# Chehalis River Basin Water Quality Screening, January - March 1991

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## INTRODUCTION

A water quality screening of the Chehalis River Basin was performed by the Watershed Assessments Section of the Environmental Investigations and Laboratory Services Program (EILS) during January and March 1991. The objective of this monitoring study was to identify problem areas associated with runoff conditions. Fecal coliform concentrations were of particular concern.

The Chehalis River Basin covers approximately 2,100 square miles in southwestern Washington. The mainstem Chehalis River drains into Grays Harbor at Aberdeen. The larger tributaries of the Chehalis River included in this screening study were the Wynoochee, Satsop, Black, Skookumchuck, Newaukum, and the South Fork Chehalis Rivers (Figure 1 and Tables 1 and 2). The Wishkah River and the lower Chehalis Basin west of the Wynoochee River were excluded from the scope of this study due to tidal influence which extends as far inland as Montesano and the mouth of the Wynoochee River.

The upper mainstem and South Fork Chehalis drain uplands south and west of Adna. Two major tributaries in mid-basin, the Newaukum and Skookumchuck Rivers, headwater in foothills of the Cascade Range. The largest tributaries, the Satsop and Wynoochee Rivers, arise in the southern Olympic Mountains and join the mainstem just upstream from its entry into Grays Harbor.

Average annual precipitation in the watershed ranges from 50 inches near Centralia to over 200 inches in the upper Wynoochee watershed. Rainfall is greatest from November through March, with river discharge usually peaking between December and March (Kendra and Dickes, 1991).

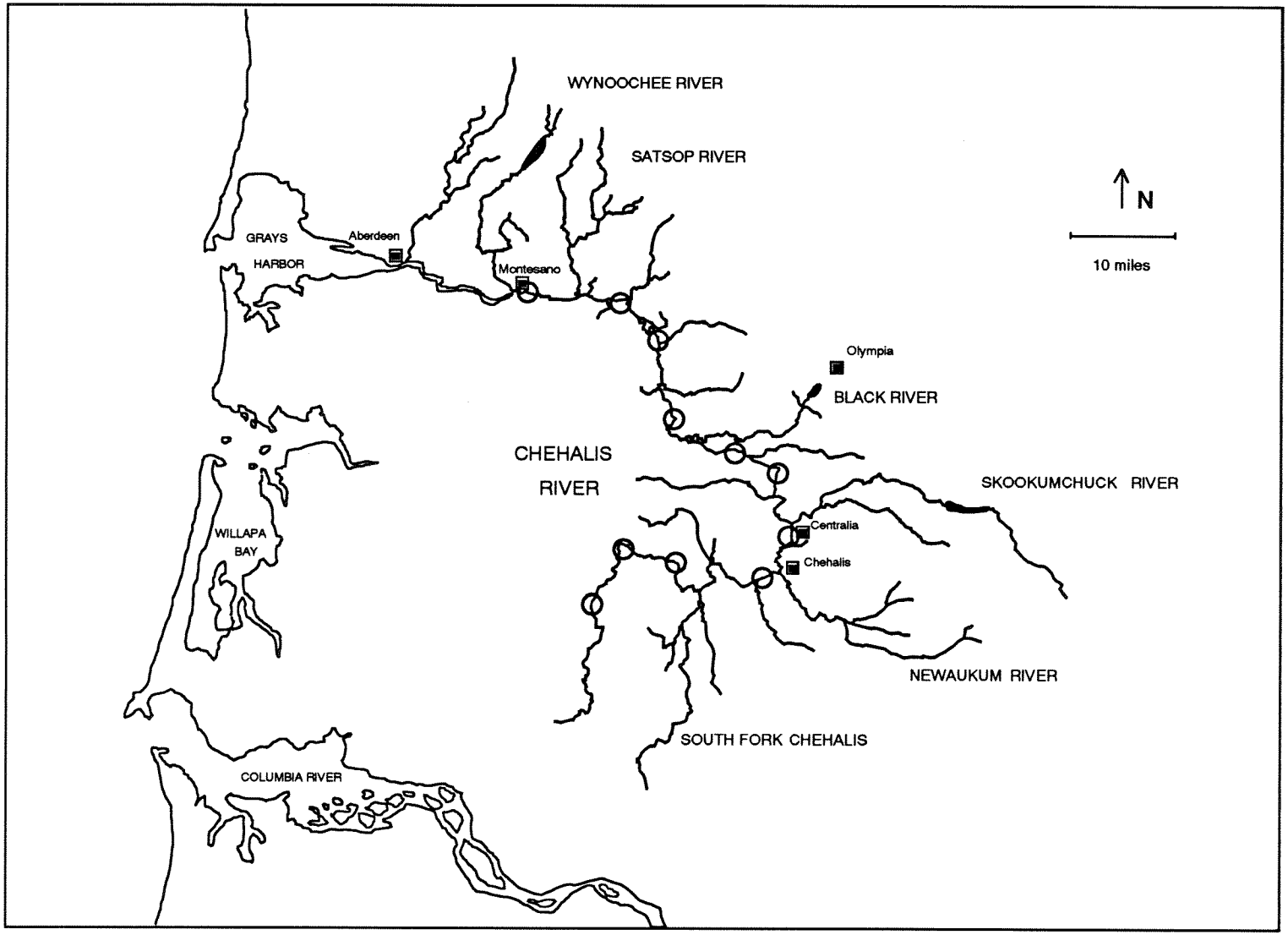


Figure 1. Chehalis River Basin in southwestern Washington.
General areas of mainstem water quality sampling are circled.

Table 1. Drainage characteristics of the Chehalis River and its major tributaries.

| | RM* | River Length (mi.) | Drainage Area (sq.mi.) | Mean Discharge (cfs)** |
|---|---|---|---|---|
| Chehalis River | -- | 123 | 2,110 | 8,500 |
| Wynoochee River | 13 | 64 | 190 | 1,300 |
| Satsop River | 20 | 26 | 300 | 2,000 |
| Black River | 47 | 26 | 126 | 162 |
| Skookumchuck River | 67 | 38 | 180 | 350 |
| Newaukum River | 75 | 33 | 160 | 490 |
| SF Chehalis River | 88 | 24 | 125 | 180 |

* RM = River Mile above mouth (Grays Harbor).

** Mean annual discharge as measured by USGS; period of record = 14-60 years.

Table 2. Mainstem sampling sites and major tributaries for the Chehalis River Basin (bank denotes loading source enters from right or left bank, facing downstream).

| Mainstem Site | River Mile | | Loading Source | Bank |
|---|---|---|---|---|
| State Route 6 at Pe Ell | 106.3 | | | |
| | | 100.2 | Elk Creek | L |
| Leudinghaus Road at Dryad | 98.3 | | | |
| Ceres Hill Road at Ceres | 90.0 | | | |
| | | 88.0 | S.F. Chehalis River | R |
| | | 84.6 | Bunker Creek | L |
| | | 78.0 | Stearns Creek | R |
| State Route 603 at Claquato | 77.6 | | | |
| | | 75.2 | Newaukum River | R |
| | | 74.4 | Dillenbaugh Creek | R |
| | | 69.2 | Salzer Creek | R |
| Mellen Street at Centralia | 67.5 | | | |
| | | 66.9 | Skookumchuck River | R |
| | | 61.8 | Lincoln Creek | L |
| Prather Road near Grand Mound | 59.9 | | | |
| | | 55.2 | Scatter Creek | R |
| Independence Road near Rochester | 54.2 | | | |
| | | 51.5 | Independence Creek | L |
| | | 47.0 | Black River | R |
| | | 44.9 | Garrard Creek | L |
| South Elma Road near Oakville | 44.0 | | | |
| | | 39.4 | Rock Creek | L |
| | | 38.8 | Cedar Creek | R |
| | | 33.3 | Porter Creek | R |
| Porter Creek Road at Porter | 33.3 | | | |
| | | 27.8 | Mox Chehalis Creek | R |
| | | 26.8 | Delezene Creek | L |
| | | 25.2 | Cloquallum Creek | R |

Table 2. Continued. Mainstem sampling sites and major tributaries for the Chehalis River Basin (bank denotes loading source enters from right or left bank, facing downstream).

| Mainstem Site | River Mile | Loading Source | Bank |
|---|---|---|---|
| Wakefield Road at South Elma | 23.9 | | |
| | 22.7 | Workman Creek | L |
| | 20.8 | Newman Creek | R |
| | 20.2 | Satsop River | R |
| State Route 107 near Montesano | 13.2 | | |
| | 13.0 | Wynoochee River | R |

Land use activities are primarily forestry in the higher elevations and agriculture in the river valleys. Major population centers in the study area include Centralia (12,000) and Chehalis (6,000).

Water quality in the Chehalis Basin is affected by both point and nonpoint (diffuse) pollution. There are 33 known point source dischargers in the study area (Pickett and Pelletier, 1992). Nearly half of these are located in the Centralia/Chehalis area. There are also a variety of diffuse sources of pollution including those from forest and agricultural practices, urban runoff, erosion, failure of onsite sewage disposal systems, landfill leachate, and ground water discharges.

## METHODS

Water quality sampling was conducted in the watershed over a 6-day period in January and again in March 1991. Due to logistics associated with scheduling laboratory analyses and field support, sampling dates were chosen months in advance. The dates were chosen with the expectation that we would be sampling during wet-weather runoff conditions.

Intensive surveys were performed on the Chehalis mainstem and in sub-basins. Six rivers and 17 creeks constituted the significant tributary sub-basins; Table 3 describes how the data were divided into basins for summary and comparison. Sampling locations were based on accessibility and historical water quality problems, as well as recommendations provided by the Southwest Regional Office.

Two sampling teams were deployed each day to complete the surveys. The mainstem was sampled from Montesano at river mile (RM) 13 to Pe Ell at RM 106. During the mainstem sampling runs, stations at the mouths of significant tributaries were also sampled. Sampling at the mainstem station at Montesano and the mouth of the Wynoochee River was timed to avoid tidal influence.

Sampling teams took replicate samples at 20 percent of their daily sites. Replication was increased to 100 percent on the mainstem Chehalis River sampling runs.

Parametric coverage, methodology, and detection limits are summarized in Table 4. All sites were analyzed for the same general parameters. However, some sites had additional parameters to address particular concerns. Polychlorinated biphenyls (PCB's) were analyzed in Coal Creek to check for contamination from the Lewis County PUD/Ross Electric Superfund site. Pentachlorophenols (PCP's) were tested for in Dillenbaugh Creek to follow-up on the 1986 American Crossarm and Conduit Spill. Metals and hardness were collected at three mainstem sites and at the mouths of the six tributary streams, including Salzer Creek, to identify general problem areas.

Table 3. Chehalis River basin descriptions with associated sampling areas.

| Basin No | Description | Basin Sampling Areas |
|---|---|---|
| 1 | Lower Mainstem (MS) | MS RM 13.2 through 59.9 |
| 2 | Middle Mainstem | MS RM 67.5 |
| 3 | Upper Mainstem | MS RM 81.1 through RM 106.3 |
| 4 | Wynoochee River | Wynoochee River, Black Creek, Sylvia, Wedekind, Carter, Schafer, and Big Creeks. |
| 5 | Satsop River | Satsop River, Decker, Bingham, and Canyon Creeks. |
| 6 | Lower MS Tributaries | Newman, Workman, Cloquallum, Delezene, and Mox Chehalis Creeks. |
| 7 | Lower & Middle MS Tributaries | Porter, Cedar, Rock, Garrard, and Independence Creeks. |
| 8 | Black River and Tributaries | Black River, Blooms Ditch, Salmon Creek, Beaver Mima, and Waddell Creeks. |
| 9 | Middle and Upper MS Tributaries | Scatter, Lincoln, Stearns, Bunker, and Elk Creeks. |
| 10 | Skookumchuck | Skookumchuck River, Hanaford, Johnson, and Thompson Creeks. |
| 11 | Salzer and Dillenbaugh and Middle MS Tributaries | Salzer, Dillenbaugh, Berwick, Coal, and China Creeks. |
| 12 | Newaukum River and Tributaries | Newaukum River, Lucas and Kerney Creeks. |
| 13 | South Fork Chehalis R. and Tributaries | South Fork Chehalis River, Stillman, Lake and Halfway Creeks. |

Table 4. Parametric Coverage and Methodology for Chehalis River Water Quality Screening, 1991.

| Parameter | Method of Analysis | Method (1) Reference | Detection Limit |
|---|---|---|---|
| Field | | | |
| pH | Beckman Meter | | 0.1 Std. units |
| Temperature | Beckman Thermistor | | 0.5°C |
| Dissolved Oxygen | Iodometric, Azide Modified | SM421A | 0.1 mg/L |
| Laboratory | | | |
| Specific conductance | Conductivity Cell | SM205 | 1 μmhos/cm |
| Chloride | Ion Chromatography | SM429 | 0.1 mg cl/L |
| Turbidity | Nephelometric | SM214A | 1 NTU |
| Total Suspended Solids | Gravimetric | SM209C | 1 mg/L |
| Fecal Coliform | Membrane Filter | SM909C | 1 CFU/100 mL |
| Ammonia-N | Phenate | EPA 350.1 | 0.01 mg/L |
| Nitrate+Nitrite-N | Cadmium Reduction | EPA 353.2 | 0.01 mg/L |
| Total Phosphorus-P | Ascorbic Acid | EPA 365.3 | 0.01 mg/L |
| Lead | Atomic Adsorption | SM 239.2/7421 | 1.0 μg/L |
| Cadmium | Atomic Adsorption | SM 213.2/7131 | 0.1 μg/L |
| Mercury | Atomic Adsorption | SM 245.1/245.5 | 0.04 μg/L |
| Copper | ICP | SM 200.7/6010 | 2.0 μg/L |
| Zinc | ICP | SM 200.7/6010 | 4.0 μg/L |
| Polychlorinated Biphenyls | Gas Chromatography | EPA 608 | 0.01 μg/L |
| Pentachlorophenol | Gas Chromatography | EPA 515 | 0.001 μg/L |

(1) SM: APHA, 1985
EPA: EPA, 1983

Grab samples were collected in mid-channel via wading, or using specialized sampling equipment on bridges. Samples were put on ice immediately and transported to Manchester Laboratory the morning following collection. Holding times were met for all analyses.

The antecedent precipitation index (API) was used to estimate differences in moisture conditions throughout the basin. The API was calculated using the equation of Linsley *et al.* (1975), which uses precipitation data for the 14 days preceding the first day of sampling. A "k" value of 0.98 was used in the API calculation for both months since evaporation was assumed to be minimal (Michaud, 1987).

**Quality Assurance**

Laboratory data can be found in Appendices 1 through 4. Some of the data have qualifiers associated with them. The qualifiers included:

- **"U"** - value was below detection limits (DL).
- **"J"** - value is an estimated result. For metals, the "J" flag is given to any number which is above the detection limit, but below the quantitation level (5xDL).
- **"B"** - reflects blank contamination with the analyte.
- **"BOF"** - signifies that the sample bottle was overfull and adequate homogenization of the sample may not have been possible before a subsample was taken.
- **"S"** - denotes that fecal coliform colonies were somewhat masked by other bacteria and therefore the value is an estimate.

On March 27, the replicate fecal coliform samples taken at Mima Creek at Bordeux Road in the Black River sub-basin were quite different, 1 CFU and 160 CFU. The variability is attributed to the natural variability in fecal coliform bacteria sampling.

The March 26 TSS values were qualified with a "B." The lab blanks analyzed with the TSS samples were out of the laboratories acceptable range. The samples were not blank-corrected and thus were qualified. However, since the blank contamination was far less than the method detection limit of 1 mg/L, the data were still considered usable.

The Beckman field pH meters were calibrated by each team at least once daily before sample measurements were taken. However, no inter-meter comparisons were made, so the variability between meters was not determined. Problems with the meters did periodically occur and therefore, some pH data could not be collected.

## RESULTS/DISCUSSION

Field and laboratory data are summarized in Tables 5 through 9. Complete results are reported in Appendices 1 through 4.

### Precipitation

The runoff potential in the basin during the sampling events in January and March was low (Appendices 5-7). There was minimal precipitation in the basin and daily flows were lower than the monthly means. Generally, the mean monthly flows for mainstem sites in January and March 1991, were lower than the monthly means for the recorded period 1940-1991. The API was highest during the first sampling day in January, but decreased thereafter. The API's for the sampling days in March were more stable than in January. The API's were higher in the lower basin (Aberdeen and Oakville), where precipitation generally is greater.

### pH

The freshwater Class A water quality criterion for pH states that values must fall within the range of 6.5 - 8.5 standard units (S.U.). As seen in Table 5, the criterion was exceeded on both ends of the range. The most notable exceedances occurred in China Creek at Ellsbury Street; the Mainstem Chehalis at S. Elma Road near Oakville; and in Garrard Creek at the Mattson Bridge. It is unclear whether the pH excursions found in this water quality screening study reflect site-specific events or reflect a larger basin-wide problem. From this limited data set the pH violations do not appear to be consistent. The pattern of pH excursions (high values in summer and low in the winter) as described by Pickett and Aroner (1992) was not reflected in these data.

### Dissolved Oxygen

Values not meeting the Class A dissolved oxygen (D.O.) water quality criterion of 8.0 mg/L were found in Dillenbaugh Creek at two lower reach stations (the railroad trestle and the I-5 B Bridge) during both January and March.

The D.O. problem in the lower mile of the creek has been a historic problem during low flow (Crawford, 1987a; Joy, 1984 and 1988; Pickett and Aroner, 1991). This study indicates that low dissolved oxygen may occur in lower Dillenbaugh Creek year-round. Probable explanations for this depression include: 1) oxygen-demanding loading sources from agricultural and industrial properties along the creek; 2) the minimum reaeration potential in this low-gradient reach; and 3) the presence of a marsh environment upstream.

Table 5. Locations of water quality violations for pH in the Chehalis River Basin, February and March 1991.

| Basin and Site Description | pH (S.U.)* January | pH (S.U.)* March |
|---|---|---|
| UPPER CHEHALIS RIVER MAINSTEM (MS) | | |
| MS at PeEll | 6.4* | 7.9 |
| | 8.0 | ND |
| MIDDLE AND UPPER MS TRIBUTARIES | | |
| Scatter Creek at | | |
| James Rd | 8.8* | ND |
| Pacific Hwy SW | 8.6* | ND |
| LOWER AND MIDDLE MS TRIBUTARIES | | |
| Garrard Creek at | | |
| Mattson bridge | 6.8 | 8.9* |
| DILLENBAUGH/SALZER SUB-BASIN | | |
| China Creek at | | |
| Ellsbury St | 7.4 | 9.4* |
| SKOOKUMCHUCK SUB-BASIN | | |
| Run Creek | 8.6* | 7.9 |
| CHEHALIS RIVER LOWER MS | | |
| Lower MS at | | |
| Oakville | 6.9 | 7.4 |
| | 6.7 | 8.9* |
| SATSOP SUB-BASIN | | |
| Middle Fork Satsop at | | |
| FS Rd 2153 and Kelly Rd | 8.6* | 7.8 |
| West Fork Satsop at | | |
| Cougar Smith Rd | 8.7* | ND |

* Class A water quality criterion violation

** ND – no data collected

Table 6. Sites on Dillenbaugh Creek which exceeded the Class A Dissolved Oxygen Criterion.

| Sites | D.O. (mg/L) January | D.O. (mg/L) March |
|---|---|---|
| Railroad Trestle (Main Street access) | 6.8 | 4.3 |
| At I-5 Bridge | 7.7 | 4.8 |

**Conductivity**

Table 7 shows that the mean conductivity of the Skookumchuck sub-basin was elevated compared to other sub-basins. This resulted from exceptionally high conductivities found in Hanaford Creek during both January (mean = 213 $\mu$mhos/cm) and March (mean = 204 $\mu$mhos/cm).

There is no water quality criterion for conductivity; however, the levels in Hanaford Creek are remarkably higher than the rest of Chehalis Basin. Increased conductivity in this creek was also seen by McCall (1971). Probable sources are the surface coal mining operation and electric power plant that are located in the watershed.

**Turbidity/TSS**

The Newaukum River sub-basin had high mean turbidity and TSS values (Table 7). This was the result of a 5 - 6 acre landslide that occurred on the North Fork Newaukum River one day before our sampling (Chehalis River Council, 1991). If the exceptionally high turbidity (1,120 NTU) and TSS (2,150 mg/L) values are eliminated from the basin calculations, the mean concentrations drop down to levels consistent with the rest of the basin (*i.e.*, 6 NTU and 5 mg/L, respectively).

**Nitrate**

The mean nitrate-nitrite concentration for the Chehalis River mainstem was 0.73 mg/L. Table 7 shows elevated concentrations occurring in the: upper mainstem tributaries (Lincoln, Scatter, and Stearns Creeks); Skookumchuck Basin (Johnson and Run Creeks); Dillenbaugh/Salzer Basin (China, Coal, and Salzer Creeks); Newaukum Basin (Kearney and Lucas Creeks, and Newaukum River); Black River Basin (Black River and Salmon Creek); and middle mainstem tributaries (Garrard, Independence, and Rock Creeks).

**Fecal Coliform**

Due to insufficient sample size, comparisons to the water quality criterion were not made for fecal coliform. However, the data do show areas where elevated levels were found and where future sampling efforts could be concentrated (Table 8).

