate Dissolved (mg/L as P)	<0.005	0.011	0.017	0.014	0.013	0.004	0.007	0.018	0.021	0.020
Oxygen, total dissolved Field (mg/L)	8.9	10.6	12.4	11.6	11.2	8.2	7.8	9.5	11.7	10.3
Oxygen, total dissolved Percent Saturation Field (%)	93	97	99	101	100	94	79	89	100	100
pH Field (SU)	7.6	7.9	7.2	7.7	7.7	8.2	7.7	7.6	7.5	7.6
Pheophytin a (µg/L)	1.1				3.2	0.8	6.1			
Phosphate Total (mg/L as P)	0.02	0.03	0.04	0.04	0.04	0.01	0.04	0.05	0.07	0.04
Solids Total (mg/L)	87	120	80	73	78	79	101	120	98	82
Solids Total Suspended (mg/L)		<1	2	4	6	<1	3	1	20	4
Temperature Field (°C)	17.4	11.5	5.9	9.3	10.7	23.1	16.6	12.6	8.4	14.3
Turbidity Field (NTU)	1	4	13	14	14	1	2.8	5	39	20

SAMPLE_DATE	07/24/2000	09/27/2000	11/06/2000	01/25/2001	03/12/2001	05/23/2001	07/17/2001	09/18/2001	11/29/2001	01/16/2002
SAMPLE_TIME	11:30	15:15	11:00	13:40	10:55	15:03	10:15	10:15	14:35	14:00
Alkalinity Field (mg/L)	34	37	44	32	30	34	34	35	18	25
Ammonia (mg/L)	0.06	0.03	<0.02	<0.02	0.03	<0.02	0.02	0.04	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.1	0.6	0.7	1.4	1.2	0.8	0.7	1.0	1.8	0.6
Chemical Oxygen Demand (mg/L)	10	11	10	6	9	11	10	13	16	6
Chlorophyll a (µg/L)	1.1	1.0				0.9	0.7	1.0		
Conductivity Field (µmhos/cm)	132	161	180	110	106	101	140	163	67	82
E. Coli MTEC (CFU/100 ml)	10EST	56	40	10EST	8EST	12EST	10EST	4EST	700EST	8 est
Fecal Coliform Membrane filter (CFU/100 ml)	8EST	144	28EST	26EST	2EST	6EST	8EST	6EST	1300EST	18
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	<0.2	0.2	<0.2	0.2	0.4	0.5	0.7	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0128	<0.0050	0.0073	0.140	0.0271	<0.0050	0.0073	<0.0050	0.588	0.215
Orthophosphate Dissolved (mg/L as P)	<0.005	0.006	0.011	0.016	0.006	0.012	0.011	0.009	0.022	0.019
Oxygen, total dissolved Field (mg/L)	8.1	9.4	10.5	12.1	11.9	10.9	8.3	6.9	10.6	12.2
Oxygen, total dissolved Percent Saturation Field (%)	94	94	95	100	102	124	88	71	92	99
pH Field (SU)	7.9	7.6	7.9	7.8	7.7	8.6	7.7	7.4	7.2	7.6
Pheophytin a (µg/L)	<0.1	0.7				1.5	1.2	1.5		
Phosphate Total (mg/L as P)	0.02	0.02	0.03	0.04	0.02	0.03	0.02	0.03	0.19	0.05
Solids Total (mg/L)	78	100	120	90	74	69	84	120	150	61
Solids Total Suspended (mg/L)	<1	1	<1	2	<1	1	<1	2	55	3
Temperature Field (°C)	23.0	16.1	11.1	7.7	8.8	21.8	18.4	17.1	9.4	6.3
Turbidity Field (NTU)	1.2	1	1.5	11	6	3	<1	2	96	11

Elk Creek at Elkton	LASAR: 10441					
SAMPLE_DATE	03/11/2002	05/20/2002	07/18/2002	07/24/2002	09/09/2002	09/25/2002
SAMPLE_TIME	10:20	16:24	14:45	09:05	11:20	10:30
Alkalinity Field (mg/L)	27	33	35	34	32	38
Ammonia (mg/L)	<0.02	0.02	0.03	0.03	0.04	0.06
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.8	0.5	0.2	5.6	0.2
Chemical Oxygen Demand (mg/L)	6	5	10		9	
Chlorophyll a (µg/L)		<0.1	1.4		0.8	0.4
Conductivity Field (µmhos/cm)	80	110	131	141	150	172
E. Coli MTEC (CFU/100 ml)	74	36est	<1	9	9	20
Fecal Coliform Membrane filter (CFU/100 ml)	94	58				
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.4	0.4	0.4	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.139	<0.0050	<0.0050	<0.0050	0.0055	0.0068
Orthophosphate Dissolved (mg/L as P)	0.020	0.019	<0.005	0.024	<0.005	0.010
Oxygen, total dissolved Field (mg/L)	11.5	10.4	10.5	6.2	8.7	8.0
Oxygen, total dissolved Percent Saturation Field (%)	99	106	129		88	80
pH Field (SU)	7.7	8.0	9.0	7.7	7.6	7.6
Pheophytin a (µg/L)		0.3	0.6		1.1	1.2
Phosphate Total (mg/L as P)	0.05	0.03	0.02	0.02	0.03	0.03
Solids Total (mg/L)	68	86	83	85	98	95
Solids Total Suspended (mg/L)	7	3	1	1	2	
Temperature Field (°C)	9.1	16.6	26.3	21.6	16.3	15.8
Turbidity Field (NTU)	14	3	3		1	2

# South Umpqua River at Melrose Road

SAMPLE_DATE	10/20/1992	12/14/1992	01/25/1993	03/08/1993	04/19/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994
SAMPLE_TIME	16:00	12:20	13:30	12:30	12:40	12:30	12:45	13:20	12:15	12:15
Alkalinity Field (mg/L)	64	37	32	35	39	41		59	47	47
Ammonia (mg/L)	0.04	0.04	0.020	0.040	0.030	0.020	0.030	0.030	0.050	0.080
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.3Est	1.7	1.3	2	0.7	1.1	1.4	0.6	2.1	2.2
Chemical Oxygen Demand (mg/L)	<5	16	8	<5	13	7		6	18	7
Chlorophyll a (µg/L)						0.7		0.6		
Conductivity Field (µmhos/cm)	198	92	82	76	92	90		157	139	121
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	9	920 Est	170	49	220	170	8	46	130	240
Kjeldahl Nitrogen Total (mg/L)	0.4	0.3	0.300	<0.200	0.200	0.300		0.300	0.400	0.500
Nitrate/nitrite Dissolved (mg/L as N)	0.29	0.31	0.22	0.07	0.07	0.06	0.06	0.11	0.07	0.14
Orthophosphate Dissolved (mg/L as P)	0.085	0.027	0.026	0.019	0.015	0.023		0.039	0.025	0.032
Oxygen, total dissolved Field (mg/L)	14.5	12.0	12	12.4	11.2	10.6	12.7	13.7	12.4	11.9
Oxygen, total dissolved Percent Saturation Field (%)	158	98	100	110	101	100	144	145	103	103
pH Field (SU)	9.2	7.0	6.90	7.10	7.60	7.50	9.00	8.70	7.90	7.60
Pheophytin a (µg/L)						1.50		1		
Phosphate Total (mg/L as P)	0.10	0.06	0.080	0.040	0.060	0.060	0.040	0.060	0.050	0.060
Solids Total (mg/L)	120	91	97	68	99	91	89	110	100	90
Solids Total Suspended (mg/L)	<1	5	11	2	17	7		1	1	4
Temperature Field (°C)	18.0	7.0	7.5	10	11	13	22	18.5	7.5	8
Turbidity Field (NTU)	1	15	18	5	18	13		1	3	6

# LASAR: 10442

SAMPLE_DATE	04/25/1994	07/25/1994	10/10/1994	12/19/1994	03/13/1995	04/24/1995	06/26/1995	07/24/1995	09/11/1995	10/23/1995
SAMPLE_TIME	12:30	14:25	13:40	12:05	12:35	11:55	13:05	13:35	13:30	12:55
Alkalinity Field (mg/L)	43	51	58	27	32	37	40	51	52	60
Ammonia (mg/L)	0.020	0.050	0.050	0.020	0.03	0.04	0.08	0.05	0.02	0.07
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	3.7	0.9	1	0.9	1.2	0.9	9.7	0.3	1.4
Chemical Oxygen Demand (mg/L)	<5	10	7	6	<5	8	7	<5	<5	<5
Chlorophyll a (µg/L)			11				6.4	9	13	12
Conductivity Field (µmhos/cm)	112	170	189	72	81	89	101	137	151	164
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	4	49	110	49	33	46	23	8	13	11
Kjeldahl Nitrogen Total (mg/L)	0.300	1.200	0.300	0.300	0.2	0.2	0.5	0.3	0.3	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.07	0.43	0.34	0.08	0.07	0.04	0.06	0.05	0.18	0.13
Orthophosphate Dissolved (mg/L as P)	0.027	0.153	0.098	0.019	0.017	0.016	0.028	0.033	0.065	0.047
Oxygen, total dissolved Field (mg/L)	11.6	13	12.6	11	11.3	11.2	10.3	12.7	13.3	12.5
Oxygen, total dissolved Percent Saturation Field (%)	115	160	130	94	100	106	120	153		121
pH Field (SU)	8.80	9.20	8.90	7.50	7.8	7.8	8.6	9.1	9.1	8.4
Pheophytin a (µg/L)			7.50				6.8	6	18	10
Phosphate Total (mg/L as P)	0.040	0.250	0.140	0.060	0.05	0.04	0.05	0.07	0.09	0.07
Solids Total (mg/L)	81	110	110	91	76	84	81	90	99	110
Solids Total Suspended (mg/L)	2	4	<1	9	6	2	<1	<1	<1	1
Temperature Field (°C)	15.5	26.5	17	8.5	10.0	13.0	23.5	25.0	24.0	14.0
Turbidity Field (NTU)	2	2	1	13	13	9	2	<1	1	2

### South Umpqua River at Melrose Road

SAMPLE_DATE	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996	10/07/1996	12/09/1996	01/13/1997
SAMPLE_TIME	11:50	12:45	14:50	13:40	12:20	13:15	12:50	13:35	12:20	14:10
Alkalinity Field (mg/L)	29	33	34	28	52	55	51	58	21	36
Ammonia (mg/L)	0.020	0.040	0.030	0.060	0.060	0.030	0.130	0.070	0.050	0.050
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.6	0.4	0.3	0.9	1.1	1.3	1.2	1.1	0.9 Est.
Chemical Oxygen Demand (mg/L)	5	<5	<5	<5	7	7	8	9	<5	<5
Chlorophyll a (µg/L)					3.3	4.8	6.2	7.8		
Conductivity Field (µmhos/cm)	83	78	85	105	133	150	159	150	58	92
E. Coli MTEC (CFU/100 ml)	26	100	44 Est.	385	4 Est.	20 Est.	12 Est.	8 Est.	480	24 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	148	40 Est.	255	560	8 Est.	8 Est.	165	165	800	145
Kjeldahl Nitrogen Total (mg/L)	0.200	0.300	0.200	0.200	0.400	0.600	0.500	0.300	1.100	0.300
Nitrate/nitrite Dissolved (mg/L as N)	0.11	0.13	0.08	0.05	0.03	0.06	0.18	0.15	0.09	0.11
Orthophosphate Dissolved (mg/L as P)	0.025	0.019	0.018	0.019	0.024	0.040	0.078	0.065	0.030	0.022
Oxygen, total dissolved Field (mg/L)	10.7	11.6	11.2	10.3	11.2	11.5	12.4	12.5	11.1	12.3
Oxygen, total dissolved Percent Saturation Field (%)	96	96	97	97	120	146	143	137	94	99
pH Field (SU)	7.60	7.80	7.80	8	8.60	9	8.90	8.90	7.50	7.80
Pheophytin a (µg/L)					2.10	3.90	11	5.70		
Phosphate Total (mg/L as P)	0.050	0.110	0.050	0.040	0.040	0.060	0.110	0.090	0.590	0.060
Solids Total (mg/L)	83	120	82	79	100	96	98	110	530	75
Solids Total Suspended (mg/L)	9	29	5	3	<1	<1	1	<1	380	8
Temperature Field (°C)	10.7	7.5	9	13	19.4	28	22.9	20.5	8.7	5.3
Turbidity Field (NTU)	18	48	11	6	1	1	1 Est.	1	447	19

### LASAR: 10442

SAMPLE_DATE	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997	10/13/1997	12/08/1997	01/05/1998	03/17/1998	04/13/1998
SAMPLE_TIME	12:10	14:55	13:55	12:50	12:00	15:40	12:15	12:50	15:30	15:20
Alkalinity Field (mg/L)	37	35	48	48	51	40	50	35	39	41
Ammonia (mg/L)	0.060	0.02	0.04	0.05	0.09	0.07	0.06	<0.02	0.03	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.7	1.2	9.4	1.1	0.6	0.9	1.5	1	1
Chemical Oxygen Demand (mg/L)	<5	5	5	6	10	11	6	11	<5	6
Chlorophyll a (µg/L)			4.1	4.3	7.3	3.2				
Conductivity Field (µmhos/cm)	89	92	128	132	160	117	131	92	103	98
E. Coli MTEC (CFU/100 ml)	8 Est.	52 EST	<4	4 EST	48 Est.	56 Est.	46	185	4 Est.	40
Fecal Coliform Membrane filter (CFU/100 ml)	84	115	48 Est.	12 EST	110	120	92	105	20 Est.	42
Kjeldahl Nitrogen Total (mg/L)	0.200	<0.2	<0.2	0.3	0.4	0.3	0.2	0.3	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.06	0.02	0.05	0.03	0.16	0.05	0.08	0.14	0.07	0.05
Orthophosphate Dissolved (mg/L as P)	0.020	0.024	0.010	0.029	0.073	0.031	0.029	0.024	0.022	0.019
Oxygen, total dissolved Field (mg/L)	11.3	11.3	11	11.3	10.1	10.8	12	11.6	11.1	11.8
Oxygen, total dissolved Percent Saturation Field (%)	102	108	130	136	115	103	99	94	103	102
pH Field (SU)	7.60	8.1	9	9.0	8.6	8	7.9	7.6	7.6	7.8
Pheophytin a (µg/L)			2.8	3.8	9.3	6.1				
Phosphate Total (mg/L as P)	0.040	0.04	0.05	0.05	0.10	0.05	0.04	0.07	0.04	0.05
Solids Total (mg/L)	78	76	90	92	110	80	97	100	78	90
Solids Total Suspended (mg/L)	4	7	<1	1	2	3	17	4	5	5
Temperature Field (°C)	11	13.3	24.3	25.4	22.2	13.6	7.7	6.6	12	9.1
Turbidity Field (NTU)	13	9	1	1.8	1.3	4	5		7	14