Table 7. Summary of data collected in the Chehalis River Basin, January and March 1991.

| | | Chehalis Basin | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lower | Mid | Upper | Wynoochee | Satsop | Lower Tribs | Lower & Mid Tribs | Black River | Mid & Upper Tribs | Skookumchuck River | Dillenbaugh Salzer & Mid Tribs | Newaukum | South Fork Chehalis |
| Temp | min | 3 | 3 | 3 | 3 | 4 | 5 | 3 | 2 | 3 | 1 | 2 | 1 | 1 |
| (°C) | max | 9 | 8 | 8 | 8 | 8 | 9 | 14 | 10 | 6 | 8 | 8 | 8 | 8 |
| | mean | 6 | 6 | 5 | 5 | 6 | 6 | 7 | 6 | 4 | 4 | 5 | 4 | 4 |
| pH | min | 6.7 | 6.7 | 6.4 | 6.7 | 7.5 | 6.7 | 6.7 | 6.8 | 7.5 | 6.5 | 6.7 | 7.0 | 7.1 |
| (s.u.) | max | 8.9 | 7.8 | 8.4 | 7.6 | 8.7 | 7.7 | 8.9 | 7.9 | 8.8 | 8.5 | 9.4 | 8.0 | 8.5 |
| | mean | 7.4 | 7.3 | 7.5 | 7.2 | 8.0 | 7.2 | 7.2 | 7.3 | 8.1 | 7.2 | 7.3 | 7.5 | 7.9 |
| D.O. | min | 10.6 | 11.3 | 11.7 | 10.9 | 11.2 | 8.1 | 10.8 | 9.7 | 10.5 | 9.9 | 4.3 | 11.5 | 11.3 |
| (mg/L) | max | 15.6 | 15.6 | 14.3 | 14.0 | 13.5 | 13.5 | 13.9 | 16.1 | 15.0 | 17.2 | 15.4 | 16.7 | 14.0 |
| | mean | 12.2 | 12.6 | 13.0 | 12.5 | 12.3 | 12.0 | 12.4 | 13.0 | 12.3 | 13.7 | 12.4 | 13.1 | 12.9 |
| Cond | min | 69 | 62 | 60 | 36 | 46 | 41 | 42 | 43 | 55 | 45 | 22 | 29 | 53 |
| (μmhos/cm) | max | 87 | 77 | 74 | 65 | 64 | 67 | 79 | 97 | 94 | 274 | 116 | 78 | 79 |
| | mean | 78 | 69 | 64 | 48 | 54 | 56 | 57 | 68 | 67 | 124 | 77 | 53 | 63 |
| Turb | min | 4.5 | 5.6 | 0.5 | 0.1 | 0.2 | 1.0 | 1.0 | 0.8 | 1.2 | 1.2 | 4.5 | 1.3 | 1.1 |
| (NTU) | max | 14.0 | 12.0 | 6.4 | 6.0 | 5.2 | 6.5 | 6.5 | 28.5 | 11.5 | 14.0 | 11.5 | 1120 | 8.8 |
| | mean | 7.3 | 8.5 | 3.0 | 1.6 | 1.0 | 2.5 | 2.9 | 2.0 | 4.7 | 8.2 | 8.0 | 48.5 | 5.0 |
| TSS | min | 2 | 6 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| (mg/L) | max | 31 | 18 | 26 | 11 | 16 | 10 | 13 | 5 | 28 | 11 | 6 | 2150 | 8 |
| | mean | 10 | 11 | 6 | 4 | 4 | 4 | 5 | 2 | 7 | 5 | 4 | 92 | 3 |
| CL | min | 3 | 4 | 3 | 1 | 1 | 2 | 3 | 2 | 3 | 1 | 2 | 2 | 3 |
| (mg/L) | max | 5 | 5 | 5 | 4 | 2 | 4 | 5 | 5 | 5 | 9 | 9 | 6 | 5 |
| | mean | 4 | 4 | 4 | 2 | 2 | 3 | 4 | 4 | 5 | 4 | 4 | 3 | 4 |
| TP-P | min | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 |
| (mg/L) | max | 0.07 | 0.08 | 0.07 | 0.03 | 0.04 | 0.07 | 0.07 | 0.11 | 0.10 | 0.07 | 0.10 | 0.10 | 0.05 |
| | mean | 0.05 | 0.05 | 0.03 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.04 | 0.05 | 0.03 | 0.02 |
| NH3-N | min | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 |
| (mg/L) | max | 0.06 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.05 | 0.16 | 0.07 | 0.05 | 0.10 | 0.06 | 0.11 |
| | mean | 0.03 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 |
| NO3+NO2-N | min | 0.59 | 0.66 | 0.33 | 0.05 | 0.03 | 0.23 | 0.44 | 0.13 | 0.39 | 0.39 | 0.01 | 0.52 | 0.24 |
| (mg/L) | max | 0.99 | 0.92 | 0.82 | 0.51 | 0.39 | 0.99 | 1.65 | 1.80 | 2.46 | 1.50 | 2.05 | 2.38 | 0.93 |
| | mean | 0.83 | 0.77 | 0.58 | 0.24 | 0.18 | 0.64 | 0.82 | 0.66 | 0.90 | 0.88 | 0.99 | 0.95 | 0.45 |
| FC | min | 6 | 6 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| (CFU) | max | 140 | 60 | 19 | 14 | 9 | 16 | 76 | 670 | 205 | 85 | 8300 | 89 | 390 |
| | mean | 28 | 16 | 7 | 2 | 1 | 4 | 4 | 22 | 7 | 4 | 71 | 16 | 7 |

Table 8. Elevated fecal coliform bacteria concentrations found in the Chehalis River Basin, January and March 1991.

| Site Description | Fecal Coliform (CFU) January | | Fecal Coliform (CFU) March | |
|---|---|---|---|---|
| UPPER CHEHALIS RIVER TRIBUTARIES | | | | |
| LINCOLN CREEK at | | | | |
| Echo Road | 200 | S | 210 | S |
| SOUTH FORK CHEHALIS RIVER | | | | |
| South Fork Chehalis at | | | | |
| Boistfort School bridge | 390 | | 14 | |
| DILLENBAUGH/SALZER SUB-BASIN | | | | |
| Dillenbaugh Creek at | | | | |
| Rice Road | 3200 | J | 2900 | |
| RR Bridge (west of Chehalis) | 19 | | 110 | |
| I-5 Bridge | 22 | | 100 | |
| Salzer Creek at | | | | |
| Centralia-Alpha Road | 110 | | 8300 | J |
| I-5 Bridge | 84 | S | 860 | |
| BERWICK CREEK at | | | | |
| LaBree Road | 2400 | J | 590 | |
| CHINA CREEK at | | | | |
| Ellsbury Street | 810 | | 84 | |
| BLACK RIVER SUB-BASIN | | | | |
| Black River at | | | | |
| Littlerock Bridge | 10 | | 210 | |
| Swecker's dock | 440 | S | 74 | |
| Moon Road Bridge | 540 | | 549 | J |
| Howanut Road | 546 | | 5 | |
| Beaver Creek at | | | | |
| Littlerock Road | 67 | | 339 | J |
| CHEHALIS RIVER LOWER MAINSTEM | | | | |
| Lower Mainstem at | | | | |
| Oakville | 140 | | 63 | |

Fecal coliform levels were elevated in the Black River mainstem from below the Littlerock Bridge downstream to the Howanut Road Bridge. This is consistent with wet season data collected by Dickes (1990) and Blocher (1991).

Elevated fecal coliform levels were also found in the Dillenbaugh/Salzer sub-basin. Bacteria were particularly high at the following locations: Berwick Creek at La Bree Road, Salzer Creek at Centralia-Alpha Road, Dillenbaugh Creek at Rice Road; and in China Creek at Ellsbury Street. Elevated bacteria in Berwick, Salzer, and Dillenbaugh Creeks were previously identified by Crawford (Crawford, 1987a, b).

**PCB/PCP**

PCB and PCP data for Coal and Dillenbaugh Creeks can be found in Appendix 3. All PCB concentrations on Coal Creek were below method detection limits. Low concentrations of PCP were detected in samples collected from the lower reach of Dillenbaugh Creek; the Rice Road site had a concentration of 0.007 $\mu$g/L, and the site at the railroad bridge below American Crossarm and Conduit had a concentration of 0.097 $\mu$g/L. Levels were below EPA's, pH dependent, chronic and acute toxicity criteria (USEPA, 1986). Levels were also below those found by Yake (1987).

**Metals**

Table 9 compares total recoverable metals data from select sites in the Chehalis Basin compared to chronic and acute toxicity criteria (USEPA, 1986). Copper concentrations exceeded criteria in January at the mainstem site at Pe Ell and at the mouth of the Newaukum River. Copper was generally high basin-wide, but values were close enough to the detection limit to warrant an "estimated" qualifier, which limits confidence in their significance. Lead, cadmium, and mercury were also elevated at certain sites in the basin, but again values were too close to detection limits to be confident of their accuracy.

## CONCLUSIONS/RECOMMENDATIONS

- Low moisture conditions predominated in the Chehalis Basin during both January and March 1991 sampling periods. Therefore, the data collected during this project may not reflect the water quality of wet weather runoff in the basin. Additional work would probably be needed to characterize true wet season conditions.

- Further investigation at locations with elevated pH should be considered to determine if elevated pH occurs routinely.

- Efforts should be directed to identify and remediate the sources for oxygen depression in the lower reach of Dillenbaugh Creek.

Table 9. Chehalis River metals data (μg/L) compared to EPA chronic and acute toxicity criteria.

| Date | Site description | Lab # | Pb | Pb Chronic | Pb Acute | Cd | Cd Chronic | Cd Acute | Hg | Hg Chronic | Hg Acute | Cu | Cu Chronic | Cu Acute | Zn | Zn Chronic | Zn Acute | Hard |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin 1 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | MS @ PRATHER RD | 48452 | 1 U | 0.56 | 14.48 | 0.1 U | 0.39 | 0.85 | 0.04 U | 0.012 | 2.4 | 6.7 J* | 3.70 | 4.93 | 4 U | 33.52 | 37.01 | 25.7 |
| 19-Mar-91 | MS @ PRATHER RD | 128452 | 3.9 J* | 0.53 | 13.55 | 0.34 J* | 0.37 | 0.80 | 0.04 U | 0.012 | 2.4 | 2 U | 3.54 | 4.69 | 4 U | 32.08 | 35.42 | 24.4 |
| Basin 3 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | MS @ PeELL | 48462 | 1 U | 0.44 | 11.27 | 0.1 U | 0.33 | 0.68 | 0.04 U | 0.012 | 2.4 | 17 * | 3.13 | 4.09 | 7.5 J | 28.36 | 31.31 | 21.1 |
| 19-Mar-91 | MS @ PeELL | 128462 | 1 J* | 0.44 | 11.20 | 0.1 U | 0.33 | 0.67 | 0.04 U | 0.012 | 2.4 | 2 U | 3.12 | 4.07 | 4 U | 28.25 | 31.19 | 21.0 |
| Basin 4 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | WYNOOCHEE R MONT-ABERDN RD | 48444 | 1 U | 0.38 | 9.66 | 0.1 U | 0.30 | 0.59 | 0.04 U | 0.012 | 2.4 | 4 J* | 2.82 | 3.65 | 4 U | 25.60 | 28.27 | 18.7 |
| 19-Mar-91 | WYNOOCHEE R MONT-ABERDN RD | 128444 | 1 U | 0.39 | 10.12 | 0.1 U | 0.31 | 0.62 | 0.04 U | 0.012 | 2.4 | 2 U | 2.91 | 3.78 | 4 U | 26.41 | 29.16 | 19.4 |
| Basin 5 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | SATSOP R @ I-5 BRIDGE | 48446 | 1 U | 0.40 | 10.26 | 0.1 U | 0.32 | 0.62 | 0.04 U | 0.012 | 2.4 | 3.7 J* | 2.94 | 3.82 | 4 U | 26.64 | 29.42 | 19.6 |
| 19-Mar-91 | SATSOP R @ I-5 BRIDGE | 128446 | 1 U | 0.36 | 9.33 | 0.1 U | 0.30 | 0.57 | 0.05 J* | 0.012 | 2.4 | 2 U | 2.76 | 3.56 | 4 U | 25.02 | 27.63 | 18.2 |
| Basin 7 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | PORTER Cr @ PORTER Cr RD | 128439 | 1 U | 0.52 | 13.41 | 0.1 U | 0.37 | 0.79 | 0.04 J* | 0.012 | 2.4 | 2 U | 3.52 | 4.66 | 4 U | 31.86 | 35.17 | 24.2 |
| 22-Jan-91 | PORTER Cr @ PORTER Cr RD | 48439 | 1 U | 0.54 | 13.84 | 0.1 U | 0.38 | 0.81 | 0.04 U | 0.012 | 2.4 | 5 J* | 3.59 | 4.76 | 4 U | 32.52 | 35.91 | 24.8 |
| 19-Mar-91 | PORTER Cr @ PORTER Cr RD | 128438 | 1 U | 0.54 | 13.84 | 0.1 U | 0.38 | 0.81 | 0.04 U | 0.012 | 2.4 | 4 J* | 3.59 | 4.76 | 4 U | 32.52 | 35.91 | 24.8 |
| 19-Mar-91 | PORTER Cr @ PORTER Cr RD | 48438 | 1 U | 0.56 | 14.27 | 0.1 U | 0.39 | 0.84 | 0.04 U | 0.012 | 2.4 | 4.7 J* | 3.67 | 4.87 | 4 U | 33.19 | 36.64 | 25.4 |
| Basin 8 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | BLACK R @ HOWANUT BRIDGE | 128448 | 1.3 J* | 0.62 | 16.00 | 0.1 U | 0.42 | 0.93 | 0.04 U | 0.012 | 2.4 | 2 U | 3.96 | 5.31 | 4 U | 35.83 | 39.56 | 27.8 |
| 19-Mar-91 | BLACK R @ HOWANUT BRIDGE | 48448 | 1 U | 0.59 | 15.20 | 0.1 U | 0.40 | 0.88 | 0.04 U | 0.012 | 2.4 | 3.7 J | 3.83 | 5.11 | 4 U | 34.62 | 38.23 | 26.7 |
| Basin 10 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | SKOOK @ HARRISON BRIDGE | 48450 | 1 U | 0.66 | 16.89 | 0.1 U | 0.43 | 0.97 | 0.04 U | 0.012 | 2.4 | 5.3 J* | 4.11 | 5.52 | 4 U | 37.13 | 41.00 | 29.0 |
| 19-Mar-91 | SKOOK @ HARRISON BRIDGE | 128450 | 1 U | 0.58 | 14.98 | 0.1 U | 0.40 | 0.87 | | 0.012 | 2.4 | 2 U | 3.79 | 5.05 | 4 U | 34.29 | 37.86 | 26.4 |
| Basin 11 | | | | | | | | | | | | | | | | | | |
| 21-Jan-91 | SALZER Cr UNDER I-5 BRIDGE | 48403 | 1 U | 0.69 | 17.78 | 0.1 U | 0.44 | 1.02 | 0.04 U | 0.012 | 2.4 | 4.7 J* | 4.25 | 5.74 | 4.7 J | 38.43 | 42.43 | 30.2 |
| 18-Mar-91 | SALZER Cr UNDER I-5 BRIDGE | 128403 | 1 U | 0.73 | 18.61 | 0.1 U | 0.46 | 1.06 | 0.04 U | 0.012 | 2.4 | 2 U | 4.38 | 5.93 | 4 U | 39.61 | 43.74 | 31.3 |
| 21-Jan-91 | SALZER Cr @ REINKE RD XING | 48402 | 1 U | 0.99 | 25.35 | 0.1 U | 0.55 | 1.39 | 0.04 U | 0.012 | 2.4 | 6 J* | 5.39 | 7.46 | 4 U | 48.66 | 53.72 | 39.9 |
| 18-Mar-91 | SALZER Cr @ REINKE RD XING | 128402 | 1 U | 1.00 | 25.67 | 0.1 U | 0.56 | 1.41 | 0.04 U | 0.012 | 2.4 | 2 U | 5.44 | 7.53 | 4 U | 49.07 | 54.18 | 40.3 |
| Basin 12 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | NEWAUKUM R MOUTH | 48464 | 1 U | 0.48 | 12.29 | 0.1 U | 0.35 | 0.73 | 0.04 U | 0.012 | 2.4 | 23.3 * | 3.32 | 4.37 | 14 J | 30.06 | 33.19 | 22.6 |
| 19-Mar-91 | NEWAUKUM R MOUTH | 128464 | 1 U | 0.42 | 10.79 | 0.1 U | 0.33 | 0.65 | 0.1 J | 0.012 | 2.4 | 9.2 J* | 3.04 | 3.96 | 4 U | 27.56 | 30.43 | 20.4 |
| Basin 13 | | | | | | | | | | | | | | | | | | |
| 22-Jan-91 | SFORK @ SR6 RR TRESTLE | 48466 | 1 U | 1.26 | 32.33 | 0.1 U | 0.64 | 1.73 | 0.04 U | 0.012 | 2.4 | 8.3 J* | 6.35 | 8.93 | 4 U | 57.21 | 63.16 | 48.3 |

*Exceeds EPA toxicity criteria

- The elevated conductivities on Hanaford Creek should be investigated to confirm source locations and identify if other water quality problems are present.

- Elevated nitrates were detected in the middle and upper portions of the Chehalis River Basin. Efforts to correlate nitrates to current land use information would be insightful.

- Bacterial contamination of Dillenbaugh and Salzer Creeks warrants further site investigations followed by remedial action. These areas historically have had elevated FC levels.

- Poor livestock management practices were particularly evident on Berwick Creek at La Bree Road. This location has been recognized historically as a problem area and immediate action to improve management practices should be initiated.

- The extent of the bacterial problem on China Creek is unclear from this screening survey. Further water quality monitoring would be needed for a more adequate assessment.

- Fecal coliform levels were elevated in the Black River mainstem from Littlerock Bridge downstream to the Howanut Road Bridge. Ecology's Watershed Assessments Section has been awarded a Federal 319 Grant to develop a Total Maximum Daily Load (TMDL) for bacterial contamination in the Black River drainage. The wet season TMDL study is currently in progress.

- Levels of PCB in Coal Creek and PCP in Dillenbaugh Creek were below levels of concern during winter. If further investigations were to be performed for these priority pollutants, sediment sampling would be advised.

- A follow-up investigation should be initiated to confirm the elevated copper levels and to determine whether these levels are occurring naturally or from human sources. Lower method detection limits should be requested for metals analyses in future monitoring efforts.