# South Umpqua River at Melrose Road

SAMPLE_DATE	07/13/1998	09/21/1998	11/02/1998	01/14/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999	11/15/1999	01/24/2000
SAMPLE_TIME	13:35	13:30	13:30	10:50	11:05	14:55	13:05	12:05	13:35	11:40
Alkalinity Field (mg/L)	58	56	61	43	37	30	39	47	43	30
Ammonia (mg/L)	0.05	0.04	0.03	0.06	0.04	<0.02	0.04	0.06	0.11	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.1	1.1	0.9	1.3	1.4	1.8	0.7	7.9	1.0	0.8
Chemical Oxygen Demand (mg/L)	5	8	7	6	<5	9	9	8	12	12
Chlorophyll a (µg/L)	1.8	1.5				2.4	2.2	3.5		
Conductivity Field (µmhos/cm)	149	158	179	107	90	81	116	148	137	85
E. Coli MTEC (CFU/100 ml)	8 Est.	20 Est.	20est	30 Est	8 Est.	130	4 Est.	6 Est.	40	150EST
Fecal Coliform Membrane filter (CFU/100 ml)	38 Est.	36 Est.	48est	74	34 Est.	136	10 Est.	10 Est.	48	130EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	0.2	0.4	0.3	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.08	0.17	0.11	0.13	0.0673	0.0094	0.0343	0.118	0.0742	0.156
Orthophosphate Dissolved (mg/L as P)	0.044	0.053	0.039	0.029	0.021	0.016	0.031	0.069	0.054	0.024
Oxygen, total dissolved Field (mg/L)	11	13.3	14.2	11.8	11.6	11.7	11.0	15.0	10.5	11.8
Oxygen, total dissolved Percent Saturation Field (%)	129	146	134	98	100	104	132	171	105	98
pH Field (SU)	8.7	9.1	9.0	7.6	7.7	7.9	9.0	9.4	8.1	7.6
Pheophytin a (µg/L)	0.8	1.8				1.9	0.8	1.8		
Phosphate Total (mg/L as P)	0.05	0.07	0.07	0.04	0.04	0.04	0.05	0.09	0.08	0.06
Solids Total (mg/L)	96	99	120	74	79	66	78	90	99	79
Solids Total Suspended (mg/L)	<1		<1	1	5	5	1	1	1	11
Temperature Field (°C)	24.2	20.7	13.0	7.3	8.9	10.5	25.5	22.3	14.9	7.3
Turbidity Field (NTU)	2	1	2	6	8	6	1	1.5	3	20

# LASAR: 10442

SAMPLE_DATE	03/21/2000	05/15/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001	07/17/2001	09/18/2001
SAMPLE_TIME	11:45	15:10	15:05	16:30	13:35	12:15	13:25	12:50	12:45	13:05
Alkalinity Field (mg/L)	33	39	48	52	50	50	43	36	47	60
Ammonia (mg/L)	0.05	0.06	0.07	0.06	0.09	0.11	0.08	0.04	0.17	0.07
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.8	1.7	1.6	1.0	1.9	1.6	1.3	2.4	3.3
Chemical Oxygen Demand (mg/L)	8	<5	10	10	9	7	9	10	12	16
Chlorophyll a (µg/L)			2.7	2.5				1.5	6.4	7.6
Conductivity Field (µmhos/cm)	78	96	145	151	160	146	126	87	170	222
E. Coli MTEC (CFU/100 ml)	20EST	70	6EST	2est	32EST	20EST	8EST	6EST	2EST	12EST
Fecal Coliform Membrane filter (CFU/100 ml)	32EST	170	26EST	14est	40	16EST	16EST	14EST	6EST	10EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.8	0.8
Nitrate/nitrite Dissolved (mg/L as N)	0.0250	0.0159	0.0555	0.186	0.119	0.0271	0.0197	0.0454	0.501	0.882
Orthophosphate Dissolved (mg/L as P)	0.022	0.020	0.054	0.084	0.050	0.032	0.029	0.035	0.176	0.309
Oxygen, total dissolved Field (mg/L)	11.8	11.0	14.5	14.9	11.9	12.7	13.4	11.0	10.4	14.3
Oxygen, total dissolved Percent Saturation Field (%)	102	108	180	164	111	105	120	118	122	164
pH Field (SU)	7.3	8.2	9.4	9.4	8.4	8.0	8.8	8.7	8.7	9.6
Pheophytin a (µg/L)			0.3	2.0				1.5	4.7	6.8
Phosphate Total (mg/L as P)	0.05	0.04	0.08	0.11	0.07	0.05	0.05	0.05	0.23	0.37
Solids Total (mg/L)	72	78	91	95	100	98	86	61	100	159
Solids Total Suspended (mg/L)	4	1	<1	1	<1	1	<1	2	2	3
Temperature Field (°C)	9.1	15.1	26.7	20.6	12.6	6.9	10.5	19.0	24.0	23.2
Turbidity Field (NTU)	15	6	1.6	2	1.1	2	3	4	2	3

# South Umpqua River at Melrose Road

LASAR: 10442

SAMPLE_DATE	11/27/2001	01/14/2002	03/11/2002	05/20/2002	08/28/2002	09/09/2002
SAMPLE_TIME	13:03	12:30	13:10	18:50	18:10	14:03
Alkalinity Field (mg/L)	35	35	40	41	56	56
Ammonia (mg/L)	0.07	0.05	0.05	0.07	0.04	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.7	1.8	1.1	2.0	1.8
Chemical Oxygen Demand (mg/L)	15	8	7	5	15	13
Chlorophyll a (µg/L)				0.6	2.3	5.6
Conductivity Field (µmhos/cm)	118	95	108	115	215	210
E. Coli MTEC (CFU/100 ml)	140EST	40	6EST	66	11	13
Fecal Coliform Membrane filter (CFU/100 ml)	340	230	6EST	130		
Kjeldahl Nitrogen Total (mg/L)	0.4	<0.2	<0.2	<0.2	0.6	0.6
Nitrate/nitrite Dissolved (mg/L as N)	0.270	0.179	0.0606	0.0588	0.849	0.845
Orthophosphate Dissolved (mg/L as P)	0.029	0.023	0.021	0.023	0.336	0.268
Oxygen, total dissolved Field (mg/L)	11.5	11.7	12.5	9.8	13.1	14.0
Oxygen, total dissolved Percent Saturation Field (%)	95	96	110	97	160	160
pH Field (SU)	7.4	7.8	8.2	7.9	9.6	9.5
Pheophytin a (µg/L)				0.5	7.6	8.6
Phosphate Total (mg/L as P)	0.07	0.04	0.03	0.04	0.39	0.31
Solids Total (mg/L)	94	74	68	82	140	140
Solids Total Suspended (mg/L)	8	3	1	2	3	8
Temperature Field (°C)	7.5	7.1	9.1	15.5	26.8	22.7
Turbidity Field (NTU)	14	7	3	2	4.3	4

# South Umpqua River at HWY 42 (Winston)

SAMPLE_DATE	10/20/1992	12/14/1992	01/25/1993	03/08/1993	04/19/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994
SAMPLE_TIME	08:31	14:20	14:40	14:10	13:45	14:30	15:00	14:50	13:45	13:15
Alkalinity Field (mg/L)	65	37	19	34	35	38	57	61	48	41
Ammonia (mg/L)	0.040	0.04	<0.020	0.020	0.040	<0.020	0.020	0.020	<0.020	0.030
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	1.4	1	1.6	0.3	1.4	0.6	0.8	2.4	2
Chemical Oxygen Demand (mg/L)	<5	15	5	<5	10	7	8	8	15	7
Chlorophyll a (µg/L)						0.7	0.6	0.2		
Conductivity Field (µmhos/cm)	191	90	77	70	81	79	141	150	128	101
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	46	1600 Est	79	49	49	170	33	46	79	49
Kjeldahl Nitrogen Total (mg/L)	0.200	0.2	0.400	0.300	0.200	0.200	0.200	0.300	0.300	0.300
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.26	0.18	0.06	0.08	0.04	0.02	0.02	0.04	0.06
Orthophosphate Dissolved (mg/L as P)	0.005	0.021	0.021	0.013	0.011	0.020	0.009	0.009	0.011	0.014
Oxygen, total dissolved Field (mg/L)	9.5	12.1	12	12	11.2	10.7	9.2	9.9	12.2	11.7
Oxygen, total dissolved Percent Saturation Field (%)	93	99	101	106	104	102	103	104	100	104
pH Field (SU)	8	7.3	6.90	7.60	7.60	7.80	8.30	8.20	8	7.90
Pheophytin a (µg/L)						0.90	<0.10	0.10		
Phosphate Total (mg/L as P)	0.020	0.05	0.060	0.030	0.050	0.050	0.020	0.020	0.030	0.030
Solids Total (mg/L)	120	85	87	66	78	82	92	110	100	79
Solids Total Suspended (mg/L)	<1	2	6	2	9	3	<1	1	<1	1
Temperature Field (°C)	13.5	7.0	8	10	12	13.5	20.5	18	7	9
Turbidity Field (NTU)	1	12	15	5	15	11	<1	1	4	4

# LASAR: 10443

SAMPLE_DATE	04/25/1994	06/27/1994	07/27/1994	09/21/1994	10/10/1994	12/19/1994	03/13/1995	04/24/1995	06/26/1995	07/24/1995
SAMPLE_TIME	13:50	14:50	14:45	14:25	14:35	13:15	14:25	12:45	13:55	15:05
Alkalinity Field (mg/L)	41	49		52	55	25	32	35	40	50
Ammonia (mg/L)	0.020	0.030	0.030	0.040	0.040	0.030	0.03	0.02	0.04	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	0.7	0.3	0.3	0.3	0.9	0.6	1.4	0.3	0.3
Chemical Oxygen Demand (mg/L)	<5	<5		7	<5	6	<5	8	7	<5
Chlorophyll a (µg/L)		2.2		0.8	0.6				2.6	3
Conductivity Field (µmhos/cm)	103	138		175	169	66	71	83	96	142
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	46	13	920	540	130	170	49	23	49	130
Kjeldahl Nitrogen Total (mg/L)	0.300	0.200		0.300	<0.200	0.300	<0.2	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.03	0.02	0.05	0.02	<0.02	0.08	0.07	0.03	0.03	0.02
Orthophosphate Dissolved (mg/L as P)	0.010	0.012		<0.005	<0.005	0.014	0.011	0.010	0.009	0.009
Oxygen, total dissolved Field (mg/L)	10.6	8.8	8.9	9	10	11.1	11.4	11.2	9.1	8.3
Oxygen, total dissolved Percent Saturation Field (%)	102	106	102	103	100	96	102	108	105	100
pH Field (SU)	8	8.30	8.90	8.40	8.40	7.60	7.8	7.8	8.0	8.1
Pheophytin a (µg/L)		2.60		1.50	2.30				4.1	2
Phosphate Total (mg/L as P)	0.020	0.030	0.020	0.020	0.020	0.050	0.04	0.02	0.03	0.02
Solids Total (mg/L)	79	100	92	100	100	81	72	82	69	89
Solids Total Suspended (mg/L)	<1	2		<1	10	6	5	2	<1	<1
Temperature Field (°C)	14	24	23	22.5	16	8.5	10.5	13.0	22.0	24.0
Turbidity Field (NTU)	2	1		2	1	12	13	7	2	<1

# South Umpqua River at HWY 42 (Winston)

SAMPLE_DATE	09/11/1995	10/23/1995	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996	10/07/1996
SAMPLE_TIME	14:40	14:15	12:50	13:45	15:55	14:55	14:00	14:20	13:55	14:30
Alkalinity Field (mg/L)	53	60	27	30	31	35	50	54	53	58
Ammonia (mg/L)	0.03	0.06	0.020	0.020	<0.020	0.030	<0.020	0.030	0.050	0.040
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1.0	0.9	0.9	0.5	0.1	0.6	1.1	0.2	0.2
Chemical Oxygen Demand (mg/L)	<5	<5	6	<5	<5	<5	<5	8	7	6
Chlorophyll a (µg/L)	2	1					0.9	2.8	0.9	0.6
Conductivity Field (µmhos/cm)	143	151	76	75	78	94	128	145	153	145
E. Coli MTEC (CFU/100 ml)			>120	68 Est.	<4	300	76 Est.	56 Est.	325	1080
Fecal Coliform Membrane filter (CFU/100 ml)	540	79	>240	145	12 Est.	335	135	68 Est.	660	1380
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	0.300	0.200	<0.200	0.200	0.200	0.400	0.300	0.300
Nitrate/nitrite Dissolved (mg/L as N)	0.02	0.02	0.07	0.12	0.06	0.04	0.02	0.02	0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	<0.005	0.008	0.022	0.019	0.014	0.011	0.007	0.006	0.005	0.010
Oxygen, total dissolved Field (mg/L)	8.6	10.5	10.7	11.7	11.2	10.7	9.7	8.9	8.6	9
Oxygen, total dissolved Percent Saturation Field (%)		103	97	98	98	102	104	97	100	102
pH Field (SU)	8.4	8.1	7.60	7.70	7.80	7.70	8.10	8.10	8.10	8.10
Pheophytin a (µg/L)	4	4					1.30	1.20	1.80	1.50
Phosphate Total (mg/L as P)	0.02	0.02	0.060	0.080	0.040	0.030	0.020	0.020	0.010	0.030
Solids Total (mg/L)	98	100	98	100	80	69	100	100	106	100
Solids Total Suspended (mg/L)	<1	1	20	21	6	2	<1	<1	<1	<1
Temperature Field (°C)	24.0	14.0	10.7	7	9	12.5	17.9	26.7	22.1	21
Turbidity Field (NTU)	1	2	20	38	12	5	2	1	1 Est.	1

# LASAR: 10443

SAMPLE_DATE	12/09/1996	01/13/1997	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997	10/13/1997	12/08/1997	01/05/1998
SAMPLE_TIME	13:55	15:05	13:20	15:50	14:55	14:00	12:55	16:40	14:00	14:30
Alkalinity Field (mg/L)	21	33	35	33	46	50	54	40	46	34
Ammonia (mg/L)	0.050	0.040	0.020	<0.02	0.03	0.02	0.02	0.02	0.04	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	0.8 Est.	0.3	0.6	2	0.4	0.1	0.6	1.2	1.2
Chemical Oxygen Demand (mg/L)	<5	<5	6	<5	<5	6	9	9	6	9
Chlorophyll a (µg/L)					0.3	0.9	0.8	2.6		
Conductivity Field (µmhos/cm)	56	87	81	83	122	133	153	109	118	88
E. Coli MTEC (CFU/100 ml)	180	20 Est.	24 Est.	36 EST	20 Est.	8 EST	640	68 Est.	40	44 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	660	24 Est.	40 Est.	80	36 Est.	76 EST	740	105	96	120
Kjeldahl Nitrogen Total (mg/L)	1	0.200	<0.200	0.2	<0.2	<0.2	0.2	<0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.09	0.10	0.05	<0.02	<0.02	<0.02	<0.02	0.02	0.04	0.12
Orthophosphate Dissolved (mg/L as P)	0.030	0.017	0.013	0.015	<0.005	0.008	0.007	0.016	0.013	0.020
Oxygen, total dissolved Field (mg/L)	11	12.4	11.3	11.0	8.6	8.2	8.1	10.8	11.8	11.8
Oxygen, total dissolved Percent Saturation Field (%)	97	98	103	106	100	98	93	105	100	97
pH Field (SU)	7.50	7.80	7.90	8.0	8.1	8.2	8.2	8	8	7.7
Pheophytin a (µg/L)					0.5	0.9	1.9	5.4		
Phosphate Total (mg/L as P)	0.520	0.060	0.030	0.03	0.02	0.02	0.02	0.03	0.03	0.06
Solids Total (mg/L)	500	78	77	66	79	87	100	84	110	93
Solids Total Suspended (mg/L)	390	10	3	3	1	2	<1	6	3	10
Temperature Field (°C)	8.8	4.9	10.5	13.0	22.6	24.1	21.8	13.4	7.5	6.7
Turbidity Field (NTU)	379	23	11	8	1	1.3	1.5	5	4	

# South Umpqua River at HWY 42 (Winston)

SAMPLE_DATE	03/17/1998	04/13/1998	07/13/1998	09/21/1998	11/02/1998	01/11/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999
SAMPLE_TIME	16:25	16:20	14:45	14:30	14:30	12:35	10:05	16:15	14:20	13:30
Alkalinity Field (mg/L)	37	38	53	56	58	43	33	28	40	48
Ammonia (mg/L)	0.03	0.02	0.02	0.02	<0.02	<0.02	<0.02	0.03	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.8	0.2	0.6	0.7	1.0	1.6	1.6	0.1	0.3
Chemical Oxygen Demand (mg/L)	<5	6	<5	6	5	5	<5	8	7	5
Chlorophyll a (µg/L)			0.6	0.7				1.2	0.7	0.5
Conductivity Field (µmhos/cm)	91	90	140	152	170	99	83	72	112	140
E. Coli MTEC (CFU/100 ml)	<4	26 Est.	42	130	8est	64	20 Est.	82	22 Est.	86
Fecal Coliform Membrane filter (CFU/100 ml)	12 Est.	18 Est.	80	260	72est	230	34 Est.	142	46	92
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.05	0.03	0.02	<0.02	<0.02	0.12	0.0587	<0.0050	0.0090	0.0104
Orthophosphate Dissolved (mg/L as P)	0.015	0.013	0.011	<0.005	0.006	0.025	0.015	0.013	0.006	0.009
Oxygen, total dissolved Field (mg/L)	11.1	11.9	8.7	9.0	11.2	12.7	11.5	11.7	8.4	8.8
Oxygen, total dissolved Percent Saturation Field (%)	103	103	103	99	103	102	100	106	101	100
pH Field (SU)	7.8	7.8	8.1	8.1	8.1	7.4	7.7	7.9	8.0	8.1
Pheophytin a (µg/L)			0.2	0.5				1.0	0.3	0.3
Phosphate Total (mg/L as P)	0.03	0.04	0.02	0.01	0.02	0.03	0.03	0.03	0.02	0.02
Solids Total (mg/L)	73	81	91	100	110	97	75	63	79	85
Solids Total Suspended (mg/L)	2	4	2		<1	2	3	5	<1	<1
Temperature Field (°C)	11.4	8.6	23.4	19.6	11.2	5.4	8.5	10.0	24.6	21.8
Turbidity Field (NTU)	6	15	1	1	2	6	9	9	1	1.1

# LASAR: 10443

SAMPLE_DATE	11/15/1999	01/26/2000	03/21/2000	05/17/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001
SAMPLE_TIME	15:10	12:55	13:30	14:35	16:05	17:45	14:40	13:55	14:40	14:40
Alkalinity Field (mg/L)	44	27	30	36	48	52	54	50	40	35
Ammonia (mg/L)	0.02	<0.02	0.03	0.02	0.04	0.02	0.04	0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1.1	1.5	0.7	0.3	0.5	0.5	1.5	1.9	0.4
Chemical Oxygen Demand (mg/L)	11	10	7	8	8	7	7	7	10	6
Chlorophyll a (µg/L)					1.0	0.6				0.5
Conductivity Field (µmhos/cm)	139	70	74	92	140	144	160	134	116	84
E. Coli MTEC (CFU/100 ml)	90	27	14EST	40	82	106	22EST	10EST	4EST	58
Fecal Coliform Membrane filter (CFU/100 ml)	106	48	10EST	40	54	100	22EST	8EST	10EST	52
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	0.3	0.3	<0.2	<0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0102	0.0882	0.0178	<0.0050	0.0077	0.0103	0.0051	<0.0050	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.016	0.015	0.017	0.009	<0.005	<0.005	0.013	0.006	0.010	0.013
Oxygen, total dissolved Field (mg/L)	10.0	11.7	11.9	10.7	8.5	9.9	10.7	12.0	12.2	9.7
Oxygen, total dissolved Percent Saturation Field (%)	98	98	105	107	104	107	100	100	110	105
pH Field (SU)	7.9	7.7	7.7	8.0	8.1	8.5	8.1	7.9	8.2	8.1
Pheophytin a (µg/L)					0.1	0.3				0.7
Phosphate Total (mg/L as P)	0.02	0.05	0.04	0.02	0.04	0.01	0.02	0.01	0.01	0.03
Solids Total (mg/L)	99	79	70	69	91	99	110	80	80	62
Solids Total Suspended (mg/L)	2	8	3	1	<1	<1	1	1	<1	1
Temperature Field (°C)	13.5	7.8	9.2	14.8	25.3	19.2	11.6	6.8	10.1	18.8
Turbidity Field (NTU)	2	21	12	7	1.1	1	0.8	2	3	3

South Umpqua River at HWY 42 (Winston)				LASAR: 10443				
SAMPLE_DATE	07/17/2001	09/18/2001	11/27/2001	01/14/2002	03/11/2002	05/22/2002	08/28/2002	09/09/2002
SAMPLE_TIME	13:45	14:25	14:20	13:30	14:35	13:45	13:50	15:25
Alkalinity Field (mg/L)	47	58	36	35	38	41	52	52
Ammonia (mg/L)	0.02	0.03	0.03	0.03	0.03	0.06	<0.02	0.07
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.5	0.9	0.4	1.8	0.6	0.3	0.6
Chemical Oxygen Demand (mg/L)	8	8	13	7	5	<5	8	14
Chlorophyll a (µg/L)	0.7	0.3				0.5	0.5	0.4
Conductivity Field (µmhos/cm)	150	196	110	89	101	110	180	180
E. Coli MTEC (CFU/100 ml)	108	1000	240	28 est	6EST	6 est	345	548
Fecal Coliform Membrane filter (CFU/100 ml)	120	1500	330	48	8EST	16 est		
Kjeldahl Nitrogen Total (mg/L)	0.3	0.4	0.3	<0.2	<0.2	<0.2	0.3	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0074	0.0119	0.194	0.161	0.0419	0.0121	0.0135	0.0134
Orthophosphate Dissolved (mg/L as P)	0.006	0.008	0.017	0.017	0.012	0.009	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	9.3	8.8	11.8	11.7	12.0	10.2	9.7	9.0
Oxygen, total dissolved Percent Saturation Field (%)	109	101	100	98	107	101	117	99
pH Field (SU)	8.5	8.4	7.6	7.8	8.1	7.9	8.2	8.4
Pheophytin a (µg/L)	0.6	0.4				0.9	0.4	0.5
Phosphate Total (mg/L as P)	0.02	0.02	0.04	0.04	0.02	0.02	0.02	0.02
Solids Total (mg/L)	96	130	78	68	62	80	120 est	110
Solids Total Suspended (mg/L)	<1	<1	3	2	<1	<1	1 est	1
Temperature Field (°C)	22.9	22.3	7.3	6.8	9.3	14.7	25.7	20.6
Turbidity Field (NTU)	<1	1	11	5	3	1	2.4	1

# North Umpqua River at Garden Valley Road

SAMPLE_DATE	10/20/1992	12/14/1992	01/25/1993	03/08/1993	04/19/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994
SAMPLE_TIME	15:00	12:00	13:05	12:10	12:20	12:00	12:15	12:55	11:45	11:45
Alkalinity Field (mg/L)	29	26	21	23	24	27	31	32	25	27
Ammonia (mg/L)	0.02	0.05	<0.020	0.020	0.030	0.020	0.030	0.020	<0.020	0.030
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.9	1.6	1.5	0.2	1.1	1	1.3	2.3	2.1
Chemical Oxygen Demand (mg/L)	<5	14	<5	<5	9	8	<5	<5	12	<5
Chlorophyll a (µg/L)						0.6	0.3	0.4		
Conductivity Field (µmhos/cm)	74	61	56	43	54	53	63	71	61	65
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	17	350 Est	23	7	79	130	14	17	31	350
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	0.200	0.200	<0.200	<0.200	<0.200	<0.200	0.300	0.200
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.08	0.04	<0.02	<0.02	<0.02	0.02	<0.02	0.02	0.02
Orthophosphate Dissolved (mg/L as P)	0.032	0.021	0.022	0.016	0.014	0.019	0.019	0.022	0.026	0.027
Oxygen, total dissolved Field (mg/L)	11.0	12.7	12.5	12.3	12.1	11.5	10.1	11	12.9	12
Oxygen, total dissolved Percent Saturation Field (%)	122	102	102	106	107	106	106	102	103	105
pH Field (SU)	8.0	7.2	6.90	7.30	7.60	7.70	8.10	7.70	7.80	7.60
Pheophytin a (µg/L)						0.70	0.10	0.50		
Phosphate Total (mg/L as P)	0.05	0.04	0.050	0.030	0.040	0.040	0.030	0.030	0.040	0.040
Solids Total (mg/L)	57	60	61	51	51	69	56	66	78	63
Solids Total Suspended (mg/L)	<1	2	2	2	4	4	2	<1	<1	4
Temperature Field (°C)	15.0	6.0	7	9	10	12.5	18	14.5	6	8.5
Turbidity Field (NTU)	1	7	7	4	7	6	<1	1	3	5

SAMPLE_DATE	04/25/1994	06/27/1994	07/25/1994	09/21/1994	10/10/1994	12/19/1994	03/13/1995	04/24/1995	06/26/1995	07/24/1995
SAMPLE_TIME	12:05	13:10	14:00	11:30	13:15	11:25	12:10	11:35	12:35	13:30
Alkalinity Field (mg/L)	25	30	33	29	32	16	22	23	24	27
Ammonia (mg/L)	0.020	0.030	0.030	<0.020	0.020	0.020	0.03	0.03	0.03	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1.1	0.5	0.5	0.5	1.1	1.0	1.3	0.5	0.3
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	4	<5	5	5	<5
Chlorophyll a (µg/L)		2.1		2	1.4				2.2	<1
Conductivity Field (µmhos/cm)	59	69	72	76	70	42	54	53	54	65
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	23	21	49	79	79	49	49	4	49	31
Kjeldahl Nitrogen Total (mg/L)	0.300	0.200	<0.200	<0.200	<0.200	0.200	0.2	0.3	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.10	0.02	0.02	<0.02	<0.02	0.04	0.03	<0.02	0.02	0.02
Orthophosphate Dissolved (mg/L as P)	0.019	0.020	0.023	0.028	0.033	0.017	0.015	0.015	0.014	0.021
Oxygen, total dissolved Field (mg/L)	10.9	9.7	9.2	8.9	10.4	11.5	12.1	11.6	9.7	9.3
Oxygen, total dissolved Percent Saturation Field (%)	102	108	105	94	99	97	104	108	105	105
pH Field (SU)	7.90	8.20	8.30	7.80	8	7.40	7.8	7.8	7.9	8.0
Pheophytin a (µg/L)		2		3.10	2.90				3.6	1
Phosphate Total (mg/L as P)	0.030	0.040	0.040	0.040	0.040	0.040	0.03	0.03	0.03	0.04
Solids Total (mg/L)	59	72	64	63	61	63	52	66	56	59
Solids Total Suspended (mg/L)	<1	<1	<1	1	1	4	<1	2	<1	1
Temperature Field (°C)	12.5	21	22.5	18.5	13.5	8	9.0	12.5	20.0	21.0
Turbidity Field (NTU)	1	1	1	1	1	7	5	4	2	<1

# North Umpqua River at Garden Valley Road

SAMPLE_DATE	09/11/1995	10/23/1995	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996	10/07/1996
SAMPLE_TIME	13:00	12:10	11:25	12:20	14:20	13:15	11:55	12:50	12:25	13:15
Alkalinity Field (mg/L)	43	34	20	23	21	19	26	28	28	33
Ammonia (mg/L)	<0.02	0.04	<0.020	<0.020	<0.020	0.020	<0.020	0.030	0.030	0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.9	0.5	1	0.6	0.5	0.9	0.4	0.4	0.8
Chemical Oxygen Demand (mg/L)	<5	<5	5	<5	<5	<5	<5	<5	<5	<5
Chlorophyll a (µg/L)	3	5					0.7	0.9	1.6	1.8
Conductivity Field (µmhos/cm)	67	88	51	56	56	56	63	68	70	67
E. Coli MTEC (CFU/100 ml)			27	28 Est.	130	240	<4	12 Est.	80	140
Fecal Coliform Membrane filter (CFU/100 ml)			113	56 Est.	190	345	36 Est.	36 Est.	295	220
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	0.200	0.200	0.200	<0.200	<0.200	0.300	<0.200	<0.200
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	0.018	0.038	0.017	0.018	0.018	0.018	0.020	0.020	0.026	0.033
Oxygen, total dissolved Field (mg/L)	9.8	11.4	11.3	12.4	11.9	11.1	10.5	9	9.7	10.6
Oxygen, total dissolved Percent Saturation Field (%)		104	100	100	100	100	104	103	102	108
pH Field (SU)	8.0	7.8	7.60	7.70	7.50	7.90	7.90	8.10	8	8
Pheophytin a (µg/L)	4	6					0.87	1.10	2.10	2.30
Phosphate Total (mg/L as P)	0.03	0.05	0.040	0.060	0.050	0.030	0.030	0.030	0.040	0.040
Solids Total (mg/L)	68	73	54	75	64	52	76	63	65	70
Solids Total Suspended (mg/L)	<1	2	6	11	6	4	1	<1	2	1
Temperature Field (°C)	20.0	11.0	10.1	6.5	8	11	15.5	22.6	18	16.5
Turbidity Field (NTU)	1	3	9	17	9	6	1	1	1 Est.	1