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# APPENDICES

Appendix 1. Chehalis field data, January and March 1991.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 27-Mar-91 | BL | 1 | MS @ INDEPENDENCE RD | 138198 | 930 | 7.0 | 7.3 | 11.5 |
| 30-Jan-91 | BL | 1 | MS @ INDEPENDENCE RD | 58198 | 934 | 2.7 | 7.4 | 15.6 |
| 30-Jan-91 | BL | 2 | MS @ S ELMA RD OAKVILLE | 58199 | 828 | 2.7 | 7.7 | 15.2 |
| 27-Mar-91 | BL | 2 | MS @ S ELMA RD OAKVILLE | 138199 | 830 | 6.1 | 7.5 | 11.4 |
| 27-Mar-91 | BL | 3 | BKGRND MIMA Cr @ BORDEUX R | 138200 | 1110 | 5.6 | 7.9 | 9.6 |
| 30-Jan-91 | BL | 3 | MS @ S ELMA RD OAKVILLE | 58200 | 832 | 2.7 | 7.7 | 15.1 |
| 30-Jan-91 | BL | 4 | BKGRND MIMA Cr @ BORDEUX R | 58201 | 1130 | 3.9 | 7.4 | 16.0 |
| 27-Mar-91 | BL | 4 | BKGRND MIMA Cr @ BORDEUX R | 138201 | 1115 | 5.6 | 7.9 | 12.3 |
| 30-Jan-91 | BL | 5 | BLACK R @ HOWANUT RD | 58202 | 900 | 3.2 | 7.0 | 13.2 |
| 27-Mar-91 | BL | 5 | BLACK R @ HOWANUT RD | 138202 | 845 | 7.0 | 7.3 | 9.8 |
| 27-Mar-91 | BL | 6 | BLACK R @ MOON RD BRDG | 138203 | 955 | 7.8 | 7.4 | 9.7 |
| 30-Jan-91 | BL | 6 | BLACK R @ MOON RD BRDG | 58203 | 1002 | 3.1 | 7.1 | 12.6 |
| 27-Mar-91 | BL | 7 | BLK R @ 110th AVE BRDG | 138204 | 1325 | 8.1 | 7.4 | 12.0 |
| 30-Jan-91 | BL | 7 | BLK R @ 110th AVE BRDG | 58204 | 1242 | 1.6 | 6.9 | 13.0 |
| 30-Jan-91 | BL | 8 | BLACK R @ LITTLE ROCK | 58205 | 1219 | 2.6 | 6.9 | 13.7 |
| 27-Mar-91 | BL | 8 | BLACK R @ LITTLE ROCK | 138205 | 1150 | 7.7 | 7.2 | 10.0 |
| 30-Jan-91 | BL | 9 | BLACK R @ LITTLE ROCK | 58206 | 1222 | 2.6 | 6.9 | 13.9 |
| 27-Mar-91 | BL | 9 | BLACK R @ MOON RD BRDG | 138206 | 1000 | 7.6 | 7.3 | 9.7 |
| 27-Mar-91 | BL | 10 | MIMA Cr @ RR BRDG | 138207 | 1030 | 6.2 | 7.8 | 12.2 |
| 30-Jan-91 | BL | 11 | BLACK R @ SWECKER'S DOCK | 58208 | 1425 | 3.7 | 7.0 | 12.3 |
| 27-Mar-91 | BL | 11 | BLACK R @ SWECKER'S DOCK | 138208 | 1230 | 8.4 | 7.3 | 12.4 |
| 30-Jan-91 | BL | 12 | BLOOMS DITCH @ 110th BRDG | 58209 | 1302 | 2.4 | 6.8 | 15.0 |
| 27-Mar-91 | BL | 12 | BLOOMS DITCH @ 110th BRDG | 138209 | 1340 | 10.2 | 7.5 | 10.6 |
| 27-Mar-91 | BL | 13 | SALMON Cr @ LITL RK RD BRDG | 138210 | 1350 | 8.5 | 7.4 | 10.3 |
| 30-Jan-91 | BL | 13 | SALMON Cr @ LITL RK RD BRDG | 58210 | 1315 | 2.0 | 6.8 | 14.1 |
| 27-Mar-91 | BL | 14 | BEAVER Cr @ LITTLE ROCK RD | 138211 | 1300 | 8.3 | 7.5 | 11.4 |
| 30-Jan-91 | BL | 14 | BEAVER Cr @ LITTLE ROCK RD | 58211 | 1334 | 3.1 | 7.0 | 15.4 |
| 27-Mar-91 | BL | 15 | MIMA Cr @ GATE RD SW | 138212 | 1055 | 6.3 | 7.8 | 12.0 |
| 30-Jan-91 | BL | 15 | MIMA Cr @ RR BRDG | 58212 | 1031 | 2.7 | 7.5 | 16.1 |
| 27-Mar-91 | BL | 16 | BEAVER Cr @ LITTLE ROCK RD | 138213 | 1305 | 8.1 | 7.4 | 11.4 |
| 30-Jan-91 | BL | 16 | MIMA Cr @ GATE RD SW | 58213 | 1103 | 3.2 | 7.4 | 15.7 |
| 30-Jan-91 | BL | 17 | WADDELL Cr @ WADDELL RD | 58214 | 1152 | 3.7 | 7.2 | 15.9 |
| 27-Mar-91 | BL | 17 | WADDELL Cr @ WADDELL RD | 138214 | 1135 | 6.7 | 7.8 | 12.3 |
| 21-Jan-91 | DS | 1 | MS @ MELLEN ST BRIDGE | 48400 | 1340 | 4.5 | 7.0 | 13.2 |
| 18-Mar-91 | DS | 1 | MS @ MELLEN ST BRIDGE | 128400 | 1153 | 7.6 | 7.3 | 11.2 |
| 18-Mar-91 | DS | 2 | MS @ MELLEN ST BRIDGE | 128401 | 1158 | 7.2 | 7.3 | 11.4 |
| 21-Jan-91 | DS | 2 | MS @ MELLEN ST BRIDGE | 48401 | 1340 | 4.4 | 7.1 | 13.1 |
| 21-Jan-91 | DS | 3 | SALZER Cr @ REINKE RD XING | 48402 | 1640 | 4.0 | 7.3 | 13.4 |
| 18-Mar-91 | DS | 3 | SALZER Cr @ REINKE RD XING | 128402 | 1345 | — | 7.6 | 11.4 |
| 21-Jan-91 | DS | 4 | SALZER Cr UNDER I-5 BRIDGE | 48403 | 1255 | 3.1 | 6.9 | 12.2 |
| 18-Mar-91 | DS | 4 | SALZER Cr UNDER I-5 BRIDGE | 128403 | 1110 | 6.9 | 7.0 | 10.0 |
| 21-Jan-91 | DS | 5 | SALZER Cr @ PROFFIT RD CULV | 48404 | 1550 | 3.2 | 7.0 | 12.8 |
| 18-Mar-91 | DS | 5 | SALZER Cr @ PROFFIT RD CULV | 128404 | 1315 | 6.3 | 7.2 | 10.9 |
| 18-Mar-91 | DS | 6 | COAL Cr @ SUNBIRD | 128405 | 1230 | 5.9 | 7.0 | 11.6 |
| 21-Jan-91 | DS | 6 | SALZER Cr @ PROFFIT RD CULV | 48405 | 1550 | 3.1 | 7.0 | 12.9 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 21-Jan-91 | DS | 7 | SAL Cr @ CENTRALIA-ALPHA RD | 48406 | 1525 | 3.8 | 7.2 | 14.1 |
| 18-Mar-91 | DS | 7 | SAL Cr @ CENTRALIA-ALPHA RD | 128406 | 1255 | 6.5 | 7.3 | 12.0 |
| 18-Mar-91 | DS | 8 | NF SALZER @ WOOD BRIDGE | 128407 | 1330 | — | 7.3 | 11.8 |
| 21-Jan-91 | DS | 8 | NF SALZER @ WOOD BRIDGE | 48407 | 1610 | 4.0 | 7.1 | 13.5 |
| 18-Mar-91 | DS | 9 | COAL Cr @ SUNBIRD | 128408 | 1225 | 6.1 | 7.0 | 11.7 |
| 21-Jan-91 | DS | 9 | COAL Cr @ SUNBIRD | 48408 | 1450 | 3.3 | 7.0 | 13.5 |
| 21-Jan-91 | DS | 10 | CHINA Cr @ ELLSBURY ST | 48409 | 1315 | 4.6 | 7.4 | 14.4 |
| 18-Mar-91 | DS | 10 | CHINA Cr @ ELLSBURY ST | 128409 | 1123 | 7.6 | 9.4 | 15.4 |
| 21-Jan-91 | DS | 11 | BERWICK Cr @ LOGAN HILL RD | 48410 | 1130 | 1.9 | 6.9 | 14.5 |
| 18-Mar-91 | DS | 11 | BERWICK Cr @ LOGAN HILL RD | 128410 | 1005 | 5.7 | 7.4 | 13.2 |
| 18-Mar-91 | DS | 12 | BERWICK Cr @ LOGAN HILL RD | 128411 | 1010 | 5.8 | 7.3 | 13.1 |
| 21-Jan-91 | DS | 12 | BERWICK Cr @ LOGAN HILL RD | 48411 | 1130 | 1.8 | 6.8 | 14.4 |
| 18-Mar-91 | DS | 13 | DILLENBAUGH Cr UNDER I-5 | 128412 | 800 | 6.5 | 6.7 | 4.8 |
| 21-Jan-91 | DS | 13 | DILLENBAUGH Cr UNDER I-5 | 48412 | 900 | 3.2 | 6.7 | 7.7 |
| 18-Mar-91 | DS | 14 | DILL Cr @ RR BRIDGE | 128413 | 825 | 6.4 | 6.7 | 4.3 |
| 21-Jan-91 | DS | 14 | DILL Cr @ RR BRIDGE | 48413 | 945 | 3.2 | 6.7 | 6.8 |
| 21-Jan-91 | DS | 15 | DILL Cr @ ROCK HOUSE | 48414 | 1200 | 3.0 | 7.2 | 14.4 |
| 18-Mar-91 | DS | 15 | DILL Cr @ ROCK HOUSE | 128414 | 1035 | 5.8 | 7.3 | 12.4 |
| 21-Jan-91 | DS | 16 | DILL Cr @ RICE RD | 48415 | 1030 | 2.9 | 6.9 | 11.8 |
| 18-Mar-91 | DS | 16 | DILL Cr @ RICE RD | 128415 | 910 | 6.7 | 7.1 | 9.0 |
| 18-Mar-91 | DS | 17 | BERWICK Cr @ LA BREE RD | 128416 | 935 | 5.0 | 7.4 | 12.1 |
| 21-Jan-91 | DS | 17 | BERWICK Cr @ LA BREE RD | 48416 | 1100 | 2.5 | 7.2 | 14.3 |
| 22-Jan-91 | LM | 1 | MS NEAR MONTESANO | 48434 | 1105 | 4.6 | 7.4 | 12.8 |
| 19-Mar-91 | LM | 1 | MS NEAR MONTESANO | 128434 | 959 | 7.4 | 7.3 | 11.1 |
| 22-Jan-91 | LM | 2 | MS NEAR MONTESANO | 48435 | 1105 | 4.3 | 7.4 | 12.8 |
| 19-Mar-91 | LM | 2 | MS NEAR MONTESANO | 128435 | 1008 | 7.5 | 7.3 | 10.9 |
| 22-Jan-91 | LM | 3 | MS @ WAKEFIELD RD | 48436 | 1155 | 4.5 | 7.2 | 12.9 |
| 19-Mar-91 | LM | 3 | MS @ WAKEFIELD RD | 128436 | 1258 | 8.3 | 7.3 | 11.0 |
| 19-Mar-91 | LM | 4 | MS @ WAKEFIELD RD | 128437 | 1306 | 8.2 | 7.3 | 11.0 |
| 22-Jan-91 | LM | 4 | MS @ WAKEFIELD RD | 48437 | 1155 | 4.5 | 7.2 | 12.9 |
| 19-Mar-91 | LM | 5 | PORTER Cr @ PORTER Cr RD | 128438 | 1340 | 9.1 | 7.7 | 11.2 |
| 22-Jan-91 | LM | 5 | PORTER Cr @ PORTER Cr RD | 48438 | 1240 | 4.3 | 6.8 | 13.0 |
| 22-Jan-91 | LM | 6 | PORTER Cr @ PORTER Cr RD | 48439 | 1240 | 4.3 | 6.9 | 12.9 |
| 19-Mar-91 | LM | 6 | PORTER Cr @ PORTER Cr RD | 128439 | 1354 | 8.4 | 7.7 | 11.0 |
| 19-Mar-91 | LM | 7 | MS S ELMA RD NEAR OAKVILLE | 128440 | 1441 | 9.1 | 7.3 | 11.1 |
| 22-Jan-91 | LM | 7 | MS S ELMA RD NEAR OAKVILLE | 48440 | 1340 | 4.1 | 6.8 | 12.9 |
| 19-Mar-91 | LM | 8 | MS S ELMA RD NEAR OAKVILLE | 128441 | 1449 | 8.2 | 7.4 | 11.1 |
| 22-Jan-91 | LM | 8 | MS S ELMA RD NEAR OAKVILLE | 48441 | 1340 | 4.1 | 6.9 | 13.0 |
| 22-Jan-91 | LM | 9 | MS @ INDEPENDENCE RD | 48442 | 1515 | 4.1 | 7.2 | -- |
| 19-Mar-91 | LM | 9 | MS @ INDEPENDENCE RD | 128442 | 1638 | 8.4 | 7.4 | 11.3 |
| 22-Jan-91 | LM | 10 | MS @ INDEPENDENCE RD | 48443 | 1515 | 4.1 | 7.2 | 13.5 |
| 19-Mar-91 | LM | 10 | MS @ INDEPENDENCE RD | 128443 | 1643 | 8.2 | 7.3 | 11.2 |
| 22-Jan-91 | LM | 11 | WYNOOCHEE R MONT-ABERDN | 48444 | 950 | 4.6 | 7.4 | 13.4 |
| 19-Mar-91 | LM | 11 | WYNOOCHEE R MONT-ABERDN | 128444 | 1101 | 8.0 | 7.5 | 11.6 |
| 22-Jan-91 | LM | 12 | WYNOOCHEE R MONT-ABERDN | 48445 | 950 | 4.6 | 7.4 | 13.5 |
| 19-Mar-91 | LM | 12 | WYNOOCHEE R MONT-ABERDN | 128445 | 1152 | 7.9 | 7.5 | 11.6 |
| 22-Jan-91 | LM | 13 | SATSOP R @ I-5 BRIDGE | 48446 | 855 | 4.6 | 7.4 | 13.5 |
| 19-Mar-91 | LM | 13 | SATSOP R @ I-5 BRIDGE | 128446 | 835 | 6.7 | 7.6 | 11.5 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 19-Mar-91 | LM | 14 | SATSOP R @ I-5 BRIDGE | 128447 | 848 | 6.8 | 7.6 | 11.5 |
| 22-Jan-91 | LM | 14 | SATSOP R @ I-5 BRIDGE | 48447 | 855 | 4.6 | 7.5 | 13.6 |
| 22-Jan-91 | LM | 15 | BLACK R @ HOWANUT BRIDGE | 48448 | 1430 | 4.3 | 7.0 | 10.7 |
| 19-Mar-91 | LM | 15 | BLACK R @ HOWANUT BRIDGE | 128448 | 1553 | 9.2 | 7.3 | 10.2 |
| 22-Jan-91 | LM | 16 | BLACK R @ HOWANUT BRIDGE | 48449 | 1430 | 4.3 | 7.0 | 10.7 |
| 19-Mar-91 | LM | 16 | BLACK R @ HOWANUT BRIDGE | 128449 | 1559 | 8.9 | 7.3 | 10.5 |
| 22-Jan-91 | LM | 17 | SKOOK @ HARRISON BRIDGE | 48450 | 1530 | 4.3 | 6.7 | 13.2 |
| 19-Mar-91 | LM | 17 | SKOOK @ HARRISON BRIDGE | 128450 | 1817 | 8.3 | 7.9 | 11.1 |
| 19-Mar-91 | LM | 18 | SKOOK @ HARRISON BRIDGE | 128451 | 1821 | 7.9 | 7.9 | 11.1 |
| 22-Jan-91 | LM | 18 | SKOOK @ HARRISON BRIDGE | 48451 | 1530 | 4.4 | 6.6 | 13.4 |
| 20-Mar-91 | LT | 1 | MS @ SR 107 BRDG | 128468 | 1125 | 7.6 | 7.3 | 10.6 |
| 23-Jan-91 | LT | 1 | MS @ SR 107 BRDG | 48468 | 1225 | 4.8 | 7.4 | 12.9 |
| 20-Mar-91 | LT | 2 | MS @ S ELMA WAKEFIELD RD | 128469 | 1250 | 8.8 | 7.5 | 11.0 |
| 20-Mar-91 | LT | 3 | MS @ S ELMA WAKEFIELD RD | 128470 | 1305 | 8.4 | 7.3 | 10.8 |
| 20-Mar-91 | LT | 4 | MOX CHEH @ MOX CHEH RD | 128471 | 1500 | 8.5 | 7.0 | 11.2 |
| 20-Mar-91 | LT | 5 | NEWMAN Cr BLW CONF W/ VANC | 128472 | 1200 | 8.6 | 7.2 | 9.9 |
| 23-Jan-91 | LT | 5 | NEWMAN Cr BLW CONF W/ VANC | 48472 | 1305 | 4.8 | 6.7 | 8.1 |
| 23-Jan-91 | LT | 6 | NEWMAN Cr SATSOP HWY BRDG | 48473 | 1330 | 4.5 | 6.8 | 13.3 |
| 20-Mar-91 | LT | 6 | NEWMAN Cr SATSOP HWY BRDG | 128473 | 1220 | 7.3 | 7.4 | 11.2 |
| 20-Mar-91 | LT | 7 | WORKMAN Cr @ LAMBERT RD | 128474 | 1325 | 7.6 | 7.3 | 11.2 |
| 23-Jan-91 | LT | 7 | WORKMAN Cr @ LAMBERT RD | 48474 | 1520 | 5.0 | 6.7 | 13.1 |
| 23-Jan-91 | LT | 8 | WORKMAN Cr @ LAMBERT RD | 48475 | 1520 | 5.1 | 7.0 | 13.1 |
| 20-Mar-91 | LT | 8 | WORKMAN Cr @ LAMBERT RD | 128475 | 1335 | 7.6 | 7.3 | 11.2 |
| 20-Mar-91 | LT | 9 | CLOQ Cr @ HWY 12 BRIDGE | 128476 | 1030 | 6.7 | 7.6 | 11.4 |
| 23-Jan-91 | LT | 9 | CLOQ Cr @ HWY 12 BRIDGE | 48476 | 1120 | 5.4 | 7.3 | 13.2 |
| 23-Jan-91 | LT | 10 | CLOQ Cr @ HWY 12 BRIDGE | 48477 | 1120 | 5.3 | 7.3 | 13.3 |
| 20-Mar-91 | LT | 10 | WILDCAT Cr NEAR MOUTH | 128477 | 930 | 6.2 | 7.5 | 11.5 |
| 23-Jan-91 | LT | 11 | CLOQ Cr @ ELMA McCLEARY HW | 48478 | 1000 | 5.4 | 7.3 | 13.3 |
| 20-Mar-91 | LT | 11 | CLOQ Cr @ ELMA McCLEARY HW | 128478 | 955 | 6.6 | 7.6 | 11.8 |
| 23-Jan-91 | LT | 12 | CLOQUALLUM Cr @ STAMPER R | 48479 | 1040 | 5.5 | 7.3 | 13.3 |
| 20-Mar-91 | LT | 12 | CLOQUALLUM Cr @ STAMPER R | 128479 | 1010 | 6.4 | 7.6 | 11.5 |
| 23-Jan-91 | LT | 13 | WILDCAT Cr NEAR MOUTH | 48480 | 920 | 5.2 | 7.4 | 13.2 |
| 20-Mar-91 | LT | 13 | WILDCAT Cr NEAR MOUTH | 128480 | 935 | 6.2 | 7.5 | 11.5 |
| 23-Jan-91 | LT | 14 | WILDCAT Cr E FORK | 48481 | 830 | 4.9 | 7.4 | 13.5 |
| 20-Mar-91 | LT | 14 | WILDCAT Cr E FORK | 128481 | 855 | 5.5 | 7.7 | 11.7 |
| 23-Jan-91 | LT | 15 | DELEZENE Cr @ S BANK RD | 48482 | 1550 | 5.4 | 6.8 | 13.1 |
| 20-Mar-91 | LT | 15 | DELEZENE Cr @ S BANK RD | 128482 | 1400 | 8.6 | 7.2 | 11.3 |
| 20-Mar-91 | LT | 16 | MOX CHEH @ MALONE RT 12 | 128483 | 1430 | 9.1 | 7.4 | 11.4 |
| 23-Jan-91 | LT | 16 | MOX CHEH @ MALONE RT 12 | 48483 | 1635 | 5.1 | 7.2 | 13.5 |
| 20-Mar-91 | LT | 17 | MOX CHEH @ MOX CHEH RD | 128484 | 1450 | 8.5 | 7.5 | 11.2 |
| 23-Jan-91 | LT | 17 | MOX CHEH @ MOX CHEH RD | 48484 | 1655 | 5.4 | 7.2 | 13.2 |
| 20-Mar-91 | MT | 1 | MS @ PORTER Cr RD | 128485 | 1330 | -- | -- | 10.8 |
| 23-Jan-91 | MT | 1 | MS @ PORTER Cr RD | 48485 | 1145 | 5.1 | 6.8 | 13.1 |
| 23-Jan-91 | MT | 2 | MS S ELMA RD NEAR OAKVILLE | 48486 | 1026 | 5.2 | 6.7 | 13.0 |
| 20-Mar-91 | MT | 2 | MS S ELMA RD NEAR OAKVILLE | 128486 | 1105 | 7.8 | 8.9 | 10.8 |
| 23-Jan-91 | MT | 3 | MS S ELMA RD NEAR OAKVILLE | 48487 | 1036 | 5.2 | 6.7 | 13.0 |
| 20-Mar-91 | MT | 3 | MS @ INDEPENDENCE RD | 128487 | 830 | 9.5 | 7.0 | 11.1 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 20-Mar-91 | MT | 4 | MS @ INDEPENDENCE RD | 128488 | 835 | 7.9 | 7.2 | 11.1 |
| 23-Jan-91 | MT | 4 | MS @ INDEPENDENCE RD | 48488 | 807 | 3.8 | 8.4 | 13.3 |
| 23-Jan-91 | MT | 5 | BCKGRND INDEPENDENCE Cr | 48489 | 915 | 5.8 | 6.7 | 12.7 |
| 20-Mar-91 | MT | 5 | BCKGRND INDEPENDENCE Cr | 128489 | 1000 | 3.3 | 7.6 | 11.5 |
| 20-Mar-91 | MT | 6 | PORTER Cr @ HWY 12 BRIDGE | 128490 | 1440 | 8.4 | 7.5 | 11.6 |
| 23-Jan-91 | MT | 6 | PORTER Cr @ HWY 12 BRIDGE | 48490 | 1300 | 5.0 | 6.9 | 13.8 |
| 23-Jan-91 | MT | 7 | CEDAR Cr @ ELMA GATE RD | 48491 | 1318 | 5.6 | 6.9 | 13.8 |
| 20-Mar-91 | MT | 7 | CEDAR Cr @ ELMA GATE RD | 128491 | 1635 | 14.1 | 7.8 | 11.6 |
| 20-Mar-91 | MT | 8 | PORTER Cr ABOVE CAMPGROUN | 128492 | 1600 | 9.2 | 7.8 | 11.4 |
| 23-Jan-91 | MT | 8 | PORTER Cr ABOVE CAMPGROUN | 48492 | 1228 | 5.2 | 7.0 | 13.9 |
| 20-Mar-91 | MT | 9 | GARRARD Cr @ MATTSON BRIDG | 128493 | 1140 | 7.0 | 8.9 | 10.8 |
| 23-Jan-91 | MT | 9 | PORTER Cr ABOVE CAMPGROUN | 48493 | 1228 | 5.2 | 7.0 | 13.9 |
| 23-Jan-91 | MT | 10 | SHELTON Cr @ CEDAR Cr RD | 48494 | 1335 | 6.5 | 6.8 | 13.0 |
| 20-Mar-91 | MT | 10 | SHELTON Cr @ CEDAR Cr RD | 128494 | 1700 | 11.7 | 7.8 | 11.7 |
| 20-Mar-91 | MT | 11 | GARRARD Cr @ MATTSON BRIDG | 128495 | 1145 | 7.2 | 8.9 | 10.8 |
| 23-Jan-91 | MT | 11 | ROCK Cr CALLOW & S BANK RD | 48495 | 1113 | 4.9 | 6.8 | 13.4 |
| 23-Jan-91 | MT | 12 | ROCK Cr @ NORTON RD | 48496 | 1055 | 5.3 | 6.8 | 12.7 |
| 20-Mar-91 | MT | 12 | ROCK Cr @ NORTON RD | 128496 | 1250 | — | — | 11.6 |
| 23-Jan-91 | MT | 13 | GARRARD Cr @ MATTSON BRIDG | 48497 | 956 | 6.0 | 6.8 | 12.8 |
| 20-Mar-91 | MT | 13 | ROCK Cr CALLOW & S BANK RD | 128497 | 1415 | — | | 11.8 |
| 20-Mar-91 | MT | 14 | GARRARD Cr BRKLN 1st BRDG | 128498 | 1020 | 5.0 | 7.6 | 11.7 |
| 23-Jan-91 | MT | 14 | GARRARD Cr BRKLN 1st BRDG | 48498 | 937 | 5.0 | 7.0 | 12.9 |
| 20-Mar-91 | MT | 15 | GARRARD Cr BRKLN 1st BRDG | 128499 | 1025 | 4.5 | | 11.4 |
| 23-Jan-91 | MT | 15 | INDEPENDENCE Cr RM 1.2 | 48499 | 835 | 4.2 | 7.2 | 13.0 |
| 20-Mar-91 | MT | 16 | INDEPENDENCE Cr | 128500 | 930 | 7.9 | 7.3 | 10.9 |
| 23-Jan-91 | MT | 16 | INDEPENDENCE Cr RM 1.2 | 48500 | 845 | 4.2 | 7.2 | 13.2 |
| 20-Mar-91 | MT | 17 | INDEPENDENCE Cr | 128501 | 905 | 8.1 | 7.1 | 11.3 |
| 23-Jan-91 | MT | 17 | INDEPENDENCE Cr UPSTREAM | 48501 | 854 | 4.3 | 7.0 | 13.0 |
| 26-Mar-91 | NE | 1 | KEARNY Cr @ FRASE RD | 138164 | 825 | 5.3 | 7.8 | 12.0 |
| 29-Jan-91 | NE | 1 | KEARNY Cr @ FRASE RD | 58164 | 825 | 1.2 | 7.2 | 13.6 |
| 26-Mar-91 | NE | 2 | BKGRND @ BERNIER Cr | 138165 | 915 | 5.5 | 7.9 | 11.8 |
| 29-Jan-91 | NE | 2 | BKGRND @ BERNIER Cr | 58165 | 1000 | 3.0 | 7.3 | 12.9 |
| 29-Jan-91 | NE | 3 | BKGRND @ BERNIER Cr | 58166 | 1000 | 3.1 | 7.5 | 12.9 |
| 26-Mar-91 | NE | 3 | BKGRND @ BERNIER Cr | 138166 | 920 | 5.7 | 7.9 | 11.9 |
| 29-Jan-91 | NE | 4 | NEWAUKUM @ RR COUNTY RD B | 58167 | 1510 | 2.6 | 7.3 | 13.3 |
| 26-Mar-91 | NE | 4 | NEWAUKUM @ RR COUNTY RD B | 138167 | 1415 | 8.4 | 7.7 | 11.9 |
| 26-Mar-91 | NE | 5 | NEWAUKUM @ NEW V/LABREE R | 138168 | 1350 | 7.8 | 7.8 | 12.1 |
| 29-Jan-91 | NE | 5 | NEWAUKUM @ NEW V/LABREE R | 58168 | 1410 | 2.6 | 7.2 | 13.7 |
| 26-Mar-91 | NE | 6 | KEARNY Cr @ FRASE RD | 138169 | 840 | 5.3 | 7.6 | 12.1 |
| 29-Jan-91 | NE | 6 | NEWAUKUM @ NEW V/LABREE R | 58169 | 1410 | 2.7 | 7.3 | 13.7 |
| 26-Mar-91 | NE | 7 | NEWAUKUM @ RUSH RD | 138170 | 1330 | 7.7 | 7.7 | 12.2 |
| 29-Jan-91 | NE | 7 | NEWAUKUM @ RUSH RD | 58170 | 1440 | 2.5 | 7.2 | 13.7 |
| 26-Mar-91 | NE | 8 | NEWAUKUM @ JACKSON HWY | 138171 | 1310 | 7.6 | 7.7 | 12.2 |
| 29-Jan-91 | NE | 8 | NEWAUKUM @ JACKSON HWY | 58171 | 1340 | 2.6 | 7.3 | 13.8 |
| 26-Mar-91 | NE | 9 | NF NEWAUKUM @ TAUSCHER RD | 138172 | 1135 | 6.2 | 7.7 | 12.1 |
| 29-Jan-91 | NE | 9 | NF NEWAUKUM @ TAUSCHER RD | 58172 | 1220 | 1.1 | 7.0 | 14.2 |
| 26-Mar-91 | NE | 10 | NF NEWAUKUM R @ TAUSCHER | 138173 | 1120 | 6.5 | 7.8 | 12.3 |