SAMPLE_DATE	12/09/1996	01/13/1997	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997	10/13/1997	12/08/1997	01/05/1998
SAMPLE_TIME	11:50	13:45	11:40	14:30	13:25	12:25	11:35	13:50	11:45	12:15
Alkalinity Field (mg/L)	15	21	20	20	26	22	28	23	30	22
Ammonia (mg/L)	0.030	0.020	0.030	<0.02	0.03	0.02	<0.02	0.03	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.4	1.5 Est.	0.4	1.1	0.3	0.9	0.7	0.7	1.5	1.5
Chemical Oxygen Demand (mg/L)	<5	<5	<5	5	<5	2	<5	8	7	5
Chlorophyll a (µg/L)					0.6	1.1	2.1	2.9		
Conductivity Field (µmhos/cm)	44	53	52	53	60	65	69	62	72	62
E. Coli MTEC (CFU/100 ml)	110	4 Est.	8 Est.	36 EST	40 Est.	36 EST	88	56 Est.	108	64 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	175	8 Est.	32 Est.	110	65 Est.	175	170	44 Est.	172	32 Est.
Kjeldahl Nitrogen Total (mg/L)	0.300	0.400	<0.200	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.03	0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.02	0.04
Orthophosphate Dissolved (mg/L as P)	0.021	0.023	0.018	0.020	0.018	0.022	0.029	0.022	0.029	0.021
Oxygen, total dissolved Field (mg/L)	12.1	13.5	12	11.8	9.8	9.4	9.8	11.8	12.2	12.6
Oxygen, total dissolved Percent Saturation Field (%)	100	102	105	106	105	103	101	105	99	100
pH Field (SU)	7.60	7.70	7.40	7.8	8.2	7.8	8	7.9	7.9	7.5
Pheophytin a (µg/L)					0.7	11	4.3	3.7		
Phosphate Total (mg/L as P)	0.270	0.030	0.030	0.03	0.03	0.03	0.05	0.04	0.04	0.04
Solids Total (mg/L)	220	57	58	49	57	63	69	50	88	67
Solids Total Suspended (mg/L)	150	2	2	<1	<1	<1	<1	2	2	4
Temperature Field (°C)	7.5	3.5	9.5	10.9	19.4	20.5	17	10.4	6.5	5.7
Turbidity Field (NTU)	144	5	6	5	1	1.5	1.5	5	7	



# North Umpqua River at Garden Valley Road

SAMPLE_DATE	03/17/1998	04/13/1998	07/13/1998	09/21/1998	11/02/1998	01/14/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999
SAMPLE_TIME	15:12	15:00	13:00	13:10	13:05	11:24	11:30	14:30	12:45	11:25
Alkalinity Field (mg/L)	24	28	29	30	29	23	21	17	23	27
Ammonia (mg/L)	<0.02	0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.6	1.3	0.5	0.9	1.4	1.6	1.8	1.5	0.3	0.9
Chemical Oxygen Demand (mg/L)	<5	<5	<5	<5	<5	6	<5	8	5	<5
Chlorophyll a (µg/L)			1.3	1.1				0.5	0.5	1.1
Conductivity Field (µmhos/cm)	62	65	69	70	73	59	54	45	54	69
E. Coli MTEC (CFU/100 ml)	<4	66	16 Est.	34 Est.	8est	14 Est	8 Est.	44	20 Est.	42 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	24 Est.	72	20 Est.	58	44est	6 Est	6 Est.	46	30 Est.	86
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	0.3
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.0155	0.0073	0.0071	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.021	0.016	0.028	0.032	0.035	0.028	0.018	0.019	0.018	0.030
Oxygen, total dissolved Field (mg/L)	12.6	12.5	9.9	10.5	12.1	12.3	12.3	12.3	9.4	9.8
Oxygen, total dissolved Percent Saturation Field (%)	113	106	109	104	106	101	102	103	103	99
pH Field (SU)	7.7	7.8	8.1	8.0	8.0	7.6	7.7	7.6	7.8	7.8
Pheophytin a (µg/L)			0.6	1.1				0.6	0.4	0.6
Phosphate Total (mg/L as P)	0.04	0.03	0.03	0.05	0.05	0.03	0.03	0.04	0.04	0.04
Solids Total (mg/L)	52	72	59	62	62	46	52	49	54	60
Solids Total Suspended (mg/L)	1	3	1		1	<1	2	4	<1	1
Temperature Field (°C)	10.7	8.3	20.5	15.6	9.3	6.9	7.7	8.0	20.6	16.7
Turbidity Field (NTU)	4	8	1	2	2	4	4	9	1	1.5

SAMPLE_DATE	11/15/1999	01/24/2000	03/21/2000	05/15/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001
SAMPLE_TIME	12:55	11:15	11:20	14:35	14:35	16:05	13:10	11:45	12:55	12:18
Alkalinity Field (mg/L)	25	24	20	22	26	27	29	28	26	23
Ammonia (mg/L)	0.02	<0.02	<0.02	0.03	0.04	0.05	<0.02	<0.02	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.0	1.2	1.0	0.5	0.5	0.2	0.9	1.6	1.3	0.7
Chemical Oxygen Demand (mg/L)	<5	6	<5	<5	5	9	<5	<5	7	5
Chlorophyll a (µg/L)				1.2	0.9					1.2
Conductivity Field (µmhos/cm)	68	58	52	55	66	67	77	68	71	54
E. Coli MTEC (CFU/100 ml)	42	220	4EST	22EST	14EST	18est	26EST	18EST	<2	6EST
Fecal Coliform Membrane filter (CFU/100 ml)	54	170EST	14EST	44	40	16est	40	18EST	2EST	8EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	0.2	0.6	<0.2	0.4	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0055	0.0452	0.0072	<0.0050	<0.0050	0.0128	<0.0050	<0.0050	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.035	0.023	0.017	0.017	0.024	0.034	0.038	0.027	0.023	0.019
Oxygen, total dissolved Field (mg/L)	11.5	12.4	12.5	10.9	9.4	10.9	12.1	12.3	12.4	10.4
Oxygen, total dissolved Percent Saturation Field (%)	106	100	104	102	110	111	106	98	107	104
pH Field (SU)	8.0	7.5	7.5	7.4	8.3	8.4	8.2	7.7	8.0	7.8
Pheophytin a (µg/L)					<0.1	0.5				0.9
Phosphate Total (mg/L as P)	0.05	0.04	0.03	0.03	0.04	0.05	0.05	0.03	0.03	0.03
Solids Total (mg/L)	61	77	53	52	61	63	70	62	61	46
Solids Total Suspended (mg/L)	<1	7	2	1	2	2	1	<1	<1	2
Temperature Field (°C)	10.9	6.6	7.6	12.7	22.3	16.5	9.5	6.2	9.2	15.3
Turbidity Field (NTU)	1	13	7	4	1.9	2	2.0	2	3	2

# North Umpqua River at Garden Valley Road

SAMPLE_DATE	07/17/2001	09/18/2001	11/27/2001	01/14/2002	03/11/2002	05/20/2002	09/09/2002
SAMPLE_TIME	12:15	12:35	12:30	12:00	12:40	18:22	13:32
Alkalinity Field (mg/L)	26	31	25		26	23	28
Ammonia (mg/L)	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	1.4	1.7	0.7	0.9	0.6	0.5
Chemical Oxygen Demand (mg/L)	<5	<5	7		<5	<5	<5
Chlorophyll a (µg/L)	1.0	5.8				<0.1	1.5
Conductivity Field (µmhos/cm)	70	74	67		63	58	72
E. Coli MTEC (CFU/100 ml)	26EST	44	140EST	10	14EST	20est	12
Fecal Coliform Membrane filter (CFU/100 ml)	36EST	30EST	220	24	22EST	46	
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.4		<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0055	0.0060	0.0969	0.0240	<0.0050	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.026	0.033	0.023		0.021	0.019	0.024
Oxygen, total dissolved Field (mg/L)	9.4	9.2	12.6	12.6	12.3	10.6	10.0
Oxygen, total dissolved Percent Saturation Field (%)	101	98	102	101	104	99	104
pH Field (SU)	8.0	8.0	7.4	7.8	7.8	7.9	8.2
Pheophytin a (µg/L)	0.7	3.8				0.1	1.3
Phosphate Total (mg/L as P)	0.04	0.05	0.04	0.03	0.03	0.03	0.04
Solids Total (mg/L)	59	78	64	49	45	51	66
Solids Total Suspended (mg/L)	1	<1	2		1	2	1
Temperature Field (°C)	19.5	18.9	6.5	6.0	8.1	12.5	17.3
Turbidity Field (NTU)	1	1	8		4	2	<1

## LASAR: 10451

# Calapooya Creek at Umpqua

SAMPLE_DATE	10/20/1992	12/14/1992	01/25/1993	03/08/1993	04/19/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994
SAMPLE_TIME	12:15	11:30	12:15	11:40	11:35	11:20	11:15	12:15	11:12	11:10
Alkalinity Field (mg/L)	53	27	22	31	35	36	42	46	37	36
Ammonia (mg/L)	0.05	0.02	<0.020	0.030	0.030	0.020	0.030	0.020	0.060	0.070
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.7	1.3	1.2	0.9	0.8	1.1	0.9	1.3	1.6	2
Chemical Oxygen Demand (mg/L)	13	18	<5	6	12	7	7	8	19	7
Chlorophyll a (µg/L)						0.5	0.4	0.3		
Conductivity Field (µmhos/cm)	157	86	75	79	86	83	115	131	124	113
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	79	920 EST	140	79	350	350	110	350	70	540
Kjeldahl Nitrogen Total (mg/L)	0.4	0.3	0.300	0.200	0.200	0.300	0.200	0.300	0.600	0.500
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.44	0.04	0.08	0.08	0.07	0.02	<0.02	0.41	0.18
Orthophosphate Dissolved (mg/L as P)	0.058	0.016	0.014	0.013	0.012	0.019	0.009	0.033	0.038	0.027
Oxygen, total dissolved Field (mg/L)	9.6	11.7	11.7	11.1	11.2	10.5	9.4	9.9	12	11.2
Oxygen, total dissolved Percent Saturation Field (%)	108	95	96	99	99	99	101	96	97	100
pH Field (SU)	7.9	6.0	6.80	7.20	7.40	7.90	8.10	7.20	7.70	7.60
Pheophytin a (µg/L)						1.20	0.40	0.40		
Phosphate Total (mg/L as P)	0.09	0.06	0.080	0.030	0.060	0.070	0.020	0.060	0.070	0.080
Solids Total (mg/L)	98	92	94	74	99	100	74	93	110	99
Solids Total Suspended (mg/L)	<1	10	15	4	18	12	2	<1	<1	8
Temperature Field (°C)	15.5	6.5	7	10.5	10	13	19.5	14.5	6.5	9.5
Turbidity Field (NTU)	2	19	21	9	22	18	2	1	13	18

# LASAR: 10996

SAMPLE_DATE	04/25/1994	06/27/1994	07/25/1994	09/19/1994	10/10/1994	12/19/1994	01/09/1995	03/13/1995	04/24/1995	06/26/1995
SAMPLE_TIME	11:30	12:45	13:25	15:20	12:45	10:50	11:22	11:35	11:05	12:00
Alkalinity Field (mg/L)	35	38	45	49	47	23	21	34	34	33
Ammonia (mg/L)	0.040	0.020	0.040	0.050	0.030	0.020	0.06	0.04	0.03	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.9	1.3	1.2	1.2	1.2	1.7	3.8 Est	1.1	1.5	0.6
Chemical Oxygen Demand (mg/L)	<5	9	7	8	8	6	10	<5	5	<5
Chlorophyll a (µg/L)		0.8		4	3.4					7.0
Conductivity Field (µmhos/cm)	135	108	122	180	166	87	70	108	92	86
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	70	79	46	13	920	350	>1600	920	220	95
Kjeldahl Nitrogen Total (mg/L)	0.500	0.400	0.500	0.500	<0.200	0.500	2.6	0.4	0.4	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.04	<0.02	0.02	0.13	0.34	0.28	0.37	0.07	0.05	0.06
Orthophosphate Dissolved (mg/L as P)	0.025	0.021	0.020	0.005	0.025	0.012	0.034	0.013	0.012	0.007
Oxygen, total dissolved Field (mg/L)	10.2	9	9	10.7	10.3	10.7	11.6	11.3	10.8	9.0
Oxygen, total dissolved Percent Saturation Field (%)	98	101	106	123	99	92	100	101	103	102
pH Field (SU)	7.80	8	8	8.80	7.80	7.40	7.2	7.7	7.3	8.1
Pheophytin a (µg/L)		3.40		10	11					11.4
Phosphate Total (mg/L as P)	0.040	0.050	0.060	0.040	0.040	0.050	0.91	0.05	0.04	0.04
Solids Total (mg/L)	88	90	94	110	93	90	490	95	88	71
Solids Total Suspended (mg/L)	1	1	<1	7	<1	8	390	6	6	3
Temperature Field (°C)	14	22.5	24	22.5	14	9	9.0	10.5	13.5	22.0
Turbidity Field (NTU)	4	2	1	6	1	14	421	16	13	6

# Calapooya Creek at Umpqua

SAMPLE_DATE	07/24/1995	09/11/1995	10/23/1995	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996
SAMPLE_TIME	12:55	12:15	11:15	10:50	11:45	13:30	12:45	11:25	12:25	11:45
Alkalinity Field (mg/L)	41	49	42	25	24	27	38	40	42	45
Ammonia (mg/L)	0.02	0.02	0.06	0.020	0.020	0.020	0.030	0.020	0.020	0.030
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	1.0	1.5	1.3	0.7	0.6	0.4	0.9	0.5	1.2
Chemical Oxygen Demand (mg/L)	6	7	<5	6	<5	<5	<5	7	7	13
Chlorophyll a (µg/L)	5	6	7					2	3.9	6.1
Conductivity Field (µmhos/cm)	125	135	114	84	69	80	107	120	119	147
E. Coli MTEC (CFU/100 ml)				>120	120	1020	210	105	32 Est.	36 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	46	33	17	>240	220 Est.	1180	340	100	140	125
Kjeldahl Nitrogen Total (mg/L)	0.2	0.6	0.3	0.300	0.400	0.400	0.200	<0.200	0.300	0.600
Nitrate/nitrite Dissolved (mg/L as N)	0.02	0.02	0.17	0.24	0.16	0.14	0.05	0.02	<0.02	0.06
Orthophosphate Dissolved (mg/L as P)	0.011	0.006	0.057	0.016	0.013	0.015	0.009	0.010	0.008	<0.005
Oxygen, total dissolved Field (mg/L)	9.0	8.9	10.3	10.5	11.4	11	10.6	10.3	9	9.3
Oxygen, total dissolved Percent Saturation Field (%)	103		95	95	96	96	98	105	106	101
pH Field (SU)	8.0	8.0	7.7	7.40	7.50	7.60	7.90	7.80	8.10	8.10
Pheophytin a (µg/L)	2	9	15					3	3.30	6.70
Phosphate Total (mg/L as P)	0.03	0.04	0.08	0.070	0.110	0.090	0.030	0.020	0.020	0.040
Solids Total (mg/L)	82	90	87	100	140	96	78	91	84	82
Solids Total Suspended (mg/L)	<1	<1	<1	22	59	4	3	1	<1	4
Temperature Field (°C)	22.0	21.5	11.5	11	8	9	12	16.5	24.1	19.9
Turbidity Field (NTU)	<1	1	3	40	66	31	11	3	1	2 Est.