| 29-Jan-91 | NE | 10 | NF NEWAUKUM @ TAUSCHER RD | 58173 | 1220 | 1.2 | 7.1 | 14.2 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 29-Jan-91 | NE | 11 | NF NEWAUKUM R @ TAUSCHER | 58174 | 1150 | 2.1 | 7.3 | 16.7 |
| 26-Mar-91 | NE | 11 | NF NEWAUKUM R @ TAUSCHER | 138174 | 1125 | 6.3 | 7.8 | 12.3 |
| 29-Jan-91 | NE | 12 | NF NEWAUKUM @ N FORK RD | 58175 | 1115 | 2.2 | 7.3 | |
| 26-Mar-91 | NE | 12 | NF NEWAUKUM @ N FORK RD | 138175 | 1210 | 7.6 | 7.8 | 11.9 |
| 26-Mar-91 | NE | 13 | SF NEWAUKUM @ N FORK RD | 138176 | 1255 | -- | 7.8 | 12.4 |
| 29-Jan-91 | NE | 13 | SF NEWAUKUM @ N FORK RD | 58176 | 1320 | 2.4 | 7.3 | 16.4 |
| 29-Jan-91 | NE | 14 | SF NEWAUKUM @ GISH RD | 58177 | 1250 | 2.5 | 7.2 | 13.6 |
| 26-Mar-91 | NE | 14 | SF NEWAUKUM @ GISH RD | 138177 | 1050 | 6.2 | 7.8 | 12.4 |
| 26-Mar-91 | NE | 15 | SF NEW @ JORGENSON DAIRY | 138178 | 1010 | 5.1 | 7.9 | 12.5 |
| 29-Jan-91 | NE | 15 | SF NEW @ JORGENSON DAIRY | 58178 | 918 | 2.0 | 7.3 | 13.5 |
| 26-Mar-91 | NE | 16 | SF NEWAUKUM @ 508 | 138179 | 945 | 5.3 | 7.9 | 12.4 |
| 29-Jan-91 | NE | 16 | SF NEWAUKUM @ 508 | 58179 | 850 | 1.7 | 7.4 | 16.4 |
| 26-Mar-91 | NE | 17 | LUCAS Cr @ SENN RD | 138180 | 1230 | 7.2 | 7.5 | 12.2 |
| 29-Jan-91 | NE | 17 | LUCAS Cr @ SENN RD | 58180 | 1045 | 1.4 | 7.2 | 13.8 |
| 23-Jan-91 | OT | 2 | MS @ S ELMA WAKEFIELD RD | 48469 | 1440 | 4.6 | 7.4 | 12.9 |
| 25-Mar-91 | SA | 1 | MS @ WAKEFIELD RD | 138147 | 1605 | 7.9 | 7.6 | 11.0 |
| 28-Jan-91 | SA | 1 | MS @ WAKEFIELD RD | 58147 | 1740 | 3.9 | 8.3 | 12.5 |
| 25-Mar-91 | SA | 2 | BACKGROUND CANYON R | 138148 | 1015 | 6.3 | 7.8 | 11.5 |
| 28-Jan-91 | SA | 2 | MS @ WAKEFIELD RD | 58148 | 1740 | 3.8 | 7.9 | 12.5 |
| 25-Mar-91 | SA | 3 | BACKGROUND CANYON R | 138149 | 1017 | 6.1 | 7.7 | 11.5 |
| 28-Jan-91 | SA | 3 | BACKGROUND OLD LOG AREA | 58149 | 948 | 5.3 | 8.1 | 12.5 |
| 25-Mar-91 | SA | 4 | SATSOP R @ MONTESANO RD | 138150 | 1543 | 7.8 | 7.8 | 11.9 |
| 28-Jan-91 | SA | 4 | SATSOP R @ MONTESANO RD | 58150 | 1715 | 5.3 | 8.3 | 12.7 |
| 28-Jan-91 | SA | 5 | W FORK SATSOP R @ SATSOP RD | 58151 | 1635 | 4.1 | 8.4 | 13.1 |
| 25-Mar-91 | SA | 5 | W FORK SATSOP R @ SATSOP RD | 138151 | 1443 | 7.7 | 7.7 | 12.0 |
| 25-Mar-91 | SA | 6 | WF SAT @ SWINGING BR ST PK | 138152 | 1507 | 7.6 | 7.8 | 12.1 |
| 28-Jan-91 | SA | 6 | WF SAT @ SWINGING BR ST PK | 58152 | 1615 | 4.2 | 8.2 | 13.2 |
| 25-Mar-91 | SA | 7 | WF SATSOP @ COUG SMITH RD | 138153 | 1200 | -- | -- | 12.2 |
| 28-Jan-91 | SA | 7 | WF SATSOP @ COUG SMITH RD | 58153 | 1155 | 4.4 | 8.7 | 13.4 |
| 25-Mar-91 | SA | 8 | MID FORK SATSOP @ SATSOP RD | 138154 | 1422 | 7.6 | 7.7 | 12.2 |
| 28-Jan-91 | SA | 8 | MID FORK SATSOP @ SATSOP RD | 58154 | 1535 | 4.6 | 8.3 | 13.0 |
| 28-Jan-91 | SA | 9 | MF SATSOP @ KELLY RD | 58155 | 1047 | 3.9 | 8.4 | 13.3 |
| 25-Mar-91 | SA | 9 | MF SATSOP @ KELLY RD | 138155 | 1112 | 6.1 | 7.5 | 12.2 |
| 25-Mar-91 | SA | 10 | EF SATSOP @ SHAFFER PARK | 138156 | 1347 | 8.0 | 7.8 | 11.8 |
| 28-Jan-91 | SA | 10 | EF SATSOP @ SHAFFER PARK | 58156 | 1515 | 6.0 | 7.7 | 12.6 |
| 28-Jan-91 | SA | 11 | SATSOP R @ STAR LAKE RD | 58157 | 1300 | 4.7 | 8.3 | 12.9 |
| 25-Mar-91 | SA | 11 | SATSOP R @ STAR LAKE RD | 138157 | 1310 | 8.0 | 8.1 | 11.8 |
| 25-Mar-91 | SA | 12 | MF SATSOP @ KELLY RD | 138158 | 1116 | 6.0 | 7.6 | 12.1 |
| 28-Jan-91 | SA | 12 | SATSOP R @ STAR LAKE RD | 58158 | 1330 | 4.6 | 8.0 | 13.6 |
| 25-Mar-91 | SA | 13 | DECKER Cr @ SHAFFER PARK | 138159 | 1405 | 8.0 | 7.6 | 11.4 |
| 28-Jan-91 | SA | 13 | DECKER Cr @ SHAFFER PARK | 58159 | 1450 | 5.5 | 8.2 | 12.3 |
| 28-Jan-91 | SA | 14 | BINGHAM Cr MO @ HATCHERY R | 58160 | 1420 | 6.6 | 8.3 | 12.6 |
| 25-Mar-91 | SA | 14 | BINGHAM Cr MO @ HATCHERY R | 138160 | 900 | 7.1 | 7.7 | 11.5 |
| 28-Jan-91 | SA | 15 | BINGHAM Cr MO @ HATCHERY R | 58161 | 1420 | 6.3 | 8.1 | 12.4 |
| 25-Mar-91 | SA | 15 | CANYON R @ FS 2153 & KELLY | 138161 | 1042 | 5.7 | 7.8 | 12.1 |
| 28-Jan-91 | SA | 16 | BINGHAM Cr @ MATLOCK RD | 58162 | 840 | 5.9 | 8.3 | 12.0 |
| 25-Mar-91 | SA | 16 | BINGHAM Cr @ MATLOCK RD | 138162 | 930 | 7.1 | 7.5 | 11.2 |
| 25-Mar-91 | SA | 17 | CANYON R @ FS 2153 & KELLY | 138163 | 1043 | 5.7 | 7.8 | 12.2 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 28-Jan-91 | SA | 17 | CANYON R @ FS 2153 & KELLY | 58163 | 1015 | 3.6 | 8.6 | 13.2 |
| 29-Jan-91 | SF | 1 | MS @ CERES HILL RD | 58181 | 1405 | 3.7 | 8.0 | 14.1 |
| 26-Mar-91 | SF | 1 | MS @ CERES HILL RD | 138181 | 1340 | 7.8 | 7.6 | 11.6 |
| 29-Jan-91 | SF | 2 | MS @ CERES HILL RD | 58182 | 1405 | 3.7 | 8.0 | 14.0 |
| 26-Mar-91 | SF | 2 | MS @ CERES HILL RD | 138182 | 1350 | 7.9 | 7.6 | 12.3 |
| 26-Mar-91 | SF | 3 | MS @ ADNA SR6 | 138183 | 1415 | 7.9 | 7.5 | 11.9 |
| 29-Jan-91 | SF | 3 | MS @ ADNA SR6 | 58183 | 1437 | 3.4 | 7.7 | 13.4 |
| 26-Mar-91 | SF | 4 | BKGRND @ UPPER SLIDE Cr | 138184 | 1045 | 4.8 | 7.9 | 12.2 |
| 29-Jan-91 | SF | 4 | BKGRND @ UPPER SLIDE Cr | 58184 | 1215 | 2.6 | 8.2 | 13.8 |
| 29-Jan-91 | SF | 5 | S FORK @ SR6 RR TRESTLE | 58185 | 1345 | 3.1 | 8.2 | 13.4 |
| 26-Mar-91 | SF | 5 | S FORK @ SR6 RR TRESTLE | 138185 | 1315 | 7.4 | 7.5 | 12.8 |
| 26-Mar-91 | SF | 6 | SF @ BOISTFORT & MOONHILL | 138186 | 1255 | 7.6 | 7.6 | 12.0 |
| 29-Jan-91 | SF | 6 | SF @ BOISTFORT & MOONHILL | 58186 | 1310 | 3.1 | 7.9 | 13.6 |
| 26-Mar-91 | SF | 7 | S FORK @ BOISTFORT SCHOOL | 138187 | 1200 | 7.9 | 7.5 | -- |
| 29-Jan-91 | SF | 7 | S FORK @ BOISTFORT SCHOOL | 58187 | 1145 | 3.1 | 8.0 | 13.0 |
| 29-Jan-91 | SF | 8 | S FORK @ WILDWOOD | 58188 | 1000 | 2.3 | 7.8 | 13.2 |
| 26-Mar-91 | SF | 8 | S FORK @ WILDWOOD | 138188 | 1000 | 6.1 | 7.5 | 11.4 |
| 26-Mar-91 | SF | 9 | S FORK @ WILDWOOD RD BRDG | 138189 | 930 | 4.9 | 7.7 | 12.3 |
| 29-Jan-91 | SF | 9 | S FORK @ WILDWOOD RD BRDG | 58189 | 930 | 1.3 | 8.0 | 13.9 |
| 29-Jan-91 | SF | 10 | S FORK @ INT'L PAPER RD | 58190 | 900 | 1.9 | 8.5 | 14.0 |
| 26-Mar-91 | SF | 10 | S FORK @ INT'L PAPER RD | 138190 | 845 | 4.6 | 7.8 | 12.3 |
| 26-Mar-91 | SF | 11 | S FORK @ BOISTFORT SCHOOL | 138191 | 1215 | 7.4 | 7.5 | 11.7 |
| 29-Jan-91 | SF | 11 | S FORK @ INT'L PAPER RD | 58191 | 900 | 2.0 | 8.4 | 14.1 |
| 29-Jan-91 | SF | 12 | STILLMN Cr @ LOST VALLEY RD | 58192 | 1130 | 2.8 | 8.1 | 14.0 |
| 26-Mar-91 | SF | 12 | STILLMN Cr @ LOST VALLEY RD | 138192 | 1130 | 6.9 | 7.6 | 12.2 |
| 29-Jan-91 | SF | 13 | STILLMAN C @ PeELL McDON RD | 58193 | 1020 | 1.9 | 8.2 | 14.0 |
| 26-Mar-91 | SF | 13 | STILLMAN C @ PeELL McDON RD | 138193 | 1030 | 6.1 | 7.7 | 12.3 |
| 29-Jan-91 | SF | 14 | LAKE Cr @ KING RD BRDG | 58194 | 1245 | 2.5 | 8.0 | 13.7 |
| 26-Mar-91 | SF | 14 | LAKE Cr @ KING RD BRDG | 138194 | 1240 | 7.7 | 7.6 | 11.3 |
| 29-Jan-91 | SF | 15 | LAKE Cr @ KING RD BRDG | 58195 | 1245 | 2.5 | 7.9 | 13.7 |
| 26-Mar-91 | SF | 15 | STILLMN Cr @ LOST VALLEY RD | 138195 | 1145 | 6.8 | 7.6 | 12.2 |
| 29-Jan-91 | SF | 16 | HALFWAY Cr @ PeELL McDON R | 58196 | 1045 | 2.0 | 8.0 | 13.9 |
| 26-Mar-91 | SF | 16 | HALFWAY Cr @ PeELL McDON R | 138196 | 1115 | 6.7 | 8.5 | 12.0 |
| 29-Jan-91 | SF | 17 | MS @ MELLEN ST BRDG | 58197 | 1505 | 3.6 | 7.8 | 12.9 |
| 26-Mar-91 | SF | 17 | MS @ MELLEN ST BRDG | 138197 | 1445 | 7.8 | 7.4 | 11.3 |
| 27-Mar-91 | SK | 1 | MS @ PRATHER RD | 138215 | 1400 | 8.4 | 7.7 | 11.6 |
| 30-Jan-91 | SK | 1 | MS @ PRATHER RD | 58215 | 1520 | 3.8 | 7.1 | 15.4 |
| 27-Mar-91 | SK | 2 | MS @ MELLEN RD | 138216 | 1330 | 7.8 | 7.7 | 11.5 |
| 30-Jan-91 | SK | 2 | MS @ MELLEN RD | 58216 | 1410 | 3.4 | 7.0 | 15.6 |
| 27-Mar-91 | SK | 3 | BKGRND @ RUN Cr | 138217 | 815 | 4.4 | 7.9 | 12.8 |
| 30-Jan-91 | SK | 3 | BKGRND @ RUN Cr | 58217 | 820 | 1.5 | 8.6 | 16.8 |
| 30-Jan-91 | SK | 4 | BKGRND @ RUN Cr | 58218 | 820 | 1.4 | 8.5 | 17.2 |
| 27-Mar-91 | SK | 4 | MS @ MELLEN RD | 138218 | 1335 | 7.9 | 7.6 | 11.5 |
| 30-Jan-91 | SK | 5 | SKOOKUM @ BORST PK INTERCH | 58219 | 1435 | 3.9 | 6.9 | 15.7 |
| 27-Mar-91 | SK | 5 | SKOOKUM @ BORST PK INTERCH | 138219 | 1305 | 8.3 | 7.7 | 11.7 |
| 30-Jan-91 | SK | 6 | SKOOKUM @ BORST PK INTERCH | 58220 | 1435 | 3.8 | 7.1 | 15.7 |
| 27-Mar-91 | SK | 6 | SKOOKUMCHUCK @ SKOOK RD | 138220 | 1020 | 7.1 | 7.7 | 11.9 |
| 27-Mar-91 | SK | 7 | SKOOK @ SCHAFFER Co PARK | 138221 | 1135 | 7.5 | 7.8 | 11.9 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 30-Jan-91 | SK | 7 | SKOOK @ SCHAFFER Co PARK | 58221 | 1210 | 3.9 | 6.6 | 15.6 |
| 30-Jan-91 | SK | 8 | SKOOKUMCHUCK @ 7th ST | 58222 | 1135 | 4.0 | 6.8 | 15.5 |
| 27-Mar-91 | SK | 8 | SKOOKUMCHUCK @ TONO RD | 138222 | 1110 | 7.6 | 7.7 | 11.9 |
| 27-Mar-91 | SK | 9 | SKOOKUMCHUCK @ SKOOK RD | 138223 | 1015 | 7.1 | 7.8 | 11.9 |
| 30-Jan-91 | SK | 9 | SKOOKUMCHUCK @ SKOOK RD | 58223 | 1030 | 4.3 | 6.9 | 15.7 |
| 30-Jan-91 | SK | 10 | SKOOK @ RESERVOIR OUTLET | 58224 | 950 | 4.7 | 6.8 | 16.2 |
| 27-Mar-91 | SK | 10 | SKOOK @ RESERVOIR OUTLET | 138224 | 935 | 7.3 | 7.3 | 12.2 |
| 27-Mar-91 | SK | 11 | SKOOK ABOVE RESERV RUN Cr | 138225 | 845 | 4.3 | 7.9 | 12.8 |
| 30-Jan-91 | SK | 11 | SKOOK ABOVE RESERV RUN Cr | 58225 | 850 | 2.3 | 7.5 | 16.7 |
| 30-Jan-91 | SK | 12 | HANAFORD Cr @ HANAFORD RD | 58226 | 1230 | 2.1 | 6.5 | 14.9 |
| 27-Mar-91 | SK | 12 | HANAFORD Cr @ HANAFORD RD | 138226 | 1230 | 7.5 | 7.4 | 10.6 |
| 27-Mar-91 | SK | 13 | SF HANAFORD @ HANAFORD RD | 138227 | 1215 | 7.7 | 7.2 | 9.9 |
| 30-Jan-91 | SK | 13 | SF HANAFORD @ HANAFORD RD | 58227 | 1300 | 1.8 | 6.7 | 14.4 |
| 27-Mar-91 | SK | 14 | HANAFORD Cr @ HANAFORD RD | 138228 | 1235 | 7.5 | 7.3 | 10.5 |
| 30-Jan-91 | SK | 14 | SF HANAFORD @ HANAFORD RD | 58228 | 1300 | 1.7 | 6.7 | 14.4 |
| 30-Jan-91 | SK | 15 | NF HANAFORD @ RR TRESTLE | 58229 | 1325 | 2.8 | 6.7 | 15.6 |
| 27-Mar-91 | SK | 15 | NF HANAFORD @ RR TRESTLE | 138229 | 1200 | 7.7 | 7.5 | 11.3 |
| 27-Mar-91 | SK | 16 | JOHNSON Cr | 138230 | 955 | 5.3 | 7.7 | 11.9 |
| 30-Jan-91 | SK | 16 | JOHNSON Cr | 58230 | 1010 | 1.3 | 6.7 | 16.4 |
| 30-Jan-91 | SK | 17 | THOMPSON Cr @ THOMPS Cr RD | 58231 | 1105 | 1.0 | 6.7 | 17.2 |
| 27-Mar-91 | SK | 17 | THOMPSON Cr @ THOMPS Cr RD | 138231 | 1035 | 5.3 | 7.7 | 12.4 |
| 19-Mar-91 | UM | 1 | MS @ PRATHER RD | 128452 | 1530 | 8.4 | 7.4 | 11.3 |
| 22-Jan-91 | UM | 1 | MS @ PRATHER RD | 48452 | 1630 | 3.4 | 6.8 | 13.2 |
| 19-Mar-91 | UM | 2 | MS @ PRATHER RD | 128453 | 1535 | 8.7 | 7.3 | 11.3 |
| 22-Jan-91 | UM | 2 | MS @ PRATHER RD | 48453 | 1630 | 3.5 | 6.8 | 13.2 |
| 22-Jan-91 | UM | 3 | MS @ MELLEN ST BRIDGE | 48454 | 1430 | 3.4 | 6.7 | 13.3 |
| 19-Mar-91 | UM | 3 | MS @ MELLEN ST BRIDGE | 128454 | 1330 | 7.2 | 7.3 | 11.3 |
| 19-Mar-91 | UM | 4 | MS @ MELLEN ST BRIDGE | 128455 | 1347 | 7.8 | 7.3 | 11.4 |
| 22-Jan-91 | UM | 4 | MS @ MELLEN ST BRIDGE | 48455 | 1430 | 3.5 | 6.7 | 13.4 |
| 22-Jan-91 | UM | 5 | MS @ ADNA | 48456 | 1220 | 3.6 | 6.9 | 13.8 |
| 19-Mar-91 | UM | 5 | MS @ ADNA | 128456 | 1245 | 7.3 | 7.5 | 11.7 |
| 22-Jan-91 | UM | 6 | MS @ ADNA | 48457 | 1220 | 3.6 | 7.0 | 13.8 |
| 19-Mar-91 | UM | 6 | MS @ ADNA | 128457 | 1250 | 7.0 | 7.4 | 11.7 |
| 22-Jan-91 | UM | 7 | MS @ CERES HILL | 48458 | 1040 | 3.5 | 6.9 | 14.3 |
| 19-Mar-91 | UM | 7 | MS @ CERES HILL | 128458 | 1100 | 7.0 | 7.6 | 12.1 |
| 19-Mar-91 | UM | 8 | MS @ CERES HILL | 128459 | 1110 | 7.4 | 7.5 | 12.0 |
| 22-Jan-91 | UM | 8 | MS @ CERES HILL | 48459 | 1040 | 3.4 | 6.9 | 14.3 |
| 19-Mar-91 | UM | 9 | MS CHANDLER RD AT DRYAD | 128460 | 1015 | 6.3 | 7.7 | 12.1 |
| 22-Jan-91 | UM | 9 | MS CHANDLER RD AT DRYAD | 48460 | 1000 | 3.2 | 7.0 | 14.3 |
| 19-Mar-91 | UM | 10 | MS CHANDLER RD AT DRYAD | 128461 | 1030 | 6.4 | 7.6 | 12.1 |
| 22-Jan-91 | UM | 10 | MS CHANDLER RD AT DRYAD | 48461 | 1000 | 3.2 | 7.0 | 13.9 |
| 22-Jan-91 | UM | 11 | MS @ PeELL | 48462 | 830 | 2.8 | 8.0 | 14.2 |
| 19-Mar-91 | UM | 11 | MS @ PeELL | 128462 | 900 | 5.4 | 7.8 | 12.2 |
| 22-Jan-91 | UM | 12 | MS @ PeELL | 48463 | 850 | 2.8 | 8.0 | 14.2 |
| 19-Mar-91 | UM | 12 | MS @ PeELL | 128463 | 930 | 5.6 | 7.9 | 12.3 |
| 22-Jan-91 | UM | 13 | NEWAUKUM R MOUTH | 48464 | 1315 | 3.0 | 8.1 | 14.0 |
| 19-Mar-91 | UM | 13 | NEWAUKUM R MOUTH | 128464 | 1415 | 7.9 | 7.3 | 11.4 |
| 22-Jan-91 | UM | 14 | NEWAUKUM R MOUTH | 48465 | 1315 | 3.0 | 7.9 | 14.0 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 19-Mar-91 | UM | 14 | NEWAUKUM R MOUTH | 128465 | 1425 | 8.0 | 7.4 | 11.6 |
| 19-Mar-91 | UM | 15 | SOUTH FORK @ TRELLIS | 128466 | 1145 | 7.5 | 7.5 | 11.7 |
| 22-Jan-91 | UM | 15 | SOUTH FORK @ TRELLIS | 48466 | 1135 | 3.5 | 7.0 | -- |
| 22-Jan-91 | UM | 16 | SOUTH FORK @ TRELLIS | 48467 | 1135 | 4.3 | 7.2 | 13.7 |
| 19-Mar-91 | UM | 16 | SOUTH FORK @ TRELLIS | 128467 | 1200 | 7.0 | 7.4 | 11.7 |
| 18-Mar-91 | UT | 1 | MS @ INDEPENDENCE RD | 128417 | 1345 | -- | -- | 11.4 |
| 21-Jan-91 | UT | 1 | MS @ INDEPENDENCE RD | 48417 | 1400 | 5.2 | 8.2 | 13.1 |
| 21-Jan-91 | UT | 2 | MS @ ADNA BRIDGE SR 6 | 48418 | 1040 | 3.5 | 8.2 | 13.4 |
| 18-Mar-91 | UT | 2 | MS @ ADNA BRIDGE SR 6 | 128418 | 1050 | -- | -- | 11.7 |
| 18-Mar-91 | UT | 3 | MS @ PeELL | 128419 | 830 | -- | -- | 12.7 |
| 21-Jan-91 | UT | 3 | MS @ PeELL | 48419 | 825 | 2.9 | 6.3 | 14.3 |
| 18-Mar-91 | UT | 4 | MS @ CERES HILL RD | 128420 | 1000 | -- | -- | 12.1 |
| 21-Jan-91 | UT | 4 | MS @ PeELL | 48420 | 825 | 2.8 | 6.4 | 14.1 |
| 18-Mar-91 | UT | 5 | MS @ CERES HILL RD | 128421 | 930 | -- | -- | 12.1 |
| 21-Jan-91 | UT | 5 | MS @ CERES HILL RD | 48421 | 940 | 3.4 | 8.4 | 14.3 |
| 18-Mar-91 | UT | 6 | BUNKER RD PAST INGALLS RD | 128422 | 1150 | -- | -- | 11.4 |
| 21-Jan-91 | UT | 6 | BUNKER RD PAST INGALLS RD | 48422 | 1145 | 5.1 | 7.9 | 12.8 |
| 21-Jan-91 | UT | 7 | LINCOLN Cr BEHIND GRANGE | 48423 | 1255 | 5.0 | 7.8 | 11.5 |
| 18-Mar-91 | UT | 7 | LINCOLN Cr BEHIND GRANGE | 128423 | 1230 | -- | -- | 10.5 |
| 18-Mar-91 | UT | 8 | SCATTER Cr @ JAMES RD | 128424 | 1415 | -- | -- | 12.8 |
| 21-Jan-91 | UT | 8 | SCATTER Cr @ JAMES RD | 48424 | 1430 | 5.3 | 8.8 | 14.0 |
| 18-Mar-91 | UT | 9 | SCATTER Cr @ PACIFIC HWY | 128425 | 1440 | -- | -- | 11.7 |
| 21-Jan-91 | UT | 9 | SCATTER Cr @ PACIFIC HWY | 48425 | 1440 | 5.8 | 8.6 | 12.7 |
| 18-Mar-91 | UT | 10 | SCATTER Cr ABOVE TENINO | 128426 | 1515 | -- | -- | 10.5 |
| 21-Jan-91 | UT | 10 | SCATTER Cr ABOVE TENINO | 48426 | 1500 | 4.8 | 8.5 | 11.1 |
| 18-Mar-91 | UT | 11 | LINCOLN Cr BEFORE GALVIN | 128427 | 1245 | -- | -- | 10.8 |
| 21-Jan-91 | UT | 11 | LINCOLN Cr BEFORE GALVIN | 48427 | 1315 | 3.4 | 8.2 | 12.6 |
| 21-Jan-91 | UT | 12 | LINCOLN Cr @ ECHO RD | 48428 | 1220 | 5.0 | 8.2 | 13.1 |
| 18-Mar-91 | UT | 12 | LINCOLN Cr @ ECHO RD | 128428 | 1215 | -- | -- | 12.0 |
| 21-Jan-91 | UT | 13 | LINCOLN Cr @ ECHO RD | 48429 | 1245 | 5.1 | 8.1 | -- |
| 18-Mar-91 | UT | 13 | SCATTER Cr ABOVE TENINO | 128429 | 1500 | -- | -- | 10.5 |
| 21-Jan-91 | UT | 14 | STEARNS Cr @ OAKS RD | 48430 | 1030 | 2.7 | 8.0 | 12.1 |
| 18-Mar-91 | UT | 14 | STEARNS Cr @ OAKS RD | 128430 | 1030 | -- | -- | 10.5 |
| 21-Jan-91 | UT | 15 | BUNKER Cr @ CERES Cr RD | 48431 | 1110 | 3.4 | 7.6 | 13.7 |
| 18-Mar-91 | UT | 15 | BUNKER Cr @ CERES Cr RD | 128431 | 1115 | -- | -- | 11.9 |
| 21-Jan-91 | UT | 16 | BUNKER Cr @ CERES Cr RD | 48432 | 1115 | 3.5 | 7.5 | 13.7 |
| 18-Mar-91 | UT | 16 | ELK Cr JUST PAST DOTY | 128432 | 915 | -- | -- | 12.9 |
| 18-Mar-91 | UT | 17 | ELK Cr JUST PAST DOTY | 128433 | 900 | -- | -- | 13.0 |
| 21-Jan-91 | UT | 17 | ELK Cr JUST PAST DOTY | 48433 | 900 | 3.2 | 8.3 | 15.0 |
| 28-Jan-91 | WY | 1 | MS @ SR 107 | 58130 | 1645 | 4.5 | 7.0 | 11.7 |
| 25-Mar-91 | WY | 1 | MS @ SR 107 | 138130 | 1444 | 8.1 | 7.4 | 11.0 |
| 28-Jan-91 | WY | 2 | BKGRND SITE V-SHAPE TRAP | 58131 | 1020 | 2.9 | 7.6 | 14.0 |
| 25-Mar-91 | WY | 2 | MS @ SR 107 | 138131 | 1447 | 8.1 | 7.5 | 10.9 |
| 28-Jan-91 | WY | 3 | BKGRND SITE V-SHAPE TRAP | 58132 | 1020 | 2.9 | 7.6 | 14.0 |
| 25-Mar-91 | WY | 3 | BKGRND SITE V-SHAPE TRAP | 138132 | 945 | 5.2 | 7.2 | 11.8 |
| 25-Mar-91 | WY | 4 | WYNOOCHEE R @ RM 1.6 | 138133 | 1405 | 7.8 | 7.4 | 11.4 |
| 28-Jan-91 | WY | 4 | WYNOOCHEE R @ RM 1.6 | 58133 | 1600 | 5.6 | 7.1 | 13.1 |
| 28-Jan-91 | WY | 5 | WYNOOCHEE @ GEISSLER RD | 58134 | 1505 | 5.6 | 7.1 | 13.2 |