## LASAR: 10996

SAMPLE_DATE	10/07/1996	12/09/1996	01/13/1997	01/22/1997	01/23/1997	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997
SAMPLE_TIME	12:45	11:05	13:15	16:01	16:05	11:10	13:55	12:50	11:45	11:00
Alkalinity Field (mg/L)	46	17	28			15	35	41	41	43
Ammonia (mg/L)	0.020	0.040	0.040	0.040	0.060	0.050	<0.02	<0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.4	1.1 Est.	0.8	1.7	0.6	0.9	0.3	1.0	2.1
Chemical Oxygen Demand (mg/L)	10	<5	<5			<5	5	6	7	15
Chlorophyll a (µg/L)	2.7							1.7	2.6	2.2
Conductivity Field (µmhos/cm)	136	53	90			75	101	123	125	135
E. Coli MTEC (CFU/100 ml)	150	385	32 Est.			72 Est.	180	36 Est.	115	72 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	415	1440	105	295	135	105	200	68	185	105
Kjeldahl Nitrogen Total (mg/L)	0.300	0.500	0.400			0.200	0.2	<0.2	0.2	0.4
Nitrate/nitrite Dissolved (mg/L as N)	0.07	0.20	0.16	0.19	0.18	0.12	0.02	<0.02	0.02	0.02
Orthophosphate Dissolved (mg/L as P)	0.045	0.017	0.014			0.020	0.010	0.006	0.009	0.050
Oxygen, total dissolved Field (mg/L)	9.1	10.7	12.7	12.0	12.7	11.1	11.3	9.3	8.3	9.1
Oxygen, total dissolved Percent Saturation Field (%)	96	91	99	97	102	99	107	108	94	99
pH Field (SU)	7.80	7.40	7.40	7.60	7.70	7.60	8.0	8.3	7.9	8.2
Pheophytin a (µg/L)	11							1.7	4.6	7.2
Phosphate Total (mg/L as P)	0.070	0.390	0.040	0.110	0.060	0.040	0.03	0.02	0.03	0.08
Solids Total (mg/L)	100	410	75	120	94	79	83	83	130	96
Solids Total Suspended (mg/L)	<1	300	8			10	4	<1	<1	19
Temperature Field (°C)	18	8.5	5	6	6	10.5	13.1	23.3	22.0	20
Turbidity Field (NTU)	2	338	17			18	13	2	1.6	2

# Calapooya Creek at Umpqua

SAMPLE_DATE	10/13/1997	12/08/1997	01/05/1998	03/17/1998	04/13/1998	07/13/1998	07/15/1998	09/21/1998	11/02/1998	01/14/1999
SAMPLE_TIME	13:20	10:55	11:20	14:05	14:25	12:15	13:18	12:20	12:30	12:15
Alkalinity Field (mg/L)	36	39	30	36	36	42	42	49	41	32
Ammonia (mg/L)	0.04	0.06	0.02	0.03	0.05	0.03	0.03	<0.02	<0.02	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	1.1	1.3	0.6	1.5	0.4	0.7	1.0	1.5	1.4
Chemical Oxygen Demand (mg/L)	7	9	8	<5	5	5	5	13	9	7
Chlorophyll a (µg/L)	3.8					0.7	1.1	2.0		
Conductivity Field (µmhos/cm)	117	129	97	110	95	125	125	157	129	99
E. Coli MTEC (CFU/100 ml)	72 Est.	>240	155	20 Est.	340	100	56	370	64est	94
Fecal Coliform Membrane filter (CFU/100 ml)	180	>240	235	40 Est.	450	64	72	420	92	106
Kjeldahl Nitrogen Total (mg/L)	0.2	0.4	0.3	<0.2	0.3	<0.2	0.3	0.4	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.11	0.14	0.30	0.09	0.10	0.02	0.02	0.06	0.25	0.18
Orthophosphate Dissolved (mg/L as P)	0.023	0.062	0.019	0.013	0.011	0.018	0.010	0.070	0.063	0.018
Oxygen, total dissolved Field (mg/L)	11	10.7	11.6	11	12.2	9.2	8.9	9.9	11.7	11.5
Oxygen, total dissolved Percent Saturation Field (%)	103	90	94	100	103	102	104	102	107	98
pH Field (SU)	8	7.6	7.4	7.5	7.7	8	8.1	8.0	8.1	7.5
Pheophytin a (µg/L)	5					0.7	1.2	1.8		
Phosphate Total (mg/L as P)	0.05	0.08	0.06	0.04	0.06	0.02	0.03	0.09	0.09	0.05
Solids Total (mg/L)	86	110	110	90	110	81	76	110	82	76
Solids Total Suspended (mg/L)	3	10	20	13	23	<1	2		1	6
Temperature Field (°C)	12.4	8.2	6.7	11.5	8.7	20.9	24.1	17.2	11.3	8.6
Turbidity Field (NTU)	9	20		16	39	2	3	2	4	16

# LASAR: 10996

SAMPLE_DATE	03/17/1999	05/04/1999	07/12/1999	09/14/1999	11/15/1999	01/24/2000	03/21/2000	05/15/2000	07/24/2000	09/25/2000
SAMPLE_TIME	12:00	14:00	12:10	10:45	12:20	10:35	10:30	14:00	14:05	15:10
Alkalinity Field (mg/L)	30	23	38	43	39	23	33	33	39	40
Ammonia (mg/L)	0.03	<0.02	0.03	0.03	0.02	<0.02	0.03	0.05	0.04	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	2.3	0.5	1.2	1.1	1.3	1.5	0.4	0.8	1.7
Chemical Oxygen Demand (mg/L)	<5	13	7	11	12	12	<5	<5	9	16
Chlorophyll a (µg/L)		3.9	2.0	2.1					2.5	1.3
Conductivity Field (µmhos/cm)	89	67	115	144	178	76	86	90	117	162
E. Coli MTEC (CFU/100 ml)	44	530	146	46 Est.	56	700EST	70	220	70	48
Fecal Coliform Membrane filter (CFU/100 ml)	46	610	100	52	46	900EST	148	510	64	46
Kjeldahl Nitrogen Total (mg/L)	0.3	0.2	<0.2	0.3	0.6	0.5	0.3	<0.2	0.3	0.5
Nitrate/nitrite Dissolved (mg/L as N)	0.0642	0.0899	0.0165	0.114	0.205	0.204	0.0735	0.0281	0.0401	0.231
Orthophosphate Dissolved (mg/L as P)	0.011	0.017	0.012	0.047	0.067	0.027	0.014	0.015	0.007	0.019
Oxygen, total dissolved Field (mg/L)	11.5	11.6	8.4	9.0	10.6	11.6	11.9	10.4	10.1	9.8
Oxygen, total dissolved Percent Saturation Field (%)	99	101	97	96	103	95	101	102	133	98
pH Field (SU)	7.6	7.6	7.8	7.7	7.9	7.5	7.4	7.9	8.5	7.9
Pheophytin a (µg/L)		4.3	1.2	1.0					0.2	2.1
Phosphate Total (mg/L as P)	0.04	0.09	0.06	0.04	0.09	0.16	0.05	0.04	0.03	0.04
Solids Total (mg/L)	80	78	76	93	140	330	85	84	77	110
Solids Total Suspended (mg/L)	6	24	1	2	1	260	8	5	1	2
Temperature Field (°C)	8.8	9.6	22.9	18.8	13.5	7.1	8.7	14.9	24.0	16.2
Turbidity Field (NTU)	14	35	2	3.5	3	201	24	15	1.6	3

# Calapooya Creek at Umpqua

SAMPLE_DATE	10/10/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001	07/17/2001	09/18/2001	11/27/2001	01/14/2002	03/11/2002
SAMPLE_TIME	14:55	12:40	11:00	12:05	11:35	11:40	11:55	11:45	11:15	12:05
Alkalinity Field (mg/L)	50	43	35	34	35	40	53	24	32	35
Ammonia (mg/L)	0.04	0.02	0.07	0.05	0.03	0.04	0.07	0.06	0.04	0.04
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	2.3	0.9	0.7	1.4	0.7	0.8	6.1	1.1	0.5	0.1
Chemical Oxygen Demand (mg/L)		9	7	<5	6	9	26	13	7	6
Chlorophyll a (µg/L)					0.7	1.4	62.0			
Conductivity Field (µmhos/cm)	188	140	129	118	93	120	182	98	101	111
E. Coli MTEC (CFU/100 ml)	790	74	328	400	44	20EST	110EST	250	64	58
Fecal Coliform Membrane filter (CFU/100 ml)	1100	48	450	400	84	22EST	110EST	250	88	74
Kjeldahl Nitrogen Total (mg/L)	0.5	<0.2	0.2	<0.2	<0.2	0.4	1.2	0.3	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.251	0.352	0.188	0.103	0.0499	0.0265	0.154	0.725	0.249	0.0911
Orthophosphate Dissolved (mg/L as P)		0.081	0.024	0.016	0.015	0.013	0.005	0.023	0.017	0.014
Oxygen, total dissolved Field (mg/L)	10.8	12.1	11.3	12.3	9.4	7.9	10.0	11.2	11.5	10.6
Oxygen, total dissolved Percent Saturation Field (%)	104	109	95	106	98	95	106	94	93	92
pH Field (SU)	7.9	8.3	7.2	7.8	7.8	7.7	8.5	7.6	7.4	7.6
Pheophytin a (µg/L)					1.3	2.0	35.1			
Phosphate Total (mg/L as P)	0.10	0.10	0.04	0.04	0.03	0.03	0.06	0.08	0.05	0.04
Solids Total (mg/L)	120	89	96	89	69	73	150	89	81	77
Solids Total Suspended (mg/L)	1	1	2	2	3	<1	14	14	7	7
Temperature Field (°C)	13.9	10.9	7.8	9.0	17.0	18.4	18.3	7.7	6.6	8.7
Turbidity Field (NTU)	3	2.5	10	10	5	1	5	29	15	14

SAMPLE_DATE	05/20/2002	07/16/2002	07/25/2002	09/09/2002	09/24/2002				
SAMPLE_TIME	17:45	11:10	16:35	12:55	14:35				
Alkalinity Field (mg/L)	40	49	50	61					
Ammonia (mg/L)	<0.02	0.02	0.05	0.03	<0.02				
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.6	0.9	1.8	1.4				
Chemical Oxygen Demand (mg/L)	<5	11	10	15					
Chlorophyll a (µg/L)	0.2	4.0		7.0					
Conductivity Field (µmhos/cm)	131	126	143	220					
E. Coli MTEC (CFU/100 ml)	650	53	345	24	16				
Fecal Coliform Membrane filter (CFU/100 ml)	1010								
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.3	0.4	0.7					
Nitrate/nitrite Dissolved (mg/L as N)	0.0516	0.0185	0.323	0.133	0.103				
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	<0.005	<0.005					
Oxygen, total dissolved Field (mg/L)	9.5	6.8	9.4	11.0	9.2				
Oxygen, total dissolved Percent Saturation Field (%)	94	77	112	118	102				
pH Field (SU)	7.9	7.9	8.8	8.6	8.0				
Pheophytin a (µg/L)	0.5	1.5		4.1					
Phosphate Total (mg/L as P)	0.03	0.02	0.02	0.04	0.03				
Solids Total (mg/L)	99	84	93	180	100				
Solids Total Suspended (mg/L)	4	3	1	38					
Temperature Field (°C)	15.6	22.2	25.0	19.6	19.5				
Turbidity Field (NTU)	6	2		19					

# Cow Creek at Mouth (Riddle)

SAMPLE_DATE	12/14/1992	01/25/1993	03/08/1993	06/07/1993	09/20/1993	12/06/1993	12/19/1994	03/13/1995	04/24/1995	06/26/1995
SAMPLE_TIME	15:40	15:30	14:50	15:20	15:45	14:40	14:50	15:20	13:25	14:45
Alkalinity Field (mg/L)	39	22	36	46	54	44	28	29	37	49
Ammonia (mg/L)	0.02	<0.020	0.020	<0.020	0.020	<0.020	<0.020	0.03	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.3	1	1.2	1.6	1.1	2	0.7	0.7	1.2	0.6
Chemical Oxygen Demand (mg/L)	14	8	6	7	9	14	7	<5	7	6
Chlorophyll a (µg/L)				1.1	0.2					3.3
Conductivity Field (µmhos/cm)	88	75	76	96	119	111	71	67	86	119
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	140 Est	17	23	79	33	49	49	31	13	11
Kjeldahl Nitrogen Total (mg/L)	0.2	0.200	0.200	0.200	<0.200	0.200	0.200	<0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.22	0.15	0.05	0.02	0.02	0.04	0.12	0.04	0.02	0.03
Orthophosphate Dissolved (mg/L as P)	0.013	0.015	0.006	0.011	0.006	0.020	0.008	0.007	0.007	0.006
Oxygen, total dissolved Field (mg/L)	11.8	12	11.8	10.9	10.9	12.6	10.9	11.4	11.3	9.8
Oxygen, total dissolved Percent Saturation Field (%)	99	102	105	107	111	107	97	102	111	118
pH Field (SU)	7.1	6.90	7.40	8	8.40	8.20	7.70	7.7	7.9	8.4
Pheophytin a (µg/L)				1.20	0.60					4.0
Phosphate Total (mg/L as P)	0.03	0.050	0.020	0.020	0.020	0.020	0.030	0.04	0.02	0.02
Solids Total (mg/L)	82	80	59	79	88	83	79	65	77	81
Solids Total Suspended (mg/L)	10	5	<1	2	<1	<1	3	4	1	<1
Temperature Field (°C)	8.0	7.5	10	15	16.5	7.5	9	10.5	14.0	24.5
Turbidity Field (NTU)	7	13	3	3	1	3	8	13	5	<1

# LASAR: 10997

SAMPLE_DATE	07/24/1995	09/11/1995	10/23/1995	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996
SAMPLE_TIME	15:50	15:30	15:25	14:00	14:25	16:45	15:40	14:35	15:05	14:40
Alkalinity Field (mg/L)	51	50	60	30	30	27	40	47	53	47
Ammonia (mg/L)	0.02	0.02	0.03	<0.020	<0.020	<0.020	0.020	0.020	0.020	0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	9.6	0.5	0.9	1.1	0.3	0.5	0.1	0.6	0.6	0.7
Chemical Oxygen Demand (mg/L)	5	<5	<5	8	<5	<5	<5	8	<5	6
Chlorophyll a (µg/L)	5	2	3					0.8	1.3	1.5
Conductivity Field (µmhos/cm)	120	118	142	89	70	70	99	119	126	124
E. Coli MTEC (CFU/100 ml)				58	4 Est.	4 Est.	24 Est.	<4	<4	<4
Fecal Coliform Membrane filter (CFU/100 ml)	23	46	8	240	28 Est.	<4	36 Est.	<4	<4	8 Est.
Kjeldahl Nitrogen Total (mg/L)	0.2	0.2	0.2	0.300	<0.200	<0.200	<0.200	0.200	0.200	<0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.02	0.03	0.03	0.06	0.08	0.07	0.03	0.02	<0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	0.007	<0.005	0.008	0.013	0.013	0.008	0.007	0.005	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	10.5	10.3	11.2	10.7	11.5	11.2	10.8	10.3	10.3	11.3
Oxygen, total dissolved Percent Saturation Field (%)	128		108	98	97	98	102	111	127	127
pH Field (SU)	8.8	8.6	8.0	7.50	7.80	7.80	8.10	8.10	8.80	8.70
Pheophytin a (µg/L)	4	7	5					1.60	1.80	3.70
Phosphate Total (mg/L as P)	0.02	0.01	0.01	0.040	0.040	0.030	0.020	0.010	0.020	0.010
Solids Total (mg/L)	81	82	95	86	75	65	67	85	87	86
Solids Total Suspended (mg/L)	<1	<1	1	12	10	4	<1	<1	<1	<1
Temperature Field (°C)	25.0	22.0	13.0	10.9	7.5	9	12	17.9	25.7	20.3
Turbidity Field (NTU)	<1	1	1	15	21	10	3	1	<1	<1