Appendix 1. Chehalis field data, January and March 1991. Continued.

| Date | Site | Site# | Site description | Lab # | Time | Temp (°C) | pH (s.u.) | D.O. (mg/L |
|---|---|---|---|---|---|---|---|---|
| 25-Mar-91 | WY | 5 | WYNOOCHEE @ GEISSLER RD | 138134 | 1309 | 7.4 | 7.4 | 11.6 |
| 25-Mar-91 | WY | 6 | WYNOOCHEE @ WYN-WISHKAH | 138135 | 1228 | 7.4 | 7.4 | 11.6 |
| 28-Jan-91 | WY | 6 | WYNOOCHEE @ WYN-WISHKAH | 58135 | 1345 | 5.4 | 7.2 | 13.3 |
| 28-Jan-91 | WY | 7 | WYNOOCHEE @ FS 2294 BRIDGE | 58136 | 1125 | 4.6 | 7.4 | 13.8 |
| 25-Mar-91 | WY | 7 | WYNOOCHEE @ FS 2294 BRIDGE | 138136 | 1032 | 6.1 | 7.2 | 11.8 |
| 28-Jan-91 | WY | 8 | WYNOOCHEE @ FS 2294 BRIDGE | 58137 | 1125 | 4.7 | 7.5 | 13.8 |
| 25-Mar-91 | WY | 8 | WYNOOCHEE @ GEISSLER RD | 138137 | 1312 | 7.4 | 7.5 | 11.5 |
| 28-Jan-91 | WY | 9 | WYNOOCHEE ABOVE RESERVOIR | 58138 | 940 | 3.8 | 7.3 | 13.4 |
| 25-Mar-91 | WY | 9 | WYNOOCHEE R @ RM 1.6 | 138138 | 1408 | 7.8 | 7.4 | 11.3 |
| 25-Mar-91 | WY | 10 | BLACK Cr MO @ BLACK Cr RD | 138139 | 1251 | 7.6 | 7.0 | 11.0 |
| 28-Jan-91 | WY | 10 | BLACK Cr MO @ BLACK Cr RD | 58139 | 1440 | 4.6 | 6.7 | 13.2 |
| 25-Mar-91 | WY | 11 | SYLVIA Cr @ W PIONEER ST | 138140 | 1424 | 7.8 | 7.1 | 10.9 |
| 28-Jan-91 | WY | 11 | SYLVIA Cr @ W PIONEER ST | 58140 | 1615 | 4.7 | 6.7 | 12.9 |
| 25-Mar-91 | WY | 12 | WEDEKIND Cr @ GEISSLER RD | 138141 | 1335 | 7.3 | 7.2 | 11.1 |
| 28-Jan-91 | WY | 12 | WEDEKIND Cr @ GEISSLER RD | 58141 | 1530 | 5.5 | 6.9 | 12.9 |
| 28-Jan-91 | WY | 13 | CARTER Cr @ WYNOOCHEE RD | 58142 | 1310 | 4.2 | 7.1 | 13.9 |
| 25-Mar-91 | WY | 13 | CARTER Cr @ WYNOOCHEE RD | 138142 | 1202 | 7.1 | 7.2 | 11.7 |
| 25-Mar-91 | WY | 14 | SCHAFER Cr ABOVE COAL Cr | 138143 | 1127 | 6.4 | 7.2 | 11.8 |
| 28-Jan-91 | WY | 14 | SCHAFER Cr ABOVE COAL Cr | 58143 | 1230 | 4.4 | 7.2 | 13.6 |
| 28-Jan-91 | WY | 15 | SCHAFER Cr ABOVE COAL Cr | 58144 | 1230 | 4.4 | 7.3 | 13.7 |
| 25-Mar-91 | WY | 15 | WEDEKIND Cr @ GEISSLER RD | 138144 | 1338 | 7.3 | 7.2 | 11.1 |
| 25-Mar-91 | WY | 16 | BIG Cr @ FS 22 BRIDGE | 138145 | 1018 | 5.7 | 7.2 | 11.8 |
| 28-Jan-91 | WY | 16 | BIG Cr @ FS 22 BRIDGE | 58145 | 1100 | 5.3 | 7.3 | 13.2 |
| 25-Mar-91 | WY | 17 | W BRANCH WYN FS RD 2385 | 138146 | 922 | 5.3 | 7.2 | 11.9 |
| 28-Jan-91 | WY | 17 | WYNOOCHEE ABOVE RESERVOIR | 58146 | 940 | 3.8 | 7.3 | 13.4 |