**Cow Creek at Mouth (Riddle)**

SAMPLE_DATE	10/07/1996	12/09/1996	01/13/1997	03/10/1997	04/29/1997	06/16/1997	07/07/1997	07/16/1997	09/09/1997	10/13/1997
SAMPLE_TIME	15:10	14:50	15:05	14:20	16:40	15:50	14:55	15:05	14:35	17:25
Alkalinity Field (mg/L)	56	18	28	34	40	48	50	49	41	41
Ammonia (mg/L)	0.040	0.060	0.040	0.040	<0.02	0.02	0.03	0.06	0.04	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.7	1.2 Est.	0.8	0.4	0.9	9.4	0.7	0.9	0.5
Chemical Oxygen Demand (mg/L)	8	<5	<5	<5	<5	<5	5	<5	5	9
Chlorophyll a (µg/L)	2.9					0.6	0.9		3	0.7
Conductivity Field (µmhos/cm)	122	57	71	77	101	120	131	127	126	106
E. Coli MTEC (CFU/100 ml)	<4	100	12 Est.	<4	12 EST	<4	<4	3 Est.	16 Est.	20 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	<4	360	36 Est.	8 Est.	32 EST	12 Est.	28 EST	36 Est.	24 Est.	150
Kjeldahl Nitrogen Total (mg/L)	0.200	0.500	0.600	<0.200	<0.2	<0.2	0.2	0.3	0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.08	0.06	0.03	<0.02	<0.02	<0.02	0.02	0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	0.006	0.018	0.017	0.005	0.007	<0.005	0.005	0.005	0.005	0.008
Oxygen, total dissolved Field (mg/L)	10.9	10.9	12.5	11.3	11.0	10.5	11.1	11	10.2	10.8
Oxygen, total dissolved Percent Saturation Field (%)	118	98	99	104	109	127	134	135	113	104
pH Field (SU)	8.40	7.60	7.80	7.80	8.2	8.9	8.9	9	8.6	8.2
Pheophytin a (µg/L)	5.50					1.5	2.3		6.1	1.8
Phosphate Total (mg/L as P)	0.020	0.370	0.060	0.020	0.02	0.01	0.02	0.02	0.02	0.02
Solids Total (mg/L)	94	270	62	65	67	82	89	99	87	81
Solids Total Suspended (mg/L)	<1	200	15	<1	<1	<1	<1	7	<1	<1
Temperature Field (°C)	19	9.3	4.4	11	14.6	24	24.4	25.3	20	13.2
Turbidity Field (NTU)	1	227	26	7	2	1	0.8	2	0.7	3

**LASAR: 10997**

SAMPLE_DATE	12/08/1997	01/05/1998	03/19/1998	04/13/1998	07/13/1998	09/21/1998	11/02/1998	01/14/1999	03/17/1999	05/04/1999
SAMPLE_TIME	14:52	15:20	12:01	17:05	15:35	15:10	15:10	09:15	09:15	17:00
Alkalinity Field (mg/L)	36	33	39	36	51	50	54	42	34	32
Ammonia (mg/L)	0.03	<0.02	<0.02	0.10	0.04	<0.02	<0.02	0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1	1.4	0.5	0.9	0.2	0.8	1.0	2.1	1.6	1.2
Chemical Oxygen Demand (mg/L)	10	7	<5	5	<5	7	5	11	<5	7
Chlorophyll a (µg/L)					0.6	0.4				0.7
Conductivity Field (µmhos/cm)	85	84	97	82	124	119	143	100	80	81
E. Coli MTEC (CFU/100 ml)	26 Est.	28 Est.	6 Est.	2 Est.	4 Est.	8 Est.	8est	24 Est	4 Est.	14 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	56	68 Est.	6 Est.	10 Est.	8 Est.	10 Est.	48est	20 Est	6 Est.	46
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.04	0.12	0.04	0.02	0.02	0.02	<0.02	0.09	0.0517	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.009	0.013	0.008	0.007	0.014	0.006	0.008	0.010	0.009	0.008
Oxygen, total dissolved Field (mg/L)	11.6	11.9	11.4	12	9.6	10.5	12.2	11.7	11.7	11.6
Oxygen, total dissolved Percent Saturation Field (%)	99	100	108	106	115	113	113	100	100	108
pH Field (SU)	8	7.7	7.7	7.9	8.5	8.5	8.5	7.7	7.7	8.0
Pheophytin a (µg/L)					0.5	0.8				0.7
Phosphate Total (mg/L as P)	0.03	0.04	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Solids Total (mg/L)	80	76	48	68	86	85	93	62	62	61
Solids Total Suspended (mg/L)	2	5	3	<1	<1	<1	<1	<1	2	1
Temperature Field (°C)	7.7	7.1	11.7	8.8	24	18.2	10.9	7.4	7.6	11.5
Turbidity Field (NTU)	9		4	8	1	1	1	3	6	4



### Cow Creek at Mouth (Riddle)

SAMPLE_DATE	07/12/1999	09/14/1999	11/15/1999	01/24/2000	03/21/2000	05/15/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001
SAMPLE_TIME	15:12	14:30	15:55	15:30	14:15	16:40	16:40	18:30	15:25	14:45
Alkalinity Field (mg/L)	41	43	41	28	36	39	48	49	51	51
Ammonia (mg/L)	0.03	<0.02	<0.02	<0.02	0.02	0.03	0.04	0.03	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	1.1	0.8	0.7	1.6	<0.1	0.6	0.7	0.9	<0.1
Chemical Oxygen Demand (mg/L)	9	5	14	11	5	<5	9	11	6	6
Chlorophyll a (µg/L)	0.5	1.0					1.3	0.6		
Conductivity Field (µmhos/cm)	108	109	118	65	88	98	122	117	140	125
E. Coli MTEC (CFU/100 ml)	12 Est.	8 Est.	30 Est.	13EST	2EST	32EST	8EST	32est	6EST	8EST
Fecal Coliform Membrane filter (CFU/100 ml)	10 Est.	12 Est.	100	15EST	6EST	92	14EST	22est	16EST	16EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0064	0.0108	0.0295	0.0719	0.0128	<0.0050	<0.0050	0.0091	0.0085	0.0135
Orthophosphate Dissolved (mg/L as P)	0.005	0.009	0.014	0.011	0.006	0.006	0.008	0.009	0.011	0.011
Oxygen, total dissolved Field (mg/L)	10.0	11.2	10.3	11.6	12.1	10.0	10.6	10.5	11.4	12.7
Oxygen, total dissolved Percent Saturation Field (%)	121	123	100	101	110	102	130	110	106	105
pH Field (SU)	8.8	8.7	8.0	7.6	8.0	8.1	8.9	8.5	8.3	8.2
Pheophytin a (µg/L)	0.5	0.7					0.4	1.0		
Phosphate Total (mg/L as P)	0.02	0.01	0.02	0.03	0.02	0.02	0.04	0.02	0.02	0.01
Solids Total (mg/L)	72	74	87	76	62	71	79	82	93	82
Solids Total Suspended (mg/L)	<1	<1	<1	10	<1	<1	<1	1	<1	<1
Temperature Field (°C)	24.8	20.4	13.2	8.6	10.1	15.3	25.2	17.1	11.0	6.8
Turbidity Field (NTU)	1	1.0	2	21	4	2	0.8	1	1.0	1

### LASAR: 10997

SAMPLE_DATE	03/12/2001	05/21/2001	07/17/2001	09/18/2001	11/27/2001	01/14/2002	03/11/2002	05/21/2002	07/16/2002	08/28/2002
SAMPLE_TIME	15:30	15:30	14:40	15:15	15:15	14:15	15:25	08:01	15:30	11:32
Alkalinity Field (mg/L)	41	51	56	66	35	40	37	50	61	60
Ammonia (mg/L)	0.03	<0.02	<0.02	0.02	0.03	<0.02	0.02	<0.02	0.02	0.03 est
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	11.6	1.1	1.7	0.4	0.4	1.0	<0.1	0.5	1.4
Chemical Oxygen Demand (mg/L)	8	5	7	8	10	7	5	<5	7	7
Chlorophyll a (µg/L)		1.4	1.6	1.0				0.2	1.4	1.0
Conductivity Field (µmhos/cm)	116	123	170	183	106	97	91	133	156	182
E. Coli MTEC (CFU/100 ml)	<2	2EST	6EST	18EST	28EST	20 est	2EST	106	1	24
Fecal Coliform Membrane filter (CFU/100 ml)	<2	6EST	<2	40	34EST	50 est	<2	124		
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	0.3	0.4	0.2	<0.2	<0.2	<0.2	0.3	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.0090	0.0065	0.0051	0.0084	0.123	0.172	0.0216	0.0150	0.0135	0.0056
Orthophosphate Dissolved (mg/L as P)	<0.005	0.007	0.009	0.015	0.011	0.012	0.007	0.007	0.006	<0.005
Oxygen, total dissolved Field (mg/L)	11.9	11.4	11.7	11.5	11.8	11.8	11.7	9.1	10.6	8.6
Oxygen, total dissolved Percent Saturation Field (%)	108	132	137	131	100	100	107	86	134	103
pH Field (SU)	8.2	9.1	9.0	9.1	7.7	7.8	8.1	7.8	9.0	8.4
Pheophytin a (µg/L)		1.1	1.4	1.7				0.2	1.2	1.9
Phosphate Total (mg/L as P)	0.02	0.02	0.03	0.04	0.02	0.02	0.01	0.02	0.02	0.02
Solids Total (mg/L)	74	76	100	130	94	74	61	90	88	110 est
Solids Total Suspended (mg/L)	<1	1	1	<1	<1	<1	<1	1	<1	1 Est.
Temperature Field (°C)	10.7	21.9	23.1	22.4	7.4	7.1	9.9	12.9	26.7	23.3
Turbidity Field (NTU)	1	<1	<1	1	6	4	3	2	1	1

**Cow Creek at Mouth (Riddle)**

SAMPLE_DATE	09/09/2002
SAMPLE_TIME	16:18
Alkalinity Field (mg/L)	61
Ammonia (mg/L)	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4
Chemical Oxygen Demand (mg/L)	6
Chlorophyll a (µg/L)	0.6
Conductivity Field (µmhos/cm)	180
E. Coli MTEC (CFU/100 ml)	34
Fecal Coliform Membrane filter (CFU/100 ml)	
Kjeldahl Nitrogen Total (mg/L)	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0088
Orthophosphate Dissolved (mg/L as P)	0.005
Oxygen, total dissolved Field (mg/L)	10.9
Oxygen, total dissolved Percent Saturation Field (%)	122
pH Field (SU)	8.8
Pheophytin a (µg/L)	1.1
Phosphate Total (mg/L as P)	0.02
Solids Total (mg/L)	110
Solids Total Suspended (mg/L)	<1
Temperature Field (°C)	21.3
Turbidity Field (NTU)	<1

**LASAR: 10997**

# South Umpqua at Days Creek Cutoff Road

SAMPLE_DATE	10/20/1992	12/14/1992	01/25/1993	03/08/1993	04/19/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994
SAMPLE_TIME	09:40	15:10	15:55	15:25	14:41	16:04	16:05	16:20	13:10	14:10
Alkalinity Field (mg/L)	55	32	24	29	29	45	53	39	31	31
Ammonia (mg/L)	0.030	0.02	<0.020	0.02	0.020	<0.02	0.020	0.020	<0.020	0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	1.6	1.2	1.4	0.9	1.2	1.1	1.1	2.3	1.9
Chemical Oxygen Demand (mg/L)	<5	13	8		9		7	<5	9	6
Chlorophyll a (µg/L)							0.6	0.2		
Conductivity Field (µmhos/cm)	187	73	65		65		108	145	105	70
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	33	350 Est	22	13	8	79	14	31	17	17
Kjeldahl Nitrogen Total (mg/L)	<0.200	<0.2	0.200		<0.200		<0.200	0.200	0.200	0.200
Nitrate/nitrite Dissolved (mg/L as N)	0.04	0.08	0.06	0.03	0.03	<0.02	0.03	0.04	0.02	<0.02
Orthophosphate Dissolved (mg/L as P)	<0.005	0.024	0.023		0.016		0.006	<0.005	0.012	0.018
Oxygen, total dissolved Field (mg/L)	9.3	12.4	12.2	12.2	11.9	11.1	9.9	10.6	12.9	12.1
Oxygen, total dissolved Percent Saturation Field (%)	90	102	103	108	110	106	110	109	108	107
pH Field (SU)	7.80	7.0	6.90	7.30	7.60	7.80	8.30	8.30	8	7.90
Pheophytin a (µg/L)							<0.10	0.40		
Phosphate Total (mg/L as P)	0.010	0.04	0.040	0.030	0.040	0.040	0.010	0.010	0.020	0.020
Solids Total (mg/L)	120	77	77	57	66	74	73	97	85	76
Solids Total Suspended (mg/L)	<1	1	2		4		<1	<1	<1	<1
Temperature Field (°C)	13	6.0	7	10	12	14	21	16	7	9
Turbidity Field (NTU)	<1	11	11		8		<1	1	4	4

# LASAR: 11484

SAMPLE_DATE	04/25/1994	06/27/1994	07/25/1994	09/20/1994	10/10/1994	12/19/1994	03/13/1995	04/24/1995	06/26/1995	07/24/1995
SAMPLE_TIME	14:45	15:45	16:10	12:05	15:40	15:31	15:55	14:00	15:25	16:25
Alkalinity Field (mg/L)		43	48	48		23	28	29	32	40
Ammonia (mg/L)	0.020	0.020	0.030	0.030	0.040	0.020	0.02	<0.02	0.03	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	0.6	0.6	0.7	0.3	0.5	0.7	1.1	0.3	0.3
Chemical Oxygen Demand (mg/L)		7	5			6	<5	5	<5	5
Chlorophyll a (µg/L)				2.7					1.2	1
Conductivity Field (µmhos/cm)		111	141	180		55	67	66	75	109
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	4	17	79	170	540	17	17	8	23	23
Kjeldahl Nitrogen Total (mg/L)		0.200	0.300	<0.200		0.200	<0.2	<0.2	0.3	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.02	0.04	0.06	0.06	0.09	0.02	0.02	0.02	0.03
Orthophosphate Dissolved (mg/L as P)		<0.005	<0.005	<0.005		0.021	0.018	0.015	0.011	0.009
Oxygen, total dissolved Field (mg/L)	10.7	9.7	9.1	7.9	10.1	11.4	11.8	11.5	9.2	9.2
Oxygen, total dissolved Percent Saturation Field (%)	99	118	108	86	100	97	104	110	107	112
pH Field (SU)	8.00	8.50	8.80	7.90	7.90	7.60	7.8	7.9	8.0	8.5
Pheophytin a (µg/L)				4.70					2.4	2
Phosphate Total (mg/L as P)	0.010	0.020	0.020	0.010	0.010	0.050	0.04	0.03	0.03	0.02
Solids Total (mg/L)	68	84	91	120	110	77	70	72	62	76
Solids Total Suspended (mg/L)		<1	<1	<1		2	1	<1	<1	<1
Temperature Field (°C)	12	24	25	18.5	15.5	7.5	10.0	12.0	22.0	24.5
Turbidity Field (NTU)		1	1	2		12	9	6	2	<1