Appendix 2. Chehalis lab data, January and March 1991.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30-Jan-91 | BL | 1 | MS @ INDEPENDENCE RD | 58198 | 87 | 10.0 | 7 | 8 | 4.7 | 0.07 | 0.05 | 0.92 |
| 27-Mar-91 | BL | 1 | MS @ INDEPENDENCE RD | 138198 | 74 | 7.5 | 2 | 41 | 3.7 | 0.03 | 0.02 | 0.77 |
| 30-Jan-91 | BL | 2 | MS @ S ELMA RD OAKVILLE | 58199 | 87 | 7.0 | 4 | 140 | 4.6 | 0.07 | 0.06 | 0.96 |
| 27-Mar-91 | BL | 2 | MS @ S ELMA RD OAKVILLE | 138199 | 75 | 9.1 | 5 | 63 | 3.7 | 0.03 | 0.04 | 0.76 |
| 30-Jan-91 | BL | 3 | MS @ S ELMA RD OAKVILLE | 58200 | 87 | 6.5 | 5 | 140 | 4.6 | 0.07 | 0.06 | 0.96 |
| 27-Mar-91 | BL | 3 | BKGRND MIMA Cr @ BORDEUX RD | 138200 | 46 | 1.6 | 1 U | 160 S | 2.6 | 0.01 U | 0.01 | 0.17 |
| 30-Jan-91 | BL | 4 | BKGRND MIMA Cr @ BORDEUX RD | 58201 | 43 | 1.6 | 1 | 1 | 2.6 | 0.01 | 0.01 U | 0.19 |
| 27-Mar-91 | BL | 4 | BKGRND MIMA Cr @ BORDEUX RD | 138201 | 46 | 2.0 | 1 U | 1 U | 2.4 | 0.01 U | 0.01 | 0.17 |
| 30-Jan-91 | BL | 5 | BLACK R @ HOWANUT RD | 58202 | 87 | 1.4 | 2 | 670 J | 4.3 | 0.08 | 0.11 | 1.13 |
| 27-Mar-91 | BL | 5 | BLACK R @ HOWANUT RD | 138202 | 83 | 2.4 | 1 U | 1 U | 3.8 | 0.04 | 0.02 | 0.89 |
| 30-Jan-91 | BL | 6 | BLACK R @ MOON RD BRDG | 58203 | 82 | 1.7 | 2 | 540 | 4.3 | 0.09 | 0.12 | 0.98 |
| 27-Mar-91 | BL | 6 | BLACK R @ MOON RD BRDG | 138203 | 78 | 2.0 | 1 | 580 | 3.6 | 0.05 | 0.05 | 0.75 |
| 30-Jan-91 | BL | 7 | BLK R @ 110th AVE BRDG | 58204 | 72 | 1.0 | 1 | 3 | 3.1 | 0.03 | 0.02 | 0.71 |
| 27-Mar-91 | BL | 7 | BLK R @ 110th AVE BRDG | 138204 | 73 | 1.4 | 1 U | 5 | 2.6 | 0.03 | 0.02 | 0.44 |
| 30-Jan-91 | BL | 8 | BLACK R @ LITTLE ROCK | 58205 | 62 | 1.3 | 2 | 10 | 3.0 | 0.03 | 0.02 | 0.58 |
| 27-Mar-91 | BL | 8 | BLACK R @ LITTLE ROCK | 138205 | 66 | 1.5 | 1 U | 210 J | 2.8 | 0.07 | 0.02 | 0.42 |
| 30-Jan-91 | BL | 9 | BLACK R @ LITTLE ROCK | 58206 | 62 | 1.0 | 1 | 11 | 3.0 | 0.03 | 0.02 | 0.58 |
| 27-Mar-91 | BL | 9 | BLACK R @ MOON RD BRDG | 138206 | 78 | 2.0 | 1 U | 520 J | 3.8 | 0.05 | 0.06 | 0.77 |
| 27-Mar-91 | BL | 10 | MIMA Cr @ RR BRDG | 138207 | 51 | 4.1 | 1 | 4 | 2.6 | 0.01 U | 0.01 | 0.32 |
| 30-Jan-91 | BL | 11 | BLACK R @ SWECKER'S DOCK | 58208 | 81 | 1.6 | 2 | 440 S | 4.0 | 0.08 | 0.16 | 1.01 |
| 27-Mar-91 | BL | 11 | BLACK R @ SWECKER'S DOCK | 138208 | 80 | 1.8 | 1 | 74 | 3.5 | 0.08 | 0.10 | 0.90 |
| 30-Jan-91 | BL | 12 | BLOOMS DITCH @ 110th BRDG | 58209 | 67 | 1.8 | 2 | 61 | 3.6 | 0.05 | 0.05 | 0.26 |
| 27-Mar-91 | BL | 12 | BLOOMS DITCH @ 110th BRDG | 138209 | 63 | 2.0 | 1 U | 11 | 2.8 | 0.05 | 0.03 | 0.13 |
| 30-Jan-91 | BL | 13 | SALMON Cr @ LITL RK RD BRDG | 58210 | 97 | 0.8 | 1 | 5 | 4.2 | 0.03 | 0.01 U | 1.80 |
| 27-Mar-91 | BL | 13 | SALMON Cr @ LITL RK RD BRDG | 138210 | 96 | 1.0 | 1 U | 5 | 3.8 | 0.02 | 0.01 | 1.25 |
| 30-Jan-91 | BL | 14 | BEAVER Cr @ LITTLE ROCK RD | 58211 | 83 | 1.3 | 2 | 67 | 5.3 | 0.05 | 0.03 | 0.84 |
| 27-Mar-91 | BL | 14 | BEAVER Cr @ LITTLE ROCK RD | 138211 | 79 | 2.1 | 1 | 280 S | 4.5 | 0.04 | 0.04 | 0.56 |
| 30-Jan-91 | BL | 15 | MIMA Cr @ RR BRDG | 58212 | 48 | 3.5 | 5 | 71 | 2.8 | 0.03 | 0.01 U | 0.34 |
| 27-Mar-91 | BL | 15 | MIMA Cr @ GATE RD SW | 138212 | 50 | 2.6 | 1 | 3 | 2.7 | 0.01 U | 0.01 | 0.27 |
| 30-Jan-91 | BL | 16 | MIMA Cr @ GATE RD SW | 58213 | 47 | 2.5 | 5 | 5 | 2.8 | 0.03 | 0.01 U | 0.29 |
| 27-Mar-91 | BL | 16 | BEAVER Cr @ LITTLE ROCK RD | 138213 | 78 | 2.0 | 1 | 410 J | 4.7 | 0.04 | 0.04 | 0.56 |
| 30-Jan-91 | BL | 17 | WADDELL Cr @ WADDELL RD | 58214 | 44 | 1.2 | 1 | 2 | 2.5 | 0.02 | 0.01 U | 0.53 |
| 27-Mar-91 | BL | 17 | WADDELL Cr @ WADDELL RD | 138214 | 45 | 1.0 | 1 U | 2 | 2.5 | 0.01 U | 0.01 | 0.47 |
| 21-Jan-91 | DS | 1 | MS @ MELLEN ST BRIDGE | 48400 | 67 | 9.0 | 18 | 12 | 4.1 | 0.10 J | 0.03 | 0.91 |
| 18-Mar-91 | DS | 1 | MS @ MELLEN ST BRIDGE | 128400 | 69 | 5.3 | 8 | 13 | 4.1 | 0.03 | 0.02 | 0.72 |
| 21-Jan-91 | DS | 2 | MS @ MELLEN ST BRIDGE | 48401 | 66 | 8.5 | 18 | 15 | 4.0 | 0.06 | 0.02 | 0.92 |
| 18-Mar-91 | DS | 2 | MS @ MELLEN ST BRIDGE | 128401 | 69 | 5.9 | 5 | 17 | 4.1 | 0.03 | 0.02 | 0.71 |
| 21-Jan-91 | DS | 3 | SALZER Cr @ REINKE RD XING | 48402 | 114 | 10.0 | 4 | 1 U | 3.2 | 0.09 | 0.01 | 2.05 |
| 18-Mar-91 | DS | 3 | SALZER Cr @ REINKE RD XING | 128402 | 116 | 9.6 | 2 | 15 | 2.9 | 0.05 | 0.01 | 1.73 |
| 21-Jan-91 | DS | 4 | SALZER Cr UNDER I-5 BRIDGE | 48403 | 91 | 11.5 | 4 | 84 S | 6.0 | 0.08 | 0.08 | 1.03 |
| 18-Mar-91 | DS | 4 | SALZER Cr UNDER I-5 BRIDGE | 128403 | 95 | 10.0 | 5 | 860 | 5.5 | 0.06 | 0.07 | 0.76 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21-Jan-91 | DS | 5 | SALZER Cr @ PROFFIT RD CULV | 48404 | 67 | 8.7 | 1 | 2 | | 4.7 | 0.06 | 0.01 | U | 0.74 |
| 18-Mar-91 | DS | 5 | SALZER Cr @ PROFFIT RD CULV | 128404 | 68 | 9.0 | 1 | 9 | | 4.3 | 0.03 | 0.01 | | 0.52 |
| 21-Jan-91 | DS | 6 | SALZER Cr @ PROFFIT RD CULV | 48405 | 67 | 8.7 | 2 | 1 | | 4.7 | 0.06 | 0.01 | | 0.74 |
| 18-Mar-91 | DS | 6 | COAL Cr @ SUNBIRD | 128405 | 85 | 9.0 | 4 | 34 | | 5.5 | 0.03 | 0.02 | | 1.30 |
| 21-Jan-91 | DS | 7 | SAL Cr @ CENTRALIA-ALPHA RD | 48406 | 72 | 9.9 | 4 | 110 | | 4.1 | 0.10 | J 0.02 | | 0.94 |
| 18-Mar-91 | DS | 7 | SAL Cr @ CENTRALIA-ALPHA RD | 128406 | 74 | 9.5 | 5 | 8300 | J | 3.9 | 0.06 | 0.10 | | 0.63 |
| 21-Jan-91 | DS | 8 | NF SALZER @ WOOD BRIDGE | 48407 | 83 | 8.6 | 6 | 27 | | 3.6 | 0.07 | 0.02 | | 1.73 |
| 18-Mar-91 | DS | 8 | NF SALZER @ WOOD BRIDGE | 128407 | 86 | 8.5 | 3 | 23 | | 3.1 | 0.03 | 0.02 | | 0.37 |
| 21-Jan-91 | DS | 9 | COAL Cr @ SUNBIRD | 48408 | 83 | 9.1 | 6 | 18 | | 5.5 | 0.05 | 0.02 | | 1.53 |
| 18-Mar-91 | DS | 9 | COAL Cr @ SUNBIRD | 128408 | 87 | 8.8 | 4 | 35 | | 5.6 | 0.03 | 0.02 | | 1.25 |
| 21-Jan-91 | DS | 10 | CHINA Cr @ ELLSBURY ST | 48409 | 74 | 6.4 | 2 | 810 | | 4.8 | 0.04 | 0.01 | U | 1.08 |
| 18-Mar-91 | DS | 10 | CHINA Cr @ ELLSBURY ST | 128409 | 91 | 5.2 | 2 | 84 | | 9.0 | 0.04 | 0.01 | | 0.67 |
| 21-Jan-91 | DS | 11 | BERWICK Cr @ LOGAN HILL RD | 48410 | 23 | 8.0 | 4 | 12 | | 2.8 | 0.02 | 0.01 | U | 0.09 |
| 18-Mar-91 | DS | 11 | BERWICK Cr @ LOGAN HILL RD | 128410 | 22 | 6.2 | 2 | 2 | | 2.2 | 0.01 | 0.00 | | 0.01 |
| 21-Jan-91 | DS | 12 | BERWICK Cr @ LOGAN HILL RD | 48411 | 23 | 8.3 | 5 | 10 | | 2.8 | 0.03 | 0.01 | U | 0.09 |
| 18-Mar-91 | DS | 12 | BERWICK Cr @ LOGAN HILL RD | 128411 | 22 | 6.2 | 1 | 8 | | 2.2 | 0.01 | 0.01 | | 0.01 |
| 21-Jan-91 | DS | 13 | DILLENBAUGH Cr UNDER I-5 | 48412 | 67 | 6.0 | 3 | 22 | | 4.9 | 0.07 | 0.02 | | 0.80 |
| 18-Mar-91 | DS | 13 | DILLENBAUGH Cr UNDER I-5 | 128412 | 73 | 5.0 | 2 | 100 | | 4.5 | 0.06 | 0.02 | | 0.55 |
| 21-Jan-91 | DS | 14 | DILL Cr @ RR BRIDGE | 48413 | 67 | 5.8 | 3 | 19 | | 4.8 | 0.07 | 0.01 | | 0.83 |
| 18-Mar-91 | DS | 14 | DILL Cr @ RR BRIDGE | 128413 | 74 | 4.5 | 2 | 110 | | 4.3 | 0.05 | 0.02 | | 0.54 |
| 21-Jan-91 | DS | 15 | DILL Cr @ ROCK HOUSE | 48414 | 43 | 4.9 | 3 | 27 | | 3.3 | 0.05 | 0.01 | | 0.77 |
| 18-Mar-91 | DS | 15 | DILL Cr @ ROCK HOUSE | 128414 | 47 | 5.0 | 2 | 80 | | 2.9 | 0.03 | 0.01 | | 0.55 |
| 21-Jan-91 | DS | 16 | DILL Cr @ RICE RD | 48415 | 61 | 8.5 | 5 | 3200 | J | 4.7 | 0.08 | 0.06 | | 0.87 |
| 18-Mar-91 | DS | 16 | DILL Cr @ RICE RD | 128415 | 64 | 10.0 | 5 | 2900 | | 4.3 | 0.05 | 0.08 | | 0.57 |
| 21-Jan-91 | DS | 17 | BERWICK Cr @ LA BREE RD | 48416 | 43 | 6.9 | 5 | 2400 | J | 3.6 | 0.05 | 0.01 | | 0.53 |
| 18-Mar-91 | DS | 17 | BERWICK Cr @ LA BREE RD | 128416 | 48 | 6.8 | 5 | 590 | | 3.3 | 0.02 | 0.01 | | 0.38 |
| 22-Jan-91 | LM | 1 | MS NEAR MONTESANO | 48434 | 69 | 6.4 | 14 | 71 | | 3.6 | 0.06 | 0.02 | | 0.76 |
| 19-Mar-91 | LM | 1 | MS NEAR MONTESANO | 128434 | 73 | 15.0 | 8 | 26 | BO | 3.6 | 0.03 | 0.02 | | 0.66 |
| 22-Jan-91 | LM | 2 | MS NEAR MONTESANO | 48435 | 69 | 6.6 | 12 | 51 | | 3.4 | 0.06 | 0.02 | | 0.76 |
| 19-Mar-91 | LM | 2 | MS NEAR MONTESANO | 128435 | 73 | 13.0 | 12 | 33 | BO | 3.7 | 0.03 | 0.02 | | 0.65 |
| 22-Jan-91 | LM | 3 | MS @ WAKEFIELD RD | 48436 | 74 | 6.4 | 10 | 46 | | 3.9 | 0.06 | 0.03 | | 0.91 |
| 19-Mar-91 | LM | 3 | MS @ WAKEFIELD RD | 128436 | 78 | 9.0 | 7 | 10 | | 4.2 | 0.03 | 0.02 | | 0.80 |
| 22-Jan-91 | LM | 4 | MS @ WAKEFIELD RD | 48437 | 74 | 6.7 | 10 | 55 | | 3.9 | 0.06 | 0.03 | | 0.91 |
| 19-Mar-91 | LM | 4 | MS @ WAKEFIELD RD | 128437 | 81 | 5.3 | 7 | 5 | | 4.2 | 0.03 | 0.02 | | 0.83 |
| 22-Jan-91 | LM | 5 | PORTER Cr @ PORTER Cr RD | 48438 | 74 | 6.3 | 12 | 77 | | 3.9 | 0.06 | 0.03 | | 0.92 |
| 19-Mar-91 | LM | 5 | PORTER Cr @ PORTER Cr RD | 128438 | 79 | 3.3 | 7 | 12 | BO | 4.1 | 0.03 | 0.02 | | 0.82 |
| 22-Jan-91 | LM | 6 | PORTER Cr @ PORTER Cr RD | 48439 | 75 | 6.7 | 11 | 75 | | 4.1 | 0.07 | 0.03 | | 0.90 |
| 19-Mar-91 | LM | 6 | PORTER Cr @ PORTER Cr RD | 128439 | 78 | 5.1 | 7 | 6 | BO | 4.5 | 0.03 | 0.02 | | 0.83 |
| 22-Jan-91 | LM | 7 | MS S ELMA RD NEAR OAKVILLE | 48440 | 78 | 7.6 | 11 | 88 | | 4.0 | 0.06 | 0.04 | | 0.95 |
| 19-Mar-91 | LM | 7 | MS S ELMA RD NEAR OAKVILLE | 128440 | 80 | 2.9 | 5 | 13 | | 4.5 | 0.03 | 0.03 | | 0.85 |
| 22-Jan-91 | LM | 8 | MS S ELMA RD NEAR OAKVILLE | 48441 | 79 | 8.7 | 11 | 88 | | 4.1 | 0.07 | 0.04 | | 0.95 |
| 19-Mar-91 | LM | 8 | MS S ELMA RD NEAR OAKVILLE | 128441 | 80 | 6.3 | 5 | 7 | | 4.4 | 0.03 | 0.03 | | 0.82 |
| 22-Jan-91 | LM | 9 | MS @ INDEPENDENCE RD | 48442 | 79 | 14.0 | 17 | 6 | | 4.2 | 0.07 | 0.04 | | 0.96 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19-Mar-91 | LM | 9 | MS @ INDEPENDENCE RD | 128442 | 81 | 5.9 | 4 | 9 | 4.3 | 0.03 | 0.03 | 0.81 |
| 22-Jan-91 | LM | 10 | MS @ INDEPENDENCE RD | 48443 | 79 | 13.0 | 18 | 18 | 4.1 | 0.07 | 0.04 | 0.96 |
| 19-Mar-91 | LM | 10 | MS @ INDEPENDENCE RD | 128443 | 81 | 4.3 | 4 | 9 | 4.3 | 0.04 | 0.03 | 0.79 |
| 22-Jan-91 | LM | 11 | WYNOUCHEE R MONT-ABERDN RD | 48444 | 49 | 5.7 | 8 | 4 | 2.1 | 0.02 | 0.01 U | 0.31 |
| 19-Mar-91 | LM | 11 | WYNOUCHEE R MONT-ABERDN RD | 128444 | 51 | 2.1 | 2 | 1 | 2.1 | 0.01 | 0.00 | 0.25 |
| 22-Jan-91 | LM | 12 | WYNOUCHEE R MONT-ABERDN RD | 48445 | 48 | 5.2 | 10 | 3 | 2.1 | 0.02 | 0.01 U | 0.30 |
| 19-Mar-91 | LM | 12 | WYNOUCHEE R MONT-ABERDN RD | 128445 | 51 | 8.1 | 2 | 1 | 2.2 | 0.01 | 0.01 | 0.25 |
| 22-Jan-91 | LM | 13 | SATSOP R @ I-5 BRIDGE | 48446 | 56 | 2.7 | 7 | 7 | 2.0 | 0.03 | 0.01 U | 0.34 |
| 19-Mar-91 | LM | 13 | SATSOP R @ I-5 BRIDGE | 128446 | 56 | 5.1 | 2 | 6 | 1.9 | 0.01 | 0.01 | 0.26 |
| 22-Jan-91 | LM | 14 | SATSOP R @ I-5 BRIDGE | 48447 | 55 | 2.6 | 6 | 5 | 2.0 | 0.02 | 0.01 U | 0.34 |
| 19-Mar-91 | LM | 14 | SATSOP R @ I-5 BRIDGE | 128447 | 56 | 5.2 | 3 | 6 | 1.9 | 0.01 | 0.00 | 0.26 |
| 22-Jan-91 | LM | 15 | BLACK R @ HOWANUT BRIDGE | 48448 | 75 | 1.5 | 3 | 450 | 3.7 | 0.11 | 0.09 | 0.87 |
| 19-Mar-91 | LM | 15 | BLACK R @ HOWANUT BRIDGE | 128448 | 82 | 32.0 | 5 | 26 | 3.9 | 0.04 | 0.02 | 0.93 |
| 22-Jan-91 | LM | 16 | BLACK R @ HOWANUT BRIDGE | 48449 | 75 | 1.5 | 3 | 440 | 3.7 | 0.10 | 0.09 | 0.90 |
| 19-Mar-91 | LM | 16 | BLACK R @ HOWANUT BRIDGE | 128449 | 81 | 25.0 | 4 | 31 | 3.9 | 0.04 | 0.03 | 0.92 |
| 22-Jan-91 | LM | 17 | SKOOK @ HARRISON BRIDGE | 48450 | 96 | 10.0 | 9 | 4 | 3.0 | 0.06 | 0.02 | 0.83 |
| 19-Mar-91 | LM | 17 | SKOOK @ HARRISON BRIDGE | 128450 | 103 | 11.1 | 6 | 72 | 3.3 | 0.03 | 0.02 | 0.76 |
| 22-Jan-91 | LM | 18 | SKOOK @ HARRISON BRIDGE | 48451 | 97 | 10.0 | 9 | 5 | 3.0 | 0.05 | 0.02 | 0.82 |
| 19-Mar-91 | LM | 18 | SKOOK @ HARRISON BRIDGE | 128451 | 103 | 10.0 | 5 | 100 | 3.1 | 0.03 | 0.02 | 0.76 |
| 23-Jan-91 | LT | 1 | MS @ SR 107 BRDG | 48468 | 71 | 7.5 | 12 | 77 | 3.3 | 0.05 | 0.03 | 0.76 |
| 20-Mar-91 | LT | 1 | MS @ SR 107 BRDG | 128468 | 74 | 4.5 | 10 | 9 | 3.4 | 0.02 | 0.02 | 0.65 |
| 20-Mar-91 | LT | 2 | MS @ S ELMA WAKEFIELD RD | 128469 | 78 | 4.8 | 7 | 9 | 3.9 | 0.02 | 0.02 | 0.78 |
| 20-Mar-91 | LT | 3 | MS @ S ELMA WAKEFIELD RD | 128470 | 78 | 5.0 | 8 | 12 | 4.0 | 0.02 | 0.02 | 0.80 |
| 20-Mar-91 | LT | 4 | MOX CHEH @ MOX CHEH RD | 128471 | 54 | 2.3 | 3 | 1 U | 3.1 | 0.00 | 0.01 | 0.59 |
| 23-Jan-91 | LT | 5 | NEWMAN Cr BLW CONF W/ VANCE | 48472 | 63 | 6.5 | 7 | 16 | 3.4 | 0.07 | 0.03 | 0.38 |
| 20-Mar-91 | LT | 5 | NEWMAN Cr BLW CONF W/ VANCE | 128472 | 60 | 3.8 | 10 | 1 | 3.4 | 0.02 | 0.01 | 0.23 |
| 23-Jan-91 | LT | 6 | NEWMAN Cr SATSOP HWY BRDG | 48473 | 41 | 2.5 | 3 | 15 | 3.2 | 0.03 | 0.01 U | 0.51 |
| 20-Mar-91 | LT | 6 | NEWMAN Cr SATSOP HWY BRDG | 128473 | 43 | 2.3 | 5 | 16 | 3.1 | 0.01 | 0.01 | 0.35 |
| 23-Jan-91 | LT | 7 | WORKMAN Cr @ LAMBERT RD | 48474 | 54 | 1.5 | 5 | 3 | 3.8 | 0.03 | 0.01 U | 0.85 |
| 20-Mar-91 | LT | 7 | WORKMAN Cr @ LAMBERT RD | 128474 | 56 | 2.0 | 7 | 3 | 3.8 | 0.01 | 0.01 | 0.67 |
| 23-Jan-91 | LT | 8 | WORKMAN Cr @ LAMBERT RD | 48475 | 54 | 3.0 | 5 | 1 U | 3.8 | 0.02 | 0.01 U | 0.86 |
| 20-Mar-91 | LT | 8 | WORKMAN Cr @ LAMBERT RD | 128475 | 57 | 2.3 | 5 | 2 | 3.8 | 0.01 | 0.01 | 0.68 |
| 23-Jan-91 | LT | 9 | CLOQ Cr @ HWY 12 BRIDGE | 48476 | 57 | 2.5 | 1 | 5 | 2.7 | 0.03 | 0.01 U | 0.58 |
| 20-Mar-91 | LT | 9 | CLOQ Cr @ HWY 12 BRIDGE | 128476 | 59 | 2.3 | 1 | 2 | 2.7 | 0.01 | 0.00 | 0.46 |
| 23-Jan-91 | LT | 10 | CLOQ Cr @ HWY 12 BRIDGE | 48477 | 57 | 2.5 | 1 | 5 | 2.7 | 0.03 | 0.01 U | 0.58 |
| 20-Mar-91 | LT | 10 | WILDCAT Cr NEAR MOUTH | 128477 | 68 | 2.8 | 1 | 4 | 4.0 | 0.02 | 0.00 | 0.64 |
| 23-Jan-91 | LT | 11 | CLOQ Cr @ ELMA McCLEARY HWY | 48478 | 52 | 2.5 | 2 | 4 | 2.5 | 0.02 | 0.01 U | 0.47 |
| 20-Mar-91 | LT | 11 | CLOQ Cr @ ELMA McCLEARY HWY | 128478 | 54 | 1.0 | 1 | 2 | 2.4 | 0.00 | 0.00 | 0.36 |
| 23-Jan-91 | LT | 12 | CLOQUALLUM Cr @ STAMPER RD | 48479 | 54 | 2.5 | 2 | 6 | 2.4 | 0.03 | 0.01 U | 0.42 |
| 20-Mar-91 | LT | 12 | CLOQUALLUM Cr @ STAMPER RD | 128479 | 55 | 1.0 | 2 | 1 | 2.3 | 0.01 | 0.00 | 0.33 |
| 23-Jan-91 | LT | 13 | WILDCAT Cr NEAR MOUTH | 48480 | 65 | 2.0 | 2 | 7 | 3.0 | 0.03 | 0.01 U | 0.81 |
| 20-Mar-91 | LT | 13 | WILDCAT Cr NEAR MOUTH | 128480 | 66 | 1.8 | 2 | 9 | 3.0 | 0.02 | 0.00 | 0.65 |
| 23-Jan-91 | LT | 14 | WILDCAT Cr E FORK | 48481 | 62 | 1.5 | 1 U | 6 | 3.1 | 0.04 | 0.01 U | 0.81 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20-Mar-91 | LT | 14 WILDCAT Cr E FORK | 128481 | 65 | 2.8 | 1 | 7 | 3.9 | 0.04 | 0.00 | 0.63 |
| 23-Jan-91 | LT | 15 DELEZENE Cr @ S BANK RD | 48482 | 55 | 3.0 | 4 | 2 | 4.1 | 0.03 | 0.01 U | 0.99 |
| 20-Mar-91 | LT | 15 DELEZENE Cr @ S BANK RD | 128482 | 58 | 2.5 | 3 | 1 U | 4.4 | 0.02 | 0.01 | 0.75 |
| 23-Jan-91 | LT | 16 MOX CHEH @ MALONE RT 12 | 48483 | 51 | 2.0 | 1 U | 6 | 3.3 | 0.02 | 0.01 U | 0.77 |
| 20-Mar-91 | LT | 16 MOX CHEH @ MALONE RT 12 | 128483 | 51 | 2.3 | 2 | 1 U | 3.2 | 0.01 | 0.01 | 0.57 |
| 23-Jan-91 | LT | 17 MOX CHEH @ MOX CHEH RD | 48484 | 54 | 2.0 | 1 | 8 | 3.2 | 0.02 | 0.01 U | 0.77 |
| 20-Mar-91 | LT | 17 MOX CHEH @ MOX CHEH RD | 128484 | 55 | 2.0 | 1 | 1 | 3.1 | 0.02 | 0.01 | 0.59 |
| 28-Jan-91 | MF | 0 | 58000 | 53 | 1.0 | 6 | 1 | 1.8 | 0.03 | 0.01 U | 0.24 |
| 23-Jan-91 | MT | 1 MS @ PORTER Cr RD | 48485 | 76 | 6.8 | 11 | 44 | 3.9 | 0.07 | 0.04 | 0.95 |
| 20-Mar-91 | MT | 1 MS @ PORTER Cr RD | 128485 | 80 | 4.8 | 7 | 6 BO | 4.0 | 0.04 | 0.02 | 0.81 |
| 23-Jan-91 | MT | 2 MS S ELMA RD NEAR OAKVILLE | 48486 | 80 | 7.5 | 11 | 140 | 4.0 | 0.07 | 0.06 | 0.99 |
| 20-Mar-91 | MT | 2 MS S ELMA RD NEAR OAKVILLE | 128486 | 82 | 5.3 | 6 | 17 | 4.1 | 0.04 | 0.02 | 0.87 |
| 23-Jan-91 | MT | 3 MS S ELMA RD NEAR OAKVILLE | 48487 | 80 | 7.0 | 51 | 140 | 4.0 | 0.07 | 0.05 | 0.99 |
| 20-Mar-91 | MT | 3 MS @ INDEPENDENCE RD | 128487 | 82 | 7.3 | 7 | 29 BO | 4.4 | 0.05 | 0.03 | 0.83 |
| 23-Jan-91 | MT | 4 MS @ INDEPENDENCE RD | 48488 | 80 | 8.8 | 12 | 25 | 4.2 | 0.06 | 0.04 | 0.98 |
| 20-Mar-91 | MT | 4 MS @ INDEPENDENCE RD | 128488 | 81 | 7.0 | 18 | 29 | 4.1 | 0.04 | 0.03 | 0.81 |
| 23-Jan-91 | MT | 5 BCKGRND INDEPENDENCE Cr | 48489 | 51 | 2.8 | 1 | 1 U | 3.7 | 0.03 | 0.01 U | 0.48 |
| 20-Mar-91 | MT | 5 BCKGRND INDEPENDENCE Cr | 128489 | 55 | 2.8 | 2 | 1 | 3.6 | 0.02 | 0.01 | 0.38 |
| 23-Jan-91 | MT | 6 PORTER Cr @ HWY 12 BRIDGE | 48490 | 46 | 2.0 | 6 | 1 U | 3.4 | 0.03 | 0.01 U | 0.74 |
| 20-Mar-91 | MT | 6 PORTER Cr @ HWY 12 BRIDGE | 128490 | 46 | 1.3 | 2 | 4 | 3.1 | 0.01 | 0.00 | 0.58 |
| 23-Jan-91 | MT | 7 CEDAR Cr @ ELMA GATE RD | 48491 | 49 | 2.5 | 5 | 1 | 3.3 | 0.01 | 0.01 U | 0.51 |
| 20-Mar-91 | MT | 7 CEDAR Cr @ ELMA GATE RD | 128491 | 52 | 2.3 | 3 | 4 | 3.1 | 0.01 U | 0.01 | 0.44 |
| 23-Jan-91 | MT | 8 PORTER Cr ABOVE CAMPGROUND | 48492 | 43 | 1.3 | 1 U | 2 | 3.3 | 0.02 | 0.01 U | 0.67 |
| 20-Mar-91 | MT | 8 PORTER Cr ABOVE CAMPGROUND | 128492 | 42 | 1.0 | 2 | 1 U | 3.0 | 0.01 | 0.00 | 0.56 |
| 23-Jan-91 | MT | 9 PORTER Cr ABOVE CAMPGROUND | 48493 | 42 | 1.5 | 1 | 1 | 3.2 | 0.02 | 0.01 U | 0.71 |
| 20-Mar-91 | MT | 9 GARRARD Cr @ MATTSON BRIDGE | 128493 | 69 | 3.3 | 7 | 28 | 4.3 | 0.03 | 0.01 | 0.87 |
| 23-Jan-91 | MT | 10 SHELTON Cr @ CEDAR Cr RD | 48494 | 54 | 3.5 | 4 | 1 U | 3.7 | 0.03 | 0.01 U | 1.29 |
| 20-Mar-91 | MT | 10 SHELTON Cr @ CEDAR Cr RD | 128494 | 60 | 1.5 | 3 | 13 | 3.2 | 0.01 | 0.00 | 0.57 |
| 23-Jan-91 | MT | 11 ROCK Cr CALLOW & S BANK RD | 48495 | 50 | 2.5 | 3 | 7 | 3.9 | 0.04 | 0.01 U | 0.98 |
| 20-Mar-91 | MT | 11 GARRARD Cr @ MATTSON BRIDGE | 128495 | 69 | 4.0 | 6 | 27 | 4.3 | 0.04 | 0.01 | 0.87 |
| 23-Jan-91 | MT | 12 ROCK Cr @ NORTON RD | 48496 | 55 | 3.0 | 3 | 18 | 4.0 | 0.04 | 0.01 | 1.21 |
| 20-Mar-91 | MT | 12 ROCK Cr @ NORTON RD | 128496 | 50 | 1.8 | 2 | 1 | 4.0 | 0.02 | 0.01 | 0.71 |
| 23-Jan-91 | MT | 13 GARRARD Cr @ MATTSON BRIDGE | 48497 | 69 | 4.8 | 13 | 67 | 4.4 | 0.06 | 0.01 | 1.09 |
| 20-Mar-91 | MT | 13 ROCK Cr CALLOW & S BANK RD | 128497 | 52 | 2.0 | 1 | 1 | 3.8 | 0.02 | 0.01 | 0.80 |
| 23-Jan-91 | MT | 14 GARRARD Cr BRKLN 1st BRDG | 48498 | 68 | 2.8 | 8 | 8 | 4.6 | 0.05 | 0.02 | 1.24 |
| 20-Mar-91 | MT | 14 GARRARD Cr BRKLN 1st BRDG | 128498 | 69 | 2.3 | 3 | 1 | 4.5 | 0.06 | 0.04 | 1.11 |
| 23-Jan-91 | MT | 15 INDEPENDENCE Cr RM 1.2 | 48499 | 63 | 5.3 | 11 | 27 | 4.4 | 0.04 | 0.01 | 0.87 |
| 20-Mar-91 | MT | 15 GARRARD Cr BRKLN 1st BRDG | 128499 | 70 | 2.8 | 3 | 4 | 4.5 | 0.06 | 0.05 | 1.05 |
| 23-Jan-91 | MT | 16 INDEPENDENCE Cr RM 1.2 | 48500 | 64 | 6.0 | 9 | 39 | 4.4 | 0.03 | 0.01 | 0.88 |
| 20-Mar-91 | MT | 16 INDEPENDENCE Cr | 128500 | 57 | 5.0 | 3 | 7 | 3.6 | 0.03 | 0.01 | 0.52 |
| 23-Jan-91 | MT | 17 INDEPENDENCE Cr UPSTREAM | 48501 |  | 4.5 | 6 | 4 |  | 0.03 | 0.01 | 1.65 |
| 20-Mar-91 | MT | 17 INDEPENDENCE Cr | 128501 | 66.4 | 5.8 | 4 | 18 | 4.3 | 0.02 | 0.01 | 0.75 |
| 29-Jan-91 | NE | 1 KEARNY Cr @ FRASE RD | 58164 | 47.8 | 3.0 | 2 | 26 | 1.71 | 0.04 | 0.01 U | 1.01 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26-Mar-91 | NE | 1 KEARNY Cr @ FRASE RD | 138164 | 38.4 | 3.5 | 8 B | 60 | 1.5 | 0.01 | 0.00 | 1.16 |
| 29-Jan-91 | NE | 2 BKGRND @ BERNIER Cr | 58165 | 77.9 | 2.2 | 2 | 1 | 5.78 | 0.05 | 0.01 U | 0.66 |
| 26-Mar-91 | NE | 2 BKGRND @ BERNIER Cr | 138165 | 70.3 | 2.9 | 8 B | 1 | 4.5 | 0.02 | 0.00 | 0.62 |
| 29-Jan-91 | NE | 3 BKGRND @ BERNIER Cr | 58166 | 77.3 | 2.0 | 2 | 3 | 5.89 | 0.04 | 0.01 U | 0.66 |
| 26-Mar-91 | NE | 3 BKGRND @ BERNIER Cr | 138166 | 70.4 | 2.6 | 8 B | 6 | 4.4 | 0.02 | 0.00 | 0.62 |
| 29-Jan-91 | NE | 4 NEWAUKUM @ RR COUNTY RD BRG | 58167 | 64.8 | 19.0 | 21 | 34 | 3.8 | 0.05 | 0.03 | 0.88 |
| 26-Mar-91 | NE | 4 NEWAUKUM @ RR COUNTY RD BRG | 138167 | 53.8 | 17.0 | 31 B | 41 | 2.8 | 0.02 | 0.01 | 0.75 |
| 29-Jan-91 | NE | 5 NEWAUKUM @ NEW V/LABREE RD | 58168 | 63.9 | 17.0 | 16 | 43 | 3.69 | 0.05 | 0.03 | 0.88 |
| 26-Mar-91 | NE | 5 NEWAUKUM @ NEW V/LABREE RD | 138168 | 53.4 | 15.0 | 28 B | 43 | 2.8 | 0.02 | 0.01 | 0.76 |
| 29-Jan-91 | NE | 6 NEWAUKUM @ NEW V/LABREE RD | 58169 | 63.6 | 16.0 | 17 | 47 | 3.71 | 0.05 | 0.03 | 0.88 |
| 26-Mar-91 | NE | 6 KEARNY Cr @ FRASE RD | 138169 | 39.2 | 3.2 | 7 B | 75 | 1.5 | 0.01 | 0.01 | 1.05 |
| 29-Jan-91 | NE | 7 NEWAUKUM @ RUSH RD | 58170 | 62.5 | 15.5 | 17 | 60 | 3.54 | 0.10 | 0.03 | 0.87 |
| 26-Mar-91 | NE | 7 NEWAUKUM @ RUSH RD | 138170 | 52.5 | 17.0 | 32 B | 89 | 2.7 | 0.02 | 0.01 | 0.79 |
| 29-Jan-91 | NE | 8 NEWAUKUM @ JACKSON HWY | 58171 | 62 | 15.0 | 18 | 46 | 3.51 | 0.05 | 0.03 | 0.87 |
| 26-Mar-91 | NE | 8 NEWAUKUM @ JACKSON HWY | 138171 | 52.4 | 17.0 | 30 B | 8 | 2.8 | 0.02 | 0.01 | 0.81 |
| 29-Jan-91 | NE | 9 NF NEWAUKUM @ TAUSCHER RD | 58172 | 33.2 | 4.6 | 1 | 5 | 2.42 | 0.02 | 0.01 U | 0.80 |
| 26-Mar-91 | NE | 9 NF NEWAUKUM @ TAUSCHER RD | 138172 | 31.7 | 5.6 | 6 B | 8 | 2.1 | 0.01 | 0.00 | 0.82 |
| 29-Jan-91 | NE | 10 NF NEWAUKUM @ TAUSCHER RD | 58173 | 33.3 | 4.3 | 1 U | 4 | 2.4 | 0.02 | 0.01 U | 0.80 |
| 26-Mar-91 | NE | 10 NF NEWAUKUM R @ TAUSCHER RD | 138173 | 59.2 | 26.0 | 67 B | 18 | 3 | 0.02 | 0.01 | 1.01 |
| 29-Jan-91 | NE | 11 NF NEWAUKUM R @ TAUSCHER RD | 58174 | 65.7 | 36.0 | 54 | 3 BO | 3.52 | 0.07 | 0.06 | 0.92 |
| 26-Mar-91 | NE | 11 NF NEWAUKUM R @ TAUSCHER RD | 138174 | 59.3 | 26.0 | 67 B | 23 | 3 | 0.02 | 0.00 | 0.93 |
| 29-Jan-91 | NE | 12 NF NEWAUKUM @ N FORK RD | 58175 | 43 | 1120.0 | 2150 J | 23 | 3.57 | 0.06 | 0.01 | 0.90 |
| 26-Mar-91 | NE | 12 NF NEWAUKUM @ N FORK RD | 138175 | 63.8 | 33.0 | 101 B | 10 | 3.2 | 0.03 | 0.00 | 0.91 |
| 29-Jan-91 | NE | 13 SF NEWAUKUM @ N FORK RD | 58176 | 62.5 | 3.6 | 4 | 67 | 3.51 | 0.05 | 0.03 | 0.82 |
| 26-Mar-91 | NE | 13 SF NEWAUKUM @ N FORK RD | 138176 | 30.9 | 4.0 | 8 B | 12 | 2.6 | 0.03 | 0.01 | 0.70 |
| 29-Jan-91 | NE | 14 SF NEWAUKUM @ GISH RD | 58177 | 58.5 | 3.3 | 4 | 28 | 2.9 | 0.04 | 0.03 | 0.73 |
| 26-Mar-91 | NE | 14 SF NEWAUKUM @ GISH RD | 138177 | 28.6 | 3.5 | 7 B | 16 | 2.3 | 0.02 | 0.01 | 0.65 |
| 29-Jan-91 | NE | 15 SF NEW @ JORGENSON DAIRY | 58178 | 56.7 | 2.5 | 3 | 10 | 2.83 | 0.02 | 0.01 U | 0.57 |
| 26-Mar-91 | NE | 15 SF NEW @ JORGENSON DAIRY | 138178 | 50.7 | 2.6 | 5 B | 16 | 2.4 | 0.01 | 0.00 | 0.64 |
| 29-Jan-91 | NE | 16 SF NEWAUKUM @ 508 | 58179 | 61.4 | 1.3 | 1 | 2 | 3.2 | 0.03 | 0.01 U | 0.52 |
| 26-Mar-91 | NE | 16 SF NEWAUKUM @ 508 | 138179 | 55.8 | 1.9 | 6 B | 4 | 2.6 | 0.02 | 0.00 | 0.53 |
| 29-Jan-91 | NE | 17 LUCAS Cr @ SENN RD | 58180 | 55.6 | 5.1 | 3 | 17 | 3.37 | 0.03 | 0.01 U | 0.86 |
| 26-Mar-91 | NE | 17 LUCAS Cr @ SENN RD | 138180 | 48.8 | 6.5 | 6 B | 17 | 2.6 | 0.02 | 0.01 | 2.38 |
| 23-Jan-91 | OT | 2 MS @ S ELMA WAKEFIELD RD | 48469 | 75.8 | 8.5 | 8 | 80 | 3.77 | 0.06 | 0.04 | 0.94 |
| 25-Mar-91 | SA | 1 MS @ WAKEFIELD RD | 138147 | 75.7 | 7.1 | 9 | 48 S | 4 | 0.04 | 0.02 | 0.70 |
| 28-Jan-91 | SA | 1 MS @ WAKEFIELD RD | 58147 | 82.4 | 4.8 | 11 | 92 | 4.37 | 0.06 | 0.05 | 0.93 |
| 28-Jan-91 | SA | 2 MS @ WAKEFIELD RD | 58148 | 81.3 | 5.5 | 10 | 75 S | 4.41 | 0.06 | 0.04 | 0.95 |
| 25-Mar-91 | SA | 2 BACKGROUND CANYON R | 138148 | 49.8 | 0.8 | 1 U | 1 | 1.5 | 0.01 U | 0.00 | 0.09 |
| 25-Mar-91 | SA | 3 BACKGROUND CANYON R | 138149 | 49.9 | 0.3 | 1 U | 1 U | 1.4 | 0.01 | 0.00 | 0.09 |
| 28-Jan-91 | SA | 3 BACKGROUND OLD LOG AREA | 58149 | 49.7 | 1.0 | 10 | 1 U | 1.75 | 0.03 | 0.01 U | 0.13 |
| 25-Mar-91 | SA | 4 SATSOP R @ MONTESANO RD | 138150 | 55.4 | 0.4 | 1 | 9 | 2 | 0.01 U | 0.00 | 0.22 |
| 28-Jan-91 | SA | 4 SATSOP R @ MONTESANO RD | 58150 | 58.6 | 1.5 | 9 | 1 | 2.16 | 0.03 | 0.01 U | 0.32 |
| 28-Jan-91 | SA | 5 W FORK SATSOP R @ SATSOP RD | 58151 | 55.9 | 2.3 | 11 | 1 U | 2.03 | 0.02 | 0.01 U | 0.34 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25-Mar-91 | SA | 5 | W FORK SATSOP R @ SATSOP RD | 138151 | 53.6 | 0.9 | 1 U | 1 | 2 | 0.01 | 0.01 | 0.23 |
| 25-Mar-91 | SA | 6 | WF SAT @ SWINGING BR ST PK | 138152 | 54.6 | 0.6 | 1 U | 2 | 1.8 | 0.01 | 0.00 | 0.15 |
| 28-Jan-91 | SA | 6 | WF SAT @ SWINGING BR ST PK | 58152 | 56 | 2.0 | 6 | 1 U | 1.81 | 0.02 | 0.01 U | 0.28 |
| 25-Mar-91 | SA | 7 | WF SATSOP @ COUG SMITH RD | 138153 | 52.8 | 0.4 | 1 | 2 | 1.7 | 0.01 | 0.01 | 0.12 |
| 28-Jan-91 | SA | 7 | WF SATSOP @ COUG SMITH RD | 58153 | 53.6 | 1.5 | 7 | 1 | 1.73 | 0.02 | 0.01 U | 0.21 |
| 25-Mar-91 | SA | 8 | MID FORK SATSOP @ SATSOP RD | 138154 | 50.4 | 0.4 | 1 U | 3 | 1.8 | 0.01 | 0.00 | 0.25 |
| 28-Jan-91 | SA | 8 | MID FORK SATSOP @ SATSOP RD | 58154 | 53.7 | 1.0 | 4 | 1 | 1.92 | 0.02 | 0.01 U | 0.39 |
| 28-Jan-91 | SA | 9 | MF SATSOP @ KELLY RD | 58155 | 52.3 | 1.0 | 4 | 1 | 1.65 | 0.03 | 0.01 U | 0.21 |
| 25-Mar-91 | SA | 9 | MF SATSOP @ KELLY RD | 138155 | 50.9 | 0.2 | 1 U | 1 U | 1.6 | 0.01 | 0.00 | 0.10 |
| 25-Mar-91 | SA | 10 | EF SATSOP @ SHAFFER PARK | 138156 | 57.6 | 0.3 | 1 U | 1 | 2 | 0.01 | 0.01 | 0.12 |
| 28-Jan-91 | SA | 10 | EF SATSOP @ SHAFFER PARK | 58156 | 60.2 | 1.0 | 5 | 2 | 2.1 | 0.04 | 0.01 U | 0.18 |
| 28-Jan-91 | SA | 11 | SATSOP R @ STAR LAKE RD | 58157 | 64.8 | 1.3 | 4 | 1 | 2.16 | 0.03 | 0.01 U | 0.07 |
| 25-Mar-91 | SA | 11 | SATSOP R @ STAR LAKE RD | 138157 | 56.3 | 0.4 | 1 | 1 U | 2 | 0.02 | 0.00 | 0.03 |
| 25-Mar-91 | SA | 12 | MF SATSOP @ KELLY RD | 138158 | 50.9 | 0.2 | 1 U | 1 U | 1.5 | 0.01 U | 0.00 | 0.10 |
| 28-Jan-91 | SA | 12 | SATSOP R @ STAR LAKE RD | 58158 | 63.7 | 1.0 | 3 | 1 | 2.13 | 0.03 | 0.01 U | 0.07 |
| 25-Mar-91 | SA | 13 | DECKER Cr @ SHAFFER PARK | 138159 | 55.5 | 0.3 | 1 U | 4 | 1.8 | 0.01 U | 0.00 | 0.20 |
| 28-Jan-91 | SA | 13 | DECKER Cr @ SHAFFER PARK | 58159 | 57.9 | 1.0 | 5 | 2 | 1.97 | 0.02 | 0.01 U | 0.28 |
| 28-Jan-91 | SA | 14 | BINGHAM Cr MO @ HATCHERY RD | 58160 | 55 | 1.0 | 4 | 1 U | 1.92 | 0.03 | 0.01 U | 0.14 |
| 25-Mar-91 | SA | 14 | BINGHAM Cr MO @ HATCHERY RD | 138160 | 54.2 | 0.8 | 1 U | 1 U | 1.8 | 0.01 | 0.00 | 0.10 |
| 28-Jan-91 | SA | 15 | BINGHAM Cr MO @ HATCHERY RD | 58161 | 55.3 | 1.0 | 1 | 1 U | 1.96 | 0.03 | 0.01 U | 0.14 |
| 25-Mar-91 | SA | 15 | CANYON R @ FS 2153 & KELLY | 138161 | 45.4 | 0.2 | 3 | 1 U | 1.3 | 0.01 U | 0.00 | 0.03 |
| 28-Jan-91 | SA | 16 | BINGHAM Cr @ MATLOCK RD | 58162 | 57.8 | 1.0 | 4 | 1 | 1.74 | 0.03 | 0.01 U | 0.18 |
| 25-Mar-91 | SA | 16 | BINGHAM Cr @ MATLOCK RD | 138162 | 58.3 | 0.8 | 1 U | 1 U | 1.8 | 0.01 | 0.01 | 0.13 |
| 25-Mar-91 | SA | 17 | CANYON R @ FS 2153 & KELLY | 138163 | 45.6 | 0.3 | 1 U | 1 U | 1.3 | 0.01 U | 0.00 | 0.03 |
| 28-Jan-91 | SA | 17 | CANYON R @ FS 2153 & KELLY | 58163 | 47.7 | 1.5 | 16 | 1 U | 1.39 | 0.02 | 0.01 U | 0.09 |
| 29-Jan-91 | SF | 1 | MS @ CERES HILL RD | 58181 | 67.4 | 1.7 | 1 | 5 | 4.23 | 0.03 | 0.01 U | 0.57 |
| 26-Mar-91 | SF | 1 | MS @ CERES HILL RD | 138181 | 59.7 | 3.0 | 5 B | 4 | 3.6 | 0.02 | 0.01 | 0.54 |
| 29-Jan-91 | SF | 2 | MS @ CERES HILL RD | 58182 | 67.4 | 1.7 | 1 | 2 | 4.3 | 0.03 | 0.01 U | 0.57 |
| 26-Mar-91 | SF | 2 | MS @ CERES HILL RD | 138182 | 59.3 | 3.0 | 5 B | 6 | 3.7 | 0.02 | 0.01 | 0.55 |
| 29-Jan-91 | SF | 3 | MS @ ADNA SR6 | 58183 | 73.7 | 3.0 | 5 | 5 | 4.59 | 0.03 | 0.01 U | 0.72 |
| 26-Mar-91 | SF | 3 | MS @ ADNA SR6 | 138183 | 63.3 | 5.5 | 9 B | 17 | 3.9 | 0.02 | 0.01 | 0.60 |
| 29-Jan-91 | SF | 4 | BKGRND @ UPPER SLIDE Cr | 58184 | 56 | 1.1 | 1 | 1 U | 3.43 | 0.02 | 0.01 U | 0.36 |
| 26-Mar-91 | SF | 4 | BKGRND @ UPPER SLIDE Cr | 138184 | 53.1 | 1.7 | 2 B | 1 U | 3.2 | 0.01 | 0.00 | 0.29 |
| 29-Jan-91 | SF | 5 | S FORK @ SR6 RR TRESTLE | 58185 | 78.5 | 3.8 | 6 | 37 | 4.96 | 0.04 | 0.03 | 0.81 |
| 26-Mar-91 | SF | 5 | S FORK @ SR6 RR TRESTLE | 138185 | 68.9 | 6.7 | 6 B | 23 | 4 | 0.02 | 0.01 | 0.68 |
| 29-Jan-91 | SF | 6 | SF @ BOISTFORT & MOONHILL | 58186 | 78.6 | 3.4 | 5 | 68 | 4.96 | 0.04 | 0.04 | 0.84 |
| 26-Mar-91 | SF | 6 | SF @ BOISTFORT & MOONHILL | 138186 | 69.5 | 4.8 | 5 B | 10 | 4.1 | 0.02 | 0.01 | 0.69 |
| 29-Jan-91 | SF | 7 | S FORK @ BOISTFORT SCHOOL | 58187 | 79 | 3.9 | 4 | 390 | 4.23 | 0.05 | 0.11 | 0.93 |
| 26-Mar-91 | SF | 7 | S FORK @ BOISTFORT SCHOOL | 138187 | 69.4 | 4.1 | 5 B | 14 | 3.6 | 0.02 | 0.01 | 0.85 |
| 29-Jan-91 | SF | 8 | S FORK @ WILDWOOD | 58188 | 68.3 | 3.3 | 6 | 6 | 3.56 | 0.03 | 0.01 U | 0.74 |
| 26-Mar-91 | SF | 8 | S FORK @ WILDWOOD | 138188 | 63.2 | 4.6 | 5 B | 4 | 3.2 | 0.02 | 0.01 | 0.66 |
| 29-Jan-91 | SF | 9 | S FORK @ WILDWOOD RD BRDG | 58189 | 61.8 | 1.4 | 1 | 2 | 3 | 0.03 | 0.01 U | 0.57 |
| 26-Mar-91 | SF | 9 | S FORK @ WILDWOOD RD BRDG | 138189 | 58.7 | 1.9 | 4 B | 10 | 2.8 | 0.01 | 0.01 | 0.51 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | | FC (CFU) | | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29-Jan-91 | SF | 10 | S FORK @ INT'L PAPER RD | 58190 | 55 | 1.0 | 1 | | 7 | | 2.83 | 0.02 | 0.01 | U | 0.51 |
| 26-Mar-91 | SF | 10 | S FORK @ INT'L PAPER RD | 138190 | 53 | 1.8 | 3 | B | 2 | | 2.6 | 0.01 | 0.00 | | 0.46 |
| 29-Jan-91 | SF | 11 | S FORK @ INT'L PAPER RD | 58191 | 55.1 | 1.1 | 2 | | 10 | | 2.82 | 0.02 | 0.01 | U | 0.51 |
| 26-Mar-91 | SF | 11 | S FORK @ BOISTFORT SCHOOL | 138191 | 69.6 | 4.3 | 5 | B | 12 | | 3.7 | 0.02 | 0.01 | | 0.83 |
| 29-Jan-91 | SF | 12 | STILLMN Cr @ LOST VALLEY RD | 58192 | 67.2 | 1.5 | 1.005 | | 1 | U | 3.49 | 0.03 | 0.01 | U | 0.51 |
| 26-Mar-91 | SF | 12 | STILLMN Cr @ LOST VALLEY RD | 138192 | 63.7 | 2.1 | 3 | B | 12 | | 3.1 | 0.02 | 0.01 | | 0.40 |
| 29-Jan-91 | SF | 13 | STILLMAN C @ PeELL McDON RD | 58193 | 66 | 1.5 | 1 | | 1 | | 3.35 | 0.03 | 0.01 | U | 0.49 |
| 26-Mar-91 | SF | 13 | STILLMAN C @ PeELL McDON RD | 138193 | 62.5 | 2.1 | 3 | B | 1 | | 3 | 0.01 | 0.01 | | 0.39 |
| 29-Jan-91 | SF | 14 | LAKE Cr @ KING RD BRDG | 58194 | 66 | 7.0 | 3 | | 6 | | 4.97 | 0.05 | 0.01 | | 0.44 |
| 26-Mar-91 | SF | 14 | LAKE Cr @ KING RD BRDG | 138194 | 58.2 | 8.8 | 7 | B | 25 | | 3.9 | 0.04 | 0.01 | | 0.52 |
| 29-Jan-91 | SF | 15 | LAKE Cr @ KING RD BRDG | 58195 | 64.1 | 6.9 | 3 | | 14 | | 4.97 | 0.05 | 0.02 | | 0.44 |
| 26-Mar-91 | SF | 15 | STILLMN Cr @ LOST VALLEY RD | 138195 | 63.8 | 2.9 | 3 | B | 6 | | 3.1 | 0.02 | 0.01 | | 0.40 |
| 29-Jan-91 | SF | 16 | HALFWAY Cr @ PeELL McDON RD | 58196 | 65.5 | 2.5 | 1 | | 4 | | 4.55 | 0.03 | 0.01 | U | 0.33 |
| 26-Mar-91 | SF | 16 | HALFWAY Cr @ PeELL McDON RD | 138196 | 61.7 | 4.6 | 2 | B | 3 | | 3.7 | 0.01 | U 0.00 | | 0.24 |
| 29-Jan-91 | SF | 17 | MS @ MELLEN ST BRDG | 58197 | 76.9 | 10.5 | 10 | | 12 | | 4.89 | 0.06 | 0.03 | | 0.81 |
| 26-Mar-91 | SF | 17 | MS @ MELLEN ST BRDG | 138197 | 61.7 | 10.0 | 13 | B | 60 | | 3.7 | 0.03 | 0.02 | | 0.66 |
| 30-Jan-91 | SK | 1 | MS @ PRATHER RD | 58215 | 84.3 | 7.7 | 7 | | 8 | | 4.63 | 0.06 | 0.04 | | 0.88 |
| 27-Mar-91 | SK | 1 | MS @ PRATHER RD | 138215 | 73 | 8.0 | 7 | | 23 | | 3.8 | 0.04 | 0.02 | | 0.69 |
| 30-Jan-91 | SK | 2 | MS @ MELLEN RD | 58216 | 71.9 | 6.3 | 7 | | 6 | | 5.04 | 0.06 | 0.03 | | 0.83 |
| 27-Mar-91 | SK | 2 | MS @ MELLEN RD | 138216 | 64.5 | 7.3 | 7 | | 21 | | 4 | 0.03 | 0.02 | | 0.69 |
| 30-Jan-91 | SK | 3 | BKGRND @ RUN Cr | 58217 | 65.9 | 5.8 | 1 | | 2 | | 3.07 | 0.05 | 0.01 | | 1.50 |
| 27-Mar-91 | SK | 3 | BKGRND @ RUN Cr | 138217 | 54.7 | 12.0 | 1 | U | 5 | | 2.5 | 0.03 | 0.01 | | 1.37 |
| 30-Jan-91 | SK | 4 | BKGRND @ RUN Cr | 58218 | 65.9 | 5.8 | 1 | | 1 | | 3 | 0.06 | 0.01 | U | 1.50 |
| 27-Mar-91 | SK | 4 | MS @ MELLEN RD | 138218 | 64 | 7.2 | 8 | | 29 | | 3.9 | 0.04 | 0.02 | | 0.69 |
| 30-Jan-91 | SK | 5 | SKOOKUM @ BORST PK INTERCHG | 58219 | 87.7 | 10.5 | 8 | | 2 | | 2.99 | 0.05 | 0.02 | | 0.79 |
| 27-Mar-91 | SK | 5 | SKOOKUM @ BORST PK INTERCHG | 138219 | 103 | 8.0 | 4 | | 9 | | 3.1 | 0.03 | 0.01 | | 0.71 |
| 30-Jan-91 | SK | 6 | SKOOKUM @ BORST PK INTERCHG | 58220 | 87.4 | 10.5 | 7 | | 6 | | 2.96 | 0.05 | 0.02 | | 0.79 |
| 27-Mar-91 | SK | 6 | SKOOKUMCHUCK @ SKOOK RD | 138220 | 48.9 | 7.6 | 2 | | 1 | U | 1.9 | 0.02 | 0.01 | | 0.70 |
| 30-Jan-91 | SK | 7 | SKOOK @ SCHAFFER Co PARK | 58221 | 54.6 | 11.5 | 9 | | 4 | | 2.43 | 0.05 | 0.01 | | 0.77 |
| 27-Mar-91 | SK | 7 | SKOOK @ SCHAFFER Co PARK | 138221 | 56.2 | 8.0 | 3 | | 4 | | 2.5 | 0.02 | 0.01 | | 0.76 |
| 30-Jan-91 | SK | 8 | SKOOKUMCHUCK @ 7th ST | 58222 | 52.4 | 12.0 | 7 | | 4 | | 2.34 | 0.05 | 0.02 | | 0.75 |
| 27-Mar-91 | SK | 8 | SKOOKUMCHUCK @ TONO RD | 138222 | 54.9 | 7.6 | 4 | | 1 | U | 2.5 | 0.02 | 0.01 | | 0.78 |
| 30-Jan-91 | SK | 9 | SKOOKUMCHUCK @ SKOOK RD | 58223 | 46.4 | 12.5 | 7 | | 2 | | 1.81 | 0.05 | 0.02 | | 0.68 |
| 27-Mar-91 | SK | 9 | SKOOKUMCHUCK @ SKOOK RD | 138223 | 48.8 | 7.6 | 3 | | 2 | | 0.1 | U 0.02 | 0.01 | | 0.70 |
| 30-Jan-91 | SK | 10 | SKOOK @ RESERVOIR OUTLET | 58224 | 45.3 | 14.0 | 8 | | 1 | U | 1.74 | 0.06 | 0.02 | | 0.68 |
| 27-Mar-91 | SK | 10 | SKOOK @ RESERVOIR OUTLET | 138224 | 46.9 | 7.4 | 2 | | 1 | U | 1.6 | 0.03 | 0.01 | | 0.64 |
| 30-Jan-91 | SK | 11 | SKOOK ABOVE RESERV RUN Cr | 58225 | 55.3 | 1.2 | 2 | | 1 | | 1.87 | 0.03 | 0.01 | U | 0.45 |
| 27-Mar-91 | SK | 11 | SKOOK ABOVE RESERV RUN Cr | 138225 | 52.2 | 2.6 | 1 | | 1 | | 1.7 | 0.02 | 0.01 | | 0.49 |
| 30-Jan-91 | SK | 12 | HANAFORD Cr @ HANAFORD RD | 58226 | 244 | 7.2 | 7 | | 9 | | 5.07 | 0.05 | 0.04 | | 0.82 |
| 27-Mar-91 | SK | 12 | HANAFORD Cr @ HANAFORD RD | 138226 | 234 | 8.6 | 7 | | 12 | | 4.4 | 0.03 | 0.03 | | 0.57 |
| 30-Jan-91 | SK | 13 | SF HANAFORD @ HANAFORD RD | 58227 | 122 | 6.9 | 5 | | 4 | | 8.58 | 0.06 | 0.05 | | 0.77 |
| 27-Mar-91 | SK | 13 | SF HANAFORD @ HANAFORD RD | 138227 | 121 | 9.0 | 5 | | 8 | | 6.4 | 0.05 | 0.03 | | 0.39 |
| 30-Jan-91 | SK | 14 | SF HANAFORD @ HANAFORD RD | 58228 | 122 | 6.6 | 6 | | 6 | | 8.62 | 0.06 | 0.05 | | 0.77 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27-Mar-91 | SK | 14 | HANAFORD Cr @ HANAFORD RD | 138228 | 234 | 8.5 | 7 | 17 | 4.2 | 0.04 | 0.03 | 0.57 |
| 30-Jan-91 | SK | 15 | NF HANAFORD @ RR TRESTLE | 58229 | 274 | 6.7 | 11 | 6 | 4.02 | 0.05 | 0.04 | 0.78 |
| 27-Mar-91 | SK | 15 | NF HANAFORD @ RR TRESTLE | 138229 | 256 | 8.8 | 9 | 16 | 3.8 | 0.02 | 0.02 | 0.62 |
| 30-Jan-91 | SK | 16 | JOHNSON Cr | 58230 | 66.9 | 6.4 | 3 | 7 | 3 | 0.07 | 0.01 U | 1.17 |
| 27-Mar-91 | SK | 16 | JOHNSON Cr | 138230 | 65 | 9.6 | 4 | 13 | 2.4 | 0.03 | 0.01 | 1.20 |
| 30-Jan-91 | SK | 17 | THOMPSON Cr @ THOMPS Cr RD | 58231 | 49.1 | 5.7 | 3 | 9 | 2.65 | 0.04 | 0.01 U | 0.80 |
| 27-Mar-91 | SK | 17 | THOMPSON Cr @ THOMPS Cr RD | 138231 | 49 | 10.0 | 2 | 1 | 2.7 | 0.02 | 0.01 | 0.88 |
| 22-Jan-91 | UM | 1 | MS @ PRATHER RD | 48452 | 78.4 | 10.5 | 15 | 74 | 4.07 | 0.06 | 0.04 | 0.92 |
| 19-Mar-91 | UM | 1 | MS @ PRATHER RD | 128452 | 77 | 4.9 | 6 | 18 | 4.1 | 0.03 | 0.03 | 0.72 |
| 22-Jan-91 | UM | 2 | MS @ PRATHER RD | 48453 | 77.2 | 11.5 | 16 | 84 | 3.96 | 0.06 | 0.04 | 0.91 |
| 19-Mar-91 | UM | 2 | MS @ PRATHER RD | 128453 | 77.8 | 9.9 | 6 | 17 | 4 | 0.03 | 0.03 | 0.73 |
| 22-Jan-91 | UM | 3 | MS @ MELLEN ST BRIDGE | 48454 | 70.8 | 12.0 | 15 | 13 | 4.16 | 0.06 | 0.02 | 0.89 |
| 19-Mar-91 | UM | 3 | MS @ MELLEN ST BRIDGE | 128454 | 70.1 | 11.3 | 6 | 31 | 4.2 | 0.03 | 0.02 | 0.69 |
| 22-Jan-91 | UM | 4 | MS @ MELLEN ST BRIDGE | 48455 | 69.8 | 12.0 | 19 | 7 | 4.07 | 0.06 | 0.03 | 0.89 |
| 19-Mar-91 | UM | 4 | MS @ MELLEN ST BRIDGE | 128455 | 70.1 | 3.2 | 6 | 22 | 4.1 | 0.03 | 0.02 | 0.68 |
| 22-Jan-91 | UM | 5 | MS @ ADNA | 48456 | 68.6 | 4.9 | 13 | 12 | 4.06 | 0.05 | 0.01 U | 0.79 |
| 19-Mar-91 | UM | 5 | MS @ ADNA | 128456 | 67.5 | 8.2 | 6 | 6 | 4 | 0.01 | 0.01 | 0.61 |
| 22-Jan-91 | UM | 6 | MS @ ADNA | 48457 | 68.6 | 4.8 | 12 | 10 | 4.03 | 0.03 | 0.01 U | 0.81 |
| 19-Mar-91 | UM | 6 | MS @ ADNA | 128457 | 67.6 | 4.6 | 6 | 5 | 4 | 0.02 | 0.01 | 0.60 |
| 22-Jan-91 | UM | 7 | MS @ CERES HILL | 48458 | 63.7 | 2.9 | 6 | 6 | 3.9 | 0.03 | 0.01 U | 0.67 |
| 19-Mar-91 | UM | 7 | MS @ CERES HILL | 128458 | 62.5 | 2.5 | 3 | 8 | 3.8 | 0.01 | 0.01 | 0.49 |
| 22-Jan-91 | UM | 8 | MS @ CERES HILL | 48459 | 63.6 | 2.8 | 6 | 10 | 3.88 | 0.03 | 0.01 U | 0.68 |
| 19-Mar-91 | UM | 8 | MS @ CERES HILL | 128459 | 63 | 3.1 | 3 | 10 | 3.9 | 0.01 | 0.01 | 0.51 |
| 22-Jan-91 | UM | 9 | MS CHANDLER RD AT DRYAD | 48460 | 62.7 | 1.8 | 4 | 2 | 3.82 | 0.03 | 0.01 U | 0.65 |
| 19-Mar-91 | UM | 9 | MS CHANDLER RD AT DRYAD | 128460 | 61.4 | 3.2 | 3 | 8 | 3.6 | 0.01 | 0.01 | 0.47 |
| 22-Jan-91 | UM | 10 | MS CHANDLER RD AT DRYAD | 48461 | 62.7 | 1.8 | 6 | 4 | 3.77 | 0.03 | 0.01 U | 0.66 |
| 19-Mar-91 | UM | 10 | MS CHANDLER RD AT DRYAD | 128461 | 61.8 | 3.2 | 3 | 14 | 3.6 | 0.01 | 0.01 | 0.47 |
| 22-Jan-91 | UM | 11 | MS @ PcELL | 48462 | 62.8 | 1.0 | 2 | 6 | 2.79 | 0.03 | 0.01 U | 0.13 |
| 19-Mar-91 | UM | 11 | MS @ PcELL | 128462 | 60.5 | 0.9 | 2 | 2 | 2.6 | 0.01 | 0.00 | 0.39 |
| 22-Jan-91 | UM | 12 | MS @ PcELL | 48463 | 62.7 | 1.1 | 2 | 13 | 3.37 | 0.02 | 0.01 U | 0.52 |
| 19-Mar-91 | UM | 12 | MS @ PcELL | 128463 | 60.3 | 3.5 | 2 | 4 | 2.7 | 0.01 | 0.00 | 0.37 |
| 22-Jan-91 | UM | 13 | NEWAUKUM R MOUTH | 48464 | 58.8 | 23.0 | 49 | 32 | 3.08 | 0.07 | 0.03 | 2.62 |
| 19-Mar-91 | UM | 13 | NEWAUKUM R MOUTH | 128464 | 59.1 | 5.3 | 23 | 53 S | 3.3 | 0.02 | 0.01 | 0.80 |
| 22-Jan-91 | UM | 14 | NEWAUKUM R MOUTH | 48465 | 59 | 25.5 | 47 | 29 | 3.1 | 0.07 | 0.03 | 0.95 |
| 19-Mar-91 | UM | 14 | NEWAUKUM R MOUTH | 128465 | 60.7 | 5.9 | 27 | 28 | 3.2 | 0.02 | 0.01 | 0.77 |
| 22-Jan-91 | UM | 15 | SOUTH FORK @ TRELLIS | 48466 | 71.6 | 5.6 | 8 | 11 | 4.09 | 0.02 | 0.01 U | 0.91 |
| 19-Mar-91 | UM | 15 | SOUTH FORK @ TRELLIS | 128466 | 71.3 | 3.3 | 4 | 6 | 4.1 | 0.02 | 0.01 | 0.71 |
| 22-Jan-91 | UM | 16 | SOUTH FORK @ TRELLIS | 48467 | 71.6 | 5.7 | 8 | 13 | 4.06 | 0.04 | 0.01 U | 0.92 |
| 19-Mar-91 | UM | 16 | SOUTH FORK @ TRELLIS | 128467 | 71.3 | 2.9 | 4 | 7 | 4.2 | 0.01 | 0.01 | 0.70 |
| 21-Jan-91 | UT | 1 | MS @ INDEPENDENCE RD | 48417 | 76 | 9.0 | 18 | 19 | 3.97 | 0.07 | 0.03 | 0.95 |
| 18-Mar-91 | UT | 1 | MS @ INDEPENDENCE RD | 128417 | 79.8 | 5.4 | 6 | 15 | 4 | 0.04 | 0.03 | 0.84 |
| 21-Jan-91 | UT | 2 | MS @ ADNA BRIDGE SR 6 | 48418 | 66.3 | 5.7 | 26 | 16 | 3.98 | 0.07 | 0.02 | 0.82 |
| 18-Mar-91 | UT | 2 | MS @ ADNA BRIDGE SR 6 | 128418 | 67.2 | 3.5 | 6 | 8 | 4 | 0.02 | 0.01 | 0.62 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21-Jan-91 | UT | 3 | MS @ PeELL | 48419 | 60.8 | 1.6 | 7 | 7 | 3.01 | 0.03 | 0.01 U | 0.54 |
| 18-Mar-91 | UT | 3 | MS @ PeELL | 128419 | 61.1 | 0.5 | 1 U | 19 | 2.7 | 0.01 | 0.00 | 0.39 |
| 21-Jan-91 | UT | 4 | MS @ PeELL | 48420 | 62.1 | 1.3 | 5 | 10 | 3.23 | 0.04 | 0.01 U | 0.54 |
| 18-Mar-91 | UT | 4 | MS @ CERES HILL RD | 128420 | 62.7 | 1.6 | 2 | 4 | 3.8 | 0.01 | 0.01 | 0.51 |
| 21-Jan-91 | UT | 5 | MS @ CERES HILL RD | 48421 | 62.3 | 2.9 | 9 | 7 | 3.93 | 0.05 | 0.01 U | 0.70 |
| 18-Mar-91 | UT | 5 | MS @ CERES HILL RD | 128421 | 62.5 | 1.8 | 2 | 11 | 3.7 | 0.02 | 0.01 | 0.51 |
| 21-Jan-91 | UT | 6 | BUNKER RD PAST INGALLS RD | 48422 | 76.3 | 2.0 | 8 | 1 U | 3.33 | 0.10 | 0.01 U | 0.52 |
| 18-Mar-91 | UT | 6 | BUNKER RD PAST INGALLS RD | 128422 | 79 | 2.3 | 4 | 1 U | 3.1 | 0.07 | 0.01 | 0.39 |
| 21-Jan-91 | UT | 7 | LINCOLN Cr BEHIND GRANGE | 48423 | 79.3 | 5.6 | 13 | 10 | 4.05 | 0.03 | 0.01 U | 2.46 |
| 18-Mar-91 | UT | 7 | LINCOLN Cr BEHIND GRANGE | 128423 | 78 | 3.1 | 3 | 1 | 3.7 | 0.02 | 0.01 | 1.27 |
| 21-Jan-91 | UT | 8 | SCATTER Cr @ JAMES RD | 48424 | 88.1 | 1.2 | 2 | 8 | 3.74 | 0.06 | 0.01 U | 1.23 |
| 18-Mar-91 | UT | 8 | SCATTER Cr @ JAMES RD | 128424 | 94 | 1.6 | 5 | 7 | 4.1 | 0.04 | 0.01 | 1.28 |
| 21-Jan-91 | UT | 9 | SCATTER Cr @ PACIFIC HWY | 48425 | 82.4 | 1.2 | 2 | 11 | 3.63 | 0.04 | 0.01 U | 0.82 |
| 18-Mar-91 | UT | 9 | SCATTER Cr @ PACIFIC HWY | 128425 | 82 | 1.6 | 1 | 4 | 3.6 | 0.02 | 0.01 | 0.63 |
| 21-Jan-91 | UT | 10 | SCATTER Cr ABOVE TENINO | 48426 | 80.1 | 2.3 | 5 | 6 S | 4.11 | 0.05 | 0.01 U | 0.69 |
| 18-Mar-91 | UT | 10 | SCATTER Cr ABOVE TENINO | 128426 | 81.3 | 2.5 | 2 | 22 | 4.1 | 0.03 | 0.01 | 0.41 |
| 21-Jan-91 | UT | 11 | LINCOLN Cr BEFORE GALVIN | 48427 | 68.4 | 6.6 | 7 | 19 S | 4.19 | 0.05 | 0.01 U | 0.82 |
| 18-Mar-91 | UT | 11 | LINCOLN Cr BEFORE GALVIN | 128427 | 72.1 | 4.2 | 4 | 3 | 4.3 | 0.04 | 0.02 | 0.47 |
| 21-Jan-91 | UT | 12 | LINCOLN Cr @ ECHO RD | 48428 | 68.6 | 9.3 | 26 | 200 S | 4.32 | 0.09 | 0.01 | 1.08 |
| 18-Mar-91 | UT | 12 | LINCOLN Cr @ ECHO RD | 128428 | 70.5 | 3.8 | 7 | 32 | 4.3 | 0.04 | 0.01 | 0.83 |
| 21-Jan-91 | UT | 13 | LINCOLN Cr @ ECHO RD | 48429 | 69.1 | 8.8 | 29 | 210 S | 4.34 | 0.08 | 0.01 | 1.12 |
| 18-Mar-91 | UT | 13 | SCATTER Cr ABOVE TENINO | 128429 | 81.9 | 2.6 | 3 | 15 | 4 | 0.03 | 0.01 | 0.41 |
| 21-Jan-91 | UT | 14 | STEARNS Cr @ OAKS RD | 48430 | 62.3 | 11.5 | 16 | 92 S | 4.71 | 0.10 | 0.07 | 1.50 |
| 18-Mar-91 | UT | 14 | STEARNS Cr @ OAKS RD | 128430 | 60.4 | 6.8 | 8 | 27 | 4.4 | 0.04 | 0.04 | 0.99 |
| 21-Jan-91 | UT | 15 | BUNKER Cr @ CERES Cr RD | 48431 | 57.7 | 8.6 | 10 | 10 | 4.24 | 0.06 | 0.01 | 0.66 |
| 18-Mar-91 | UT | 15 | BUNKER Cr @ CERES Cr RD | 128431 | 61.7 | 6.5 | 5 | 1 U | 4.4 | 0.04 | 0.01 | 0.48 |
| 21-Jan-91 | UT | 16 | BUNKER Cr @ CERES Cr RD | 48432 | 57.8 | 9.0 | 10 | 9 | 4.17 | 0.06 | 0.01 | 0.66 |
| 18-Mar-91 | UT | 16 | ELK Cr JUST PAST DOTY | 128432 | 55.9 | 1.9 | 3 | 3 | 4.7 | 0.02 | 0.01 | 0.66 |
| 21-Jan-91 | UT | 17 | ELK Cr JUST PAST DOTY | 48433 | 54.9 | 2.5 | 7 | 1 | 4.92 | 0.04 | 0.01 U | 0.80 |
| 18-Mar-91 | UT | 17 | ELK Cr JUST PAST DOTY | 128433 | 56.1 | 2.0 | 4 | 3 | 4.9 | 0.01 | 0.01 | 0.66 |
| 28-Jan-91 | WY | 1 | MS @ SR 107 | 58130 | 74.4 | 4.5 | 20 | 65 | 3.74 | 0.05 | 0.04 | 0.75 |
| 25-Mar-91 | WY | 1 | MS @ SR 107 | 138130 | 70.6 | 5.3 | 3 | 47 S | 3.4 | 0.04 | 0.02 | 0.59 |
| 28-Jan-91 | WY | 2 | BKGRND SITE V-SHAPE TRAP | 58131 | 53.2 | 1.0 | 9 | 1 U | 1.05 | 0.01 | 0.01 U | 0.06 |
| 25-Mar-91 | WY | 2 | MS @ SR 107 | 138131 | 70.7 | 5.3 | 1 | 32 S | 3.4 | 0.03 | 0.02 | 0.59 |
| 28-Jan-91 | WY | 3 | BKGRND SITE V-SHAPE TRAP | 58132 | 53 | 1.0 | 7 | 1 U | 1.05 | 0.01 K | 0.01 U | 0.06 |
| 25-Mar-91 | WY | 3 | BKGRND SITE V-SHAPE TRAP | 138132 | 50.8 | 0.1 | 1 U | 1 U | 0.66 | 0.01 U | 0.00 | 0.03 |
| 28-Jan-91 | WY | 4 | WYNOOCHEE R @ RM 1.6 | 58133 | 51.6 | 2.5 | 10 | 6 | 2.29 | 0.02 | 0.01 U | 0.30 |
| 25-Mar-91 | WY | 4 | WYNOOCHEE R @ RM 1.6 | 138133 | 51.4 | 0.8 | 1 U | 8 | 2.1 | 0.01 U | 0.01 | 0.24 |
| 28-Jan-91 | WY | 5 | WYNOOCHEE @ GEISSLER RD | 58134 | 50 | 2.5 | 8 | 2 | 1.98 | 0.02 | 0.01 U | 0.26 |
| 25-Mar-91 | WY | 5 | WYNOOCHEE @ GEISSLER RD | 138134 | 50.2 | 0.6 | 1 U | 9 | 1.7 | 0.01 | 0.00 | 0.18 |
| 28-Jan-91 | WY | 6 | WYNOOCHEE @ WYN-WISHKAH RD | 58135 | 48.9 | 2.3 | 10 | 1 U | 1.65 | 0.02 | 0.01 U | 0.21 |
| 25-Mar-91 | WY | 6 | WYNOOCHEE @ WYN-WISHKAH RD | 138135 | 48.9 | 2.1 | 1 U | 3 | 1.4 | 0.01 U | 0.01 | 0.15 |
| 28-Jan-91 | WY | 7 | WYNOOCHEE @ FS 2294 BRIDGE | 58136 | 45.3 | 5.5 | 12 | 1 U | 1.02 | 0.02 | 0.01 U | 0.08 |