# South Umpqua at Days Creek Cutoff Road

SAMPLE_DATE	09/11/1995	10/23/1995	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996	10/07/1996
SAMPLE_TIME	16:05	16:20	14:35	15:00	17:20	16:15	15:05	15:35	15:15	15:40
Alkalinity Field (mg/L)	47	51			25		39	44		
Ammonia (mg/L)	0.02	0.03	0.02	<0.02	<0.020	0.03	0.020	<0.020	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.8	1.4	0.8	0.4	0.2	0.5	0.3	0.4	0.3
Chemical Oxygen Demand (mg/L)	<5	<5			<5		9	7		
Chlorophyll a (µg/L)	2	2					0.5	0.9		
Conductivity Field (µmhos/cm)	141	141			64		102	125		
E. Coli MTEC (CFU/100 ml)					4 Est.		12 Est.	<4		
Fecal Coliform Membrane filter (CFU/100 ml)	46	33	240	10	<4	110	32 Est.	20 Est.	160	16
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.2			0.400		<0.200	0.200		
Nitrate/nitrite Dissolved (mg/L as N)	0.10	0.03	0.03	0.06	0.02	0.01	0.02	0.03	0.05	0.03
Orthophosphate Dissolved (mg/L as P)	<0.005	0.005			0.018		0.010	0.005		
Oxygen, total dissolved Field (mg/L)	9.3	11.4	11.1	12.1	11.5	10.9	10	9	9.8	9.9
Oxygen, total dissolved Percent Saturation Field (%)		112	101	101	99	99	106	114	115	110
pH Field (SU)	8.5	8.2	7.6	7.7	7.80	7.90	7.90	8.40	8.20	8.20
Pheophytin a (µg/L)	4	3					0.63	0.77		
Phosphate Total (mg/L as P)	0.01	0.01	0.09	0.06	0.040	0.040	0.020	0.010	<0.01	0.010
Solids Total (mg/L)	95	98	110	84	69	62	86	84	99	110
Solids Total Suspended (mg/L)	<1	2			3		<1	<1		
Temperature Field (°C)	24.0	13.5	10.2	6.5	8	11	17.3	26.7	21.8	19.5
Turbidity Field (NTU)	1	2			9		2	1		

# LASAR: 11484

SAMPLE_DATE	12/09/1996	01/13/1997	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997	10/13/1997	12/08/1997	01/05/1998
SAMPLE_TIME	15:30	15:55	14:55	17:20	16:25	15:30	13:55	18:00	15:40	15:20
Alkalinity Field (mg/L)		28	26	26	38	41	48	33	35	30
Ammonia (mg/L)	0.04	0.02	0.03	<0.02	<0.02	0.05	0.02	0.03	0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	1.1 Est.	0.4	0.4	0.3	0.7	0.6	0.5	0.5	1.2
Chemical Oxygen Demand (mg/L)		<5	<5	6	<5	<5	7	10	<5	7
Chlorophyll a (µg/L)					0.7	0.5	3.3	2.2		
Conductivity Field (µmhos/cm)		73	65	65	95	110	150	82	87	73
E. Coli MTEC (CFU/100 ml)		4 Est.	8 Est.	32 EST	4 Est.	<4	16 Est.	20 Est.	10 Est.	12 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	170	4 Est.	4 Est.	205	4 Est.	36 EST	12 Est.	32 Est.	2 Est.	40 Est.
Kjeldahl Nitrogen Total (mg/L)		0.6	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.03	0.04	0.03	<0.02	<0.02	0.02	0.04	<0.02	<0.02	0.04
Orthophosphate Dissolved (mg/L as P)		0.021	0.019	0.018	0.007	0.005	0.013	0.016	0.015	0.024
Oxygen, total dissolved Field (mg/L)	11.6	13.1	11.4	11.0	9.3	9.3	9.2	11	12.2	12.2
Oxygen, total dissolved Percent Saturation Field (%)	102	100	103	100	110	113	103	104	103	100
pH Field (SU)	7.60	7.8	7.7	7.9	8.5	8.6	8.1	8	8	7.6
Pheophytin a (µg/L)					0.6	0.7	3.6	4.2		
Phosphate Total (mg/L as P)	0.430	0.04	0.03	0.04	0.02	0.02	0.02	0.03	0.02	0.05
Solids Total (mg/L)	250	67	65	67	74	65	97	72	82	86
Solids Total Suspended (mg/L)		4	2	4	<1	<1	<1	2	<1	2
Temperature Field (°C)	8.6	3	10	11.5	23	24.4	20.8	12.1	7	6.2
Turbidity Field (NTU)		9	10	11	2	1.4	0.9	6	4	

# South Umpqua at Days Creek Cutoff Road

# LASAR: 11484

SAMPLE_DATE	03/19/1998	04/13/1998	07/13/1998	09/21/1998	11/02/1998	01/14/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999
SAMPLE_TIME	12:30	17:40	16:10	15:40	15:40	08:23	08:25	17:30	15:45	15:25
Alkalinity Field (mg/L)	27	33	43	51	48	33	26	23	29	46
Ammonia (mg/L)	<0.02	0.03	0.02	0.02	<0.02	<0.02	<0.02	0.03	0.03	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	0.9	0.6	0.8	1.0	1.0	1.7	1.5	0.2	0.3
Chemical Oxygen Demand (mg/L)	<5	6	5	<5	<5	7	<5	8	6	5
Chlorophyll a (µg/L)			1.2	1.8				0.2	0.3	1.2
Conductivity Field (µmhos/cm)	69	76	114	156	148	74	64	59	88	144
E. Coli MTEC (CFU/100 ml)	<2	4 Est.	10 Est.	12 Est.	36est	8 Est	2 Est.	20 Est.	10 Est.	24 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	2 Est.	12 Est.	6 Est.	24 Est.	164	12 Est	2 Est.	30 Est.	10 Est.	12 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.02	0.03	0.03	<0.02	0.04	0.0157	<0.0050	0.0090	0.0353
Orthophosphate Dissolved (mg/L as P)	0.015	0.021	0.009	<0.005	0.011	0.019	0.019	0.019	0.006	0.007
Oxygen, total dissolved Field (mg/L)	11.8	11.9	9.5	10.3	11.8	11.9	12.0	11.9	9.0	9.7
Oxygen, total dissolved Percent Saturation Field (%)	113	104	116	113	109	99	101	103	109	111
pH Field (SU)	7.7	7.8	8.7	8.4	8.3	7.6	7.7	7.7	8.5	8.5
Pheophytin a (µg/L)			0.4	0.5				0.2	0.3	0.1
Phosphate Total (mg/L as P)	0.02	0.08	0.02	0.01	0.02	0.03	0.03	0.04	0.03	0.01
Solids Total (mg/L)	45	150	80	100	100	52	53	41	62	88
Solids Total Suspended (mg/L)	4	27	<1	<1	<1	<1	2	2	<1	2
Temperature Field (°C)	12.2	8.4	24.7	19.5	10.4	6.5	6.8	8.4	25.0	22.4
Turbidity Field (NTU)	5	32	1	1	1	5	7	11	1	1.4

SAMPLE_DATE	11/15/1999	01/24/2000	03/21/2000	05/15/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001
SAMPLE_TIME	16:25	16:15	15:00	17:10	17:20	19:05	15:55	15:35	16:08	16:20
Alkalinity Field (mg/L)	44	25	26	27	42	49	47	40	31	29
Ammonia (mg/L)	0.02	0.03	<0.02	0.03	0.05	0.03	<0.02	<0.02	<0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.8	1.1	1.2	0.1	0.4	0.5	0.8	<0.1	1.3	0.4
Chemical Oxygen Demand (mg/L)	<5	9	6	<5	7	7	5	<5	7	7
Chlorophyll a (µg/L)					0.5	0.8				0.5
Conductivity Field (µmhos/cm)	140	64	61	71	123	151	140	99	87	70
E. Coli MTEC (CFU/100 ml)	30 Est.	7EST	4EST	6EST	26EST	4est	6EST	2EST	2EST	6EST
Fecal Coliform Membrane filter (CFU/100 ml)	24 Est.	7EST	4EST	<2	8EST	8est		4EST	<2	12EST
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.0118	0.0399	0.0062	<0.0050	0.0127	0.0132	0.0061	<0.0050	<0.0050	<0.0050
Orthophosphate Dissolved (mg/L as P)	0.012	0.021	0.020	0.016	<0.005	<0.005	0.009	0.010	0.011	0.013
Oxygen, total dissolved Field (mg/L)	10.9	11.9	12.0	10.2	9.4	10.5	11.3	12.8	12.1	9.6
Oxygen, total dissolved Percent Saturation Field (%)	105	102	105	99	117	115	105	104	109	106
pH Field (SU)	8.2	7.6	7.9	7.9	8.6	8.8	8.2	8.2	8.1	8.2
Pheophytin a (µg/L)					0.4	0.4				0.5
Phosphate Total (mg/L as P)	0.05	0.03	0.04	0.02	0.04	<0.01	0.01	0.01	0.02	0.02
Solids Total (mg/L)	100	75	63	6	81	98	98	73	67	53
Solids Total Suspended (mg/L)	<1	2	1	<1	<1	<1	<1	<1	<1	2
Temperature Field (°C)	12.3	7.6	8.4	13.2	25.3	19.0	10.8	5.4	9.5	19.2
Turbidity Field (NTU)	1	9	11	5	0.8	1	0.8	2	4	3

# South Umpqua at Days Creek Cutoff Road

SAMPLE_DATE	07/17/2001	09/18/2001	11/27/2001	01/14/2002	03/11/2002	05/21/2002	07/16/2002	08/28/2002	09/09/2002	
SAMPLE_TIME	15:15	16:05	15:45	14:50	16:10	08:41	16:15	15:40	17:00	
Alkalinity Field (mg/L)	40	61	34	25	28	29	41	43	44	
Ammonia (mg/L)	0.03	0.03	<0.02	0.03	<0.02	<0.02	<0.02	0.07	0.02	
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.0	1.0	1.8	0.5	1.0	0.5	0.1	0.8	0.8	
Chemical Oxygen Demand (mg/L)	7	5	10	6	<5	<5	8	6	<5	
Chlorophyll a (µg/L)	1.4	1.1				<0.1	0.9	0.9	0.8	
Conductivity Field (µmhos/cm)	130	170	92	65	77	80	118	150	160	
E. Coli MTEC (CFU/100 ml)	6EST	44	22EST	4 est	2EST	68	26	74	18	
Fecal Coliform Membrane filter (CFU/100 ml)	14EST	72	38EST	4 est	2EST	98				
Kjeldahl Nitrogen Total (mg/L)	0.3	0.3	0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	
Nitrate/nitrite Dissolved (mg/L as N)	0.0080	0.0055	0.0279	0.0417	0.0163	0.0096	0.0081	0.0275	0.0214	
Orthophosphate Dissolved (mg/L as P)	<0.005	<0.005	0.021	0.019	0.015	0.012	<0.005	<0.005	<0.005	
Oxygen, total dissolved Field (mg/L)	9.8	9.5	12.3	12.2	12.2	10.5	9.6	10.4	10.6	
Oxygen, total dissolved Percent Saturation Field (%)	118	108	100	101	106	96	122	127	119	
pH Field (SU)	8.6	8.7	7.6	7.8	8.0	7.8	8.9	8.7	8.8	
Pheophytin a (µg/L)	0.6	0.8				0.1	0.4	0.4	0.5	
Phosphate Total (mg/L as P)	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.01	0.01	
Solids Total (mg/L)	88	120	74	54	59	63	89	92	100	
Solids Total Suspended (mg/L)	1	<1	<1	<1	<1	1	<1	1	<1	
Temperature Field (°C)	23.9	20.7	6.3	6.0	8.1	11.5	26.8	24.6	21.7	
Turbidity Field (NTU)	<1	1	10	5	4	2	<1	1	<1	

## LASAR: 11484

# South Umpqua at Stewart Parkway (Roseburg)

SAMPLE_DATE	12/14/1992	01/25/1993	03/08/1993	06/07/1993	06/12/1993	09/20/1993	12/06/1993	01/24/1994	04/25/1994	06/27/1994
SAMPLE_TIME	12:45	14:10	12:55	13:55	13:34	13:50	12:40	12:40	13:15	14:20
Alkalinity Field (mg/L)	38	31	36	41	58	62	49	47	43	50
Ammonia (mg/L)	0.03	<0.020	0.020	<0.020	0.020	0.030	0.030	0.040	0.020	0.020
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.4	0.8	1.2	1.5	0.7	0.7	2.7	2.1	0.9	0.8
Chemical Oxygen Demand (mg/L)	11	9	<5	6	6	7	20	7	<5	7
Chlorophyll a (µg/L)				0.7	0.6	0.1				0.5
Conductivity Field (µmhos/cm)	92	83	75	90	143	155	135	120	111	136
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	1600 Est	49	49	130	17	23	79	240	33	21
Kjeldahl Nitrogen Total (mg/L)	0.3	0.300	<0.200	0.200	0.200	0.200	0.300	0.400	0.400	0.300
Nitrate/nitrite Dissolved (mg/L as N)	0.32	0.21	0.08	0.05	<0.02	<0.02	0.07	0.10	0.02	0.02
Orthophosphate Dissolved (mg/L as P)	0.023	0.023	0.013	0.027	0.006	<0.005	0.015	0.021	0.012	0.007
Oxygen, total dissolved Field (mg/L)	12.0	12	11.6	10.7	9	9.2	12.1	11.6	10.1	8.2
Oxygen, total dissolved Percent Saturation Field (%)	96	101	104	102	100	97	99	101	99	94
pH Field (SU)	7.4	7	7.30	7.90	8.40	8.50	7.90	7.80	8.10	8.50
Pheophytin a (µg/L)				0.80	0.40	0.60				0.80
Phosphate Total (mg/L as P)	0.05	0.070	0.030	0.060	0.020	0.020	0.030	0.040	0.020	0.020
Solids Total (mg/L)	90	88	64	92	91	110	110	91	82	130
Solids Total Suspended (mg/L)	4	8	2	5	1	<1	2	3	<1	<1
Temperature Field (°C)	6.0	8	10.5	13.5	21	18	7	8.5	15	23
Turbidity Field (NTU)	13	17	5	13	<1	1	5	7	2	1

# LASAR: 11522

SAMPLE_DATE	07/25/1994	09/21/1994	10/10/1994	12/19/1994	03/13/1995	04/24/1995	06/26/1995	07/24/1995	09/11/1995	10/23/1995
SAMPLE_TIME	14:55	12:25	14:05	12:40	13:05	12:20	13:35	14:35	14:00	13:35
Alkalinity Field (mg/L)			59	27	32	37	39	51	52	59
Ammonia (mg/L)	0.050	0.040	0.040	0.020	0.02	0.03	0.03	0.02	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.6	0.4	0.3	0.9	0.7	1.1	0.3	0.5	0.6	1.1
Chemical Oxygen Demand (mg/L)			7	6	<5	8	5	<5	<5	<5
Chlorophyll a (µg/L)			1.2				3.9	9	3	2
Conductivity Field (µmhos/cm)			183	71	81	88	99	135	144	158
E. Coli MTEC (CFU/100 ml)										
Fecal Coliform Membrane filter (CFU/100 ml)	49	17	11	79	49	23	31	33	170	33
Kjeldahl Nitrogen Total (mg/L)			<0.200	0.300	0.2	0.2	0.4	0.2	0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	0.02	0.03	0.10	0.07	0.03	0.03	0.02	0.02	0.02
Orthophosphate Dissolved (mg/L as P)			<0.005	0.016	0.014	0.011	0.008	0.007	<0.005	0.005
Oxygen, total dissolved Field (mg/L)	7.6	8.2	9.1	11.1	11.5	11.2	9.1	8.0	8.0	10.2
Oxygen, total dissolved Percent Saturation Field (%)	90	91	94	94	102	107	105	96		99
pH Field (SU)	8.30	8.30	8.40	7.70	7.8	8.0	8.1	8.2	8.4	8.1
Pheophytin a (µg/L)			2.80				4.9	3	4	5
Phosphate Total (mg/L as P)	0.030	0.020	0.020	0.070	0.04	0.03	0.03	0.02	0.01	0.01
Solids Total (mg/L)	110	110	110	90	78	84	68	91	100	100
Solids Total Suspended (mg/L)			<1	8	7	2	<1	<1	<1	<1
Temperature Field (°C)	24.5	21.0	17	8.5	10.0	13.5	23.0	24.0	23.5	14.0
Turbidity Field (NTU)			1	13	15	8	2	<1	1	2

# South Umpqua at Stewart Parkway (Roseburg)

SAMPLE_DATE	12/11/1995	01/29/1996	03/04/1996	04/10/1996	06/17/1996	07/15/1996	09/09/1996	10/07/1996	12/09/1996	01/13/1997
SAMPLE_TIME	12:15	13:15	15:15	14:20	12:45	13:50	13:15	14:00	13:10	14:35
Alkalinity Field (mg/L)	29	32	35	27	52	56	53	60	22	35
Ammonia (mg/L)	<0.020	<0.020	0.050	0.030	0.020	0.020	0.040	0.020	0.040	0.030
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.7	0.9	0.8	0.4	0.5	0.5	<0.1	0.4	0.9	0.8 Est.
Chemical Oxygen Demand (mg/L)	6	<5	<5	<5	8	<5	10	7	<5	<5
Chlorophyll a (µg/L)					1.2	<0.1	1.1	1		
Conductivity Field (µmhos/cm)	82	77	84	103	133	151	154	153	58	90
E. Coli MTEC (CFU/100 ml)	31	72 Est.	76 Est.	165	8 Est.	16 Est.	96	36 Est.	240	24 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	172	215	175	185	12 Est.	72 Est.	195	195	280	48 Est.
Kjeldahl Nitrogen Total (mg/L)	0.200	0.200	0.200	0.200	0.200	0.300	0.200	0.200	1	0.300
Nitrate/nitrite Dissolved (mg/L as N)	0.09	0.15	0.08	0.04	0.02	<0.02	0.02	0.02	0.10	0.11
Orthophosphate Dissolved (mg/L as P)	0.022	0.019	0.014	0.011	0.009	0.008	0.010	0.016	0.028	0.021
Oxygen, total dissolved Field (mg/L)	10.6	11.7	11.3	10.6	9.5	7.9	8.2	8.5	11	12.4
Oxygen, total dissolved Percent Saturation Field (%)	95	99	99	100	101	97	94	94	91	100
pH Field (SU)	7.60	7.80	7.80	8.10	8.10	8.20	8.60	8.10	7.50	7.80
Pheophytin a (µg/L)					1.30	7.60	1.80	2.30		
Phosphate Total (mg/L as P)	0.050	0.100	0.040	0.030	0.020	0.020	0.020	0.030	0.600	0.050
Solids Total (mg/L)	82	110	82	77	100	100	95	100	400	61
Solids Total Suspended (mg/L)	10	25	6	2	<1	<1	1	<1	190	11
Temperature Field (°C)	10.6	7.5	9.5	13	18.4	26.4	22.3	20	8.6	5.4
Turbidity Field (NTU)	16	43	12	6	1	1	1 Est.	1	367	19

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SAMPLE_DATE	03/10/1997	04/29/1997	06/16/1997	07/07/1997	09/09/1997	10/13/1997	12/08/1997	01/05/1998	03/17/1998	04/13/1998
SAMPLE_TIME	12:35	15:20	14:25	13:15	12:30	16:10	12:45	13:35	15:57	15:50
Alkalinity Field (mg/L)	36	37	49	49	53	41	48	35	35	42
Ammonia (mg/L)	0.030	<0.02	0.04	0.02	0.04	0.03	0.04	<0.02	0.02	0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.5	0.6	0.3	1.1	0.3	0.7	0.8	1.1	0.8	1.1
Chemical Oxygen Demand (mg/L)	5	7	5	6	9	10	5	11	<5	6
Chlorophyll a (µg/L)			1.2	2.8	3.1	2.4				
Conductivity Field (µmhos/cm)	88	90	127	133	156	114	126	93	102	98
E. Coli MTEC (CFU/100 ml)	8 Est.	44 EST	<4	12 EST	145	56 Est.	156	48 Est.	20 Est.	30 Est.
Fecal Coliform Membrane filter (CFU/100 ml)	135	230	4 Est.	48 EST	205	64 Est.	200	130	48 Est.	24 Est.
Kjeldahl Nitrogen Total (mg/L)	<0.200	<0.2	<0.2	0.2	0.2	0.2	<0.2	0.2	<0.2	<0.2
Nitrate/nitrite Dissolved (mg/L as N)	0.06	<0.02	<0.02	<0.02	<0.02	0.03	0.05	0.14	0.06	0.04
Orthophosphate Dissolved (mg/L as P)	0.015	0.017	0.006	0.008	0.014	0.018	0.019	0.022	0.018	0.016
Oxygen, total dissolved Field (mg/L)	11.1	11.2	8.9	8.2	8.1	10.8	11.6	11.7	11.1	11.9
Oxygen, total dissolved Percent Saturation Field (%)	100	107	102	97	93	103	96	95	101	102
pH Field (SU)	7.80	8.2	8.1	8.2	8.5	8	8	7.6	7.8	7.9
Pheophytin a (µg/L)			0.9	1.4	4.3	6.3				
Phosphate Total (mg/L as P)	0.030	0.03	0.02	0.02	0.03	0.03	0.03	0.07	0.04	0.04
Solids Total (mg/L)	76	72	86	88	94	44	61	100	90	85
Solids Total Suspended (mg/L)	5	3	<1	<1	<1	3	3	17	2	3
Temperature Field (°C)	11	13.5	22.7	24.6	22.5	13.4	7.5	6.5	11.7	8.9
Turbidity Field (NTU)	12	8	1	1.4	1.1	5	5		7	16



# South Umpqua at Stewart Parkway (Roseburg)

SAMPLE_DATE	07/13/1998	09/21/1998	11/02/1998	01/14/1999	03/17/1999	05/04/1999	07/12/1999	09/14/1999	11/15/1999	01/24/2000
SAMPLE_TIME	14:10	14:00	13:55	10:20	10:35	15:30	13:40	12:55	14:15	14:40
Alkalinity Field (mg/L)	56	57	62	42	36	30	41	50	44	30
Ammonia (mg/L)	0.02	0.02	<0.02	0.03	0.03	<0.02	0.02	0.02	<0.02	<0.02
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	0.3	0.6	1.1	1.4	1.4	2.0	0.2	<0.1	0.7	0.7
Chemical Oxygen Demand (mg/L)	5	7	6	5	5	7	9	6	10	10
Chlorophyll a (µg/L)	0.8	0.8				1.8	1.2	1.0		
Conductivity Field (µmhos/cm)	147	157	181	106	89	80	115	142	139	85
E. Coli MTEC (CFU/100 ml)	10 Est.	106	32est	86	26 Est.	120	30 Est.	56	52	250EST
Fecal Coliform Membrane filter (CFU/100 ml)	24 Est.	112	80	76	52	150	32 Est.	84	88	200
Kjeldahl Nitrogen Total (mg/L)	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	0.2	<0.2	0.2
Nitrate/nitrite Dissolved (mg/L as N)	<0.02	<0.02	0.03	0.12	0.0637	<0.0050	0.0054	0.0069	0.0352	0.160
Orthophosphate Dissolved (mg/L as P)	0.014	0.009	0.012	0.020	0.017	0.012	0.008	0.013	0.022	0.021
Oxygen, total dissolved Field (mg/L)	8.8	8.6	10.6	11.8	11.5	11.8	8.5	8.1	9.7	11.7
Oxygen, total dissolved Percent Saturation Field (%)	101	93	98	98	105	101	101	92	96	97
pH Field (SU)	8.2	8.5	8.1	7.6	7.7	7.9	8.3	8.6	7.8	7.7
Pheophytin a (µg/L)	0.4	0.6				1.6	0.4	0.3		
Phosphate Total (mg/L as P)	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.05
Solids Total (mg/L)	92	110	110	73	68	46	77	85	100	89
Solids Total Suspended (mg/L)	2		<1	2	3	4	<1	<1	<1	8
Temperature Field (°C)	23	20.0	12.0	7.5	8.7	10.4	24.4	22.2	14.4	7.5
Turbidity Field (NTU)	1	1	2	7	9	7	1	1.0	3	23

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SAMPLE_DATE	03/21/2000	05/15/2000	07/24/2000	09/25/2000	11/06/2000	01/23/2001	03/12/2001	05/21/2001	07/17/2001	09/18/2001
SAMPLE_TIME	12:20	15:50	15:35	17:00	14:05	12:50	13:55	13:27	13:15	13:45
Alkalinity Field (mg/L)	30	37	48	54	54	50	43	35	46	60
Ammonia (mg/L)	<0.02	0.03	0.03	0.04	<0.02	0.02	<0.02	0.02	0.03	0.05
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.2	0.9	0.4	0.5	0.8	1.7	1.6	0.6	1.0	1.2
Chemical Oxygen Demand (mg/L)	7	<5	13	7	10	6	6	7	8	8
Chlorophyll a (µg/L)			1.9	0.4				1.1	1.0	1.3
Conductivity Field (µmhos/cm)	79	93	148	149	170	143	124	86	150	204
E. Coli MTEC (CFU/100 ml)	14EST	46	42	36est	18EST	28EST	6EST	10EST	20EST	40
Fecal Coliform Membrane filter (CFU/100 ml)	22EST	52	34EST	50	36EST	56	18EST	22EST	20EST	46
Kjeldahl Nitrogen Total (mg/L)	0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	<0.2	0.4	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.0227	<0.0050	0.0054	<0.0050	0.0356	<0.0050	<0.0050	<0.0050	0.0069	0.0146
Orthophosphate Dissolved (mg/L as P)	0.018	0.012	0.008	0.022	0.018	0.011	0.010	0.014	0.025	0.017
Oxygen, total dissolved Field (mg/L)	11.7	10.6	8.4	9.5	10.3	11.7	12.3	9.6	8.4	7.8
Oxygen, total dissolved Percent Saturation Field (%)	101	103	102	103	94	96	110	103	97	89
pH Field (SU)	7.4	8.2	8.4	8.9	8.0	7.2	8.4	8.0	9.0	9.1
Pheophytin a (µg/L)			<0.1	0.3				1.4	0.5	0.6
Phosphate Total (mg/L as P)	0.04	0.02	0.03	0.03	0.03	0.02	0.02	0.03	0.05	0.04
Solids Total (mg/L)	73	77	92	93	110	96	86	58	90	150
Solids Total Suspended (mg/L)	4	1	<1	<1	<1	1	<1	2	<1	<1
Temperature Field (°C)	9.1	14.7	25.3	19.9	11.6	6.8	10.3	18.5	22.8	21.8
Turbidity Field (NTU)	14	5	1.4	1	1.0	2	3	4	<1	1

**South Umpqua at Stewart Parkway (Roseburg)**

SAMPLE_DATE	11/27/2001	01/14/2002	03/11/2002	05/22/2002	07/16/2002	08/28/2002	09/09/2002
SAMPLE_TIME	13:35	13:00	13:45	14:23	13:45	17:10	14:47
Alkalinity Field (mg/L)	36	36	41	40	56	56	57
Ammonia (mg/L)	0.04	0.03	0.04	0.02	0.03	0.02	0.03
Biochemical Oxygen Demand 5 Day Un-Diluted(mg/L)	1.1	0.6	1.7	0.6	0.3	1.1	5.4
Chemical Oxygen Demand (mg/L)	15	6	6	<5	11	10	10
Chlorophyll a (µg/L)				0.7	2.0	1.7	0.7
Conductivity Field (µmhos/cm)	115	94	106	112	154	201	200
E. Coli MTEC (CFU/100 ml)	180EST	32 est	24EST	22 est	22	46	17
Fecal Coliform Membrane filter (CFU/100 ml)	140EST	46	34EST	50			
Kjeldahl Nitrogen Total (mg/L)	0.3	<0.2	<0.2	<0.2	0.5	0.3	0.3
Nitrate/nitrite Dissolved (mg/L as N)	0.271	0.173	0.0498	0.0110	0.429	0.0087	0.0157
Orthophosphate Dissolved (mg/L as P)	0.020	0.019	0.012	0.007	0.005	<0.005	<0.005
Oxygen, total dissolved Field (mg/L)	11.6	11.8	12.2	9.9	7.5	7.9	8.7
Oxygen, total dissolved Percent Saturation Field (%)	96	97	106	99	89	95	97
pH Field (SU)	7.5	7.8	8.1	7.9	8.7	8.7	9.0
Pheophytin a (µg/L)				1.0	1.4	0.5	0.7
Phosphate Total (mg/L as P)	0.05	0.04	0.02	0.02	0.17	0.02	0.02
Solids Total (mg/L)	86	70	70	78	100	130	120
Solids Total Suspended (mg/L)	6	2	<1	<1	2	2	<1
Temperature Field (°C)	7.4	7.1	8.7	15.9	25.1	25.5	21.2
Turbidity Field (NTU)	13	6	3	1	2	1.9	<1

**LASAR: 11522**