Appendix 2. Chehalis lab data, January and March 1991. Continued.

| Date | Site | Site | Site Description | Lab # | Cond. (uhmos/cm) | Turb. (NTU) | TSS (mg/L) | FC (CFU) | CL (mg/L) | TP-P (mg/L) | NH3-N (mg/L) | NO2+NO3-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25-Mar-91 | WY | 7 | WYNOOCHEE @ FS 2294 BRIDGE | 138136 | 47.4 | 3.2 | 1 U | 2 | 0.57 | 0.01 U | 0.01 | 0.05 |
| 28-Jan-91 | WY | 8 | WYNOOCHEE @ FS 2294 BRIDGE | 58137 | 44.8 | 6.5 | 10 | 1 | 1.02 | 0.01 | 0.01 U | 0.08 |
| 25-Mar-91 | WY | 8 | WYNOOCHEE @ GEISSLER RD | 138137 | 49.9 | 1.2 | 1 U | 5 | 1.8 | 0.01 U | 0.01 | 0.22 |
| 28-Jan-91 | WY | 9 | WYNOOCHEE ABOVE RESERVOIR | 58138 | 65.2 | 1.0 | 7 | 1 U | 0.84 | 0.01 K | 0.01 U | 0.08 |
| 25-Mar-91 | WY | 9 | WYNOOCHEE R @ RM 1.6 | 138138 | 50.9 | 2.0 | 2 | 3 | 2 | 0.01 | 0.01 | 0.24 |
| 28-Jan-91 | WY | 10 | BLACK Cr MO @ BLACK Cr RD | 58139 | 39.7 | 2.0 | 8 | 4 BO | 3.77 | 0.02 | 0.01 U | 0.51 |
| 25-Mar-91 | WY | 10 | BLACK Cr MO @ BLACK Cr RD | 138139 | 39.7 | 2.2 | 3 | 14 | 3.5 | 0.01 U | 0.01 | 0.50 |
| 28-Jan-91 | WY | 11 | SYLVIA Cr @ W PIONEER ST | 58140 | 41.7 | 3.3 | 9 | 5 BO | 4.08 | 0.02 | 0.01 U | 0.43 |
| 25-Mar-91 | WY | 11 | SYLVIA Cr @ W PIONEER ST | 138140 | 42.4 | 3.2 | 1 | 6 | 3.8 | 0.01 U | 0.01 | 0.37 |
| 28-Jan-91 | WY | 12 | WEDEKIND Cr @ GEISSLER RD | 58141 | 45.4 | 2.5 | 10 | 1 U | 4.26 | 0.03 | 0.01 U | 0.43 |
| 25-Mar-91 | WY | 12 | WEDEKIND Cr @ GEISSLER RD | 138141 | 46.6 | 2.5 | 2 | 1 | 3.9 | 0.01 | 0.01 | 0.41 |
| 28-Jan-91 | WY | 13 | CARTER Cr @ WYNOOCHEE RD | 58142 | 37.6 | 1.0 | 6 | 2 | 3.17 | 0.01 | 0.01 U | 0.44 |
| 25-Mar-91 | WY | 13 | CARTER Cr @ WYNOOCHEE RD | 138142 | 36.1 | 1.0 | 1 U | 6 | 2.8 | 0.01 U | 0.00 | 0.41 |
| 28-Jan-91 | WY | 14 | SCHAFER Cr ABOVE COAL Cr | 58143 | 40.4 | 1.0 | 5 | 1 U | 2.37 | 0.01 | 0.01 U | 0.20 |
| 25-Mar-91 | WY | 14 | SCHAFER Cr ABOVE COAL Cr | 138143 | 38.7 | 0.2 | 1 U | 2 | 1.9 | 0.01 U | 0.00 | 0.16 |
| 28-Jan-91 | WY | 15 | SCHAFER Cr ABOVE COAL Cr | 58144 | 40.4 | 1.0 | 7 | 1 U | 2.29 | 0.01 | 0.01 U | 0.20 |
| 25-Mar-91 | WY | 15 | WEDEKIND Cr @ GEISSLER RD | 138144 | 47.3 | 2.5 | 1 | 4 | 3.9 | 0.02 | 0.01 | 0.41 |
| 28-Jan-91 | WY | 16 | BIG Cr @ FS 22 BRIDGE | 58145 | 48.2 | 1.0 | 3 | 1 U | 1.39 | 0.01 | 0.01 U | 0.11 |
| 25-Mar-91 | WY | 16 | BIG Cr @ FS 22 BRIDGE | 138145 | 44.7 | 1.1 | 1 U | 2 | 1 | 0.01 U | 0.00 | 0.07 |
| 28-Jan-91 | WY | 17 | WYNOOCHEE ABOVE RESERVOIR | 58146 | 65 | 1.0 | 4 | 1 | 0.85 | 0.01 K | 0.01 U | 0.08 |
| 25-Mar-91 | WY | 17 | W BRANCH WYN FS RD 2385 | 138146 | 64.6 | 0.2 | 1 U | 1 U | 1 | 0.01 | 0.01 | 0.05 |

Appendix 3. PCB and PCP concentrations from samples taken in Coal and Dillenbaugh Creek.

PCB data for Coal Creek ($\mu$g/L).

| Date | Basin | Site Description | Lab # | PCB 1260 | PCB 1254 | PCB 1221 | PCB 1232 | PCB 1248 | PCB 1016 | PCB 1242 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/21/91 | DS | COAL Cr @ SUNBIRD | 48408 | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U | 0.05 U |
| 3/18/91 | DS | COAL Cr @ SUNBIRD | 128408 | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U | 0.07 U |

PCP data for Dillenbaugh Creek ($\mu$g/L).

| Date | Basin | Site Description | Lab# | Pentachlorophenol | Chronic Criterion | Acute Criterion | Other Tetrachlorophenol | 2,3,4,5 Tetrachlorophenol |
|---|---|---|---|---|---|---|---|---|
| 1/21/91 | DS | DILL Cr @ RICE RD | 48415 | 0.042 U | | | 0.003 U | 0.003 |
| 3/18/91 | DS | DILL Cr @ RICE RD | 128415 | 0.007 | 6.3 | 10.0 | --- | 0.005 |
| 1/21/91 | DS | DILL Cr @ RR BRIDGE | 48413 | 0.244 U | | | 0.010 | 0.006 |
| 3/18/91 | DS | DILL Cr @ RR BRIDGE | 128413 | 0.097 | 4.2 | 6.7 | 0.004 U | 0.006 |

Appendix 4. Chehalis River metals data, January and March 1991. All concentrations µg/L.

| | Date | Site description | Lab # | Pb | Cd | Hg | Cu | Zn | Hard |
|---|---|---|---|---|---|---|---|---|---|
| Basin 1 | | | | | | | | | |
| | 22-Jan-91 | MS @ PRATHER RD | 48452 | 1 U | 0.1 U | 0.04 U | 6.7 J | 4 U | 25.7 |
| | 19-Mar-91 | MS @ PRATHER RD | 128452 | 3.9 J | 0.34 J | 0.04 U | 2 U | 4 U | 24.4 |
| Basin 3 | | | | | | | | | |
| | 22-Jan-91 | MS @ PcELL | 48462 | 1 U | 0.1 U | 0.04 U | 17 | 7.5 J | 21.1 |
| | 19-Mar-91 | MS @ PeELL | 128462 | 1 J | 0.1 U | 0.04 U | 2 U | 4 U | 21 |
| Basin 4 | | | | | | | | | |
| | 22-Jan-91 | WYNOOCHEE R MONT-ABERDN RD | 48444 | 1 U | 0.1 U | 0.04 U | 4 J | 4 U | 18.7 |
| | 19-Mar-91 | WYNOOCHEE R MONT-ABERDN RD | 128444 | 1 U | 0.1 U | 0.04 U | 2 U | 4 U | 19.4 |
| Basin 5 | | | | | | | | | |
| | 22-Jan-91 | SATSOP R @ I-5 BRIDGE | 48446 | 1 U | 0.1 U | 0.04 U | 3.7 J | 4 U | 19.6 |
| | 19-Mar-91 | SATSOP R @ I-5 BRIDGE | 128446 | 1 U | 0.1 U | 0.05 J | 2 U | 4 U | 18.2 |
| Basin 7 | | | | | | | | | |
| | 19-Mar-91 | PORTER Cr @ PORTER Cr RD | 128439 | 1 U | 0.1 U | 0.04 J | 2 U | 4 U | 24.2 |
| | 22-Jan-91 | PORTER Cr @ PORTER Cr RD | 48439 | 1 U | 0.1 U | 0.04 U | 5 J | 4 U | 24.8 |
| | 19-Mar-91 | PORTER Cr @ PORTER Cr RD | 128438 | 1 U | 0.1 U | 0.04 U | 4 J | 4 U | 24.8 |
| | 22-Jan-91 | PORTER Cr @ PORTER Cr RD | 48438 | 1 U | 0.1 U | 0.04 U | 4.7 J | 4 U | 25.4 |
| Basin 8 | | | | | | | | | |
| | 19-Mar-91 | BLACK R @ HOWANUT BRIDGE | 128448 | 1.3 J | 0.1 U | 0.04 U | 2 U | 4 U | 27.8 |
| | 22-Jan-91 | BLACK R @ HOWANUT BRIDGE | 48448 | 1 U | 0.1 U | 0.04 U | 3.7 J | 4 U | 26.7 |
| Basin 10 | | | | | | | | | |
| | 22-Jan-91 | SKOOK @ HARRISON BRIDGE | 48450 | 1 U | 0.1 U | 0.04 U | 5.3 J | 4 U | 29 |
| | 19-Mar-91 | SKOOK @ HARRISON BRIDGE | 128450 | 1 U | 0.1 U | | 2 U | 4 U | 26.4 |
| Basin 11 | | | | | | | | | |
| | 21-Jan-91 | SALZER Cr UNDER I-5 BRIDGE | 48403 | 1 U | 0.1 U | 0.04 U | 4.7 J | 4.7 J | 30.2 |
| | 18-Mar-91 | SALZER Cr UNDER I-5 BRIDGE | 128403 | 1 U | 0.1 U | 0.04 U | 2 U | 4 U | 31.3 |
| Basin 12 | | | | | | | | | |
| | 21-Jan-91 | SALZER Cr @ REINKE RD XING | 48402 | 1 U | 0.1 U | 0.04 U | 6 J | 4 U | 39.9 |
| | 18-Mar-91 | SALZER Cr @ REINKE RD XING | 128402 | 1 U | 0.1 U | 0.04 U | 2 U | 4 U | 40.3 |
| Basin 13 | | | | | | | | | |
| | 22-Jan-91 | NEWAUKUM R MOUTH | 48464 | 1 U | 0.1 U | 0.04 U | 23.3 | 14 J | 22.6 |
| | 19-Mar-91 | NEWAUKUM R MOUTH | 128464 | 1 U | 0.1 U | 0.1 J | 9.2 J | 4 U | 20.4 |
| | 22-Jan-91 | SFORK @ SR6 RR TRESTLE | 48466 | 1 U | 0.1 U | 0.04 U | 8.3 J | 4 U | 48.3 |

Appendix 5. Discharge(CFS) at USGS gaging stations during January and March 1991.

| | GAGE NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 12020000 | 12025000 | 12026150 | 12027500 | 12031000 | 12035000 | 12035380 |
| | GAGE STATION | | | | | | |
| | CHEHALIS @ DOTY | NEWAUKUM near CHEHALIS | SKOOK near CHEHALIS | CHEHALIS @ GRAND MOUND | CHEHALIS @ PORTER | SATSOP near SATSOP | WYNOOCHEE near GRISDALE |
| DATE | DISCHARGE (CFS) | | | | | | |
| 91JAN21 | 639 | 709 | 351 | 3680 | 6250 | 2730 | 486 |
| 91JAN22 | 550 | 642 | 322 | 3200 | 5520 | 2480 | 425 |
| 91JAN23 | 498 | 594 | 297 | 2840 | 4980 | 2270 | 426 |
| 91JAN29 | 316 | 416 | 312 | 1760 | 3210 | 1540 | 262 |
| 91JAN30 | 298 | 391 | 327 | 1650 | 3030 | 1460 | 262 |
| 91JAN31 | 365 | 421 | 330 | 1640 | 3020 | 1670 | 328 |
| JAN 1991 monthly mean | 1085 | 994 | 463 | 5026 | 7774 | 4225 | 784 |
| JAN 1940-1991 monthly mean | 1221 | 1078 | 459 | 5904 | 8364 | 3778 | 733 |
| 91MAR18 | 452 | 565 | 267 | 2840 | 4310 | 1680 | 223 |
| 91MAR19 | 424 | 562 | 244 | 2670 | 4040 | 1660 | 223 |
| 91MAR20 | 390 | 549 | 235 | 2490 | 3800 | 1590 | 224 |
| 91MAR25 | 625 | 808 | 282 | 3490 | 4460 | 1520 | 225 |
| 91MAR26 | 553 | 758 | 300 | 3510 | 4660 | 1430 | 224 |
| 91MAR27 | 492 | 646 | 283 | 3140 | 4390 | 1350 | 226 |
| MARCH 1991 monthly mean | 739 | 846 | 403 | 4101 | 5749 | 2283 | 363 |
| MARCH 1940-1991 monthly mean | 894 | 773 | 455 | 4770 | 6885 | 2976 | 427 |

Appendix 6. Precipitation in the Chehalis basin during January and March 1991 surveys (NOAA 1991).

| | GAGING STATION | | | |
|---|---|---|---|---|
| | ABERDEEN | OAKVILLE | CENTRALIA | DOTY |
| DATE | Precipitation (inches) | | | |
| 91JAN21 | 0 | 0 | T | 0 |
| 91JAN22 | T | 0 | 0 | 0 |
| 91JAN23 | 0 | 0.04 | 0.06 | 0.07 |
| 91JAN28 | 0.13 | 0 | 0.08 | 0.03 |
| 91JAN29 | 0 | 0 | 0 | 0 |
| 91JAN30 | 0 | 0 | 0 | 0 |
| | | | | |
| 91MAR18 | 0 | 0 | 0.11 | 0.10 |
| 91MAR19 | 0.18 | 0 | 0.01 | 0 |
| 91MAR20 | T | 0 | 0.01 | 0 |
| 91MAR25 | 0.35 | 0 | 0.19 | 0.20 |
| 91MAR26 | 0.16 | 0 | T | 0.03 |
| 91MAR27 | 0 | 0.15 | 0 | T |

| | GAGING STATION | | | |
|---|---|---|---|---|
| | ABERDEEN | OAKVILLE | CENTRALIA | DOTY |
| | Precipitation (inches) | | | |
| JANUARY SAMPLING | | | | |
| WEEK 1 24hr | 0 | 0 | 0 | 0 |
| 72hr | 0.01 | 0.32 | 0.01 | 0.03 |
| WEEK 2 24hr | 0 | 0 | 0.05 | 0 |
| 72hr | 0 | 0 | 0.06 | 0 |
| MARCH SAMPLING | | | | |
| WEEK 1 24hr | 0 | 0.20 | 0 | 0 |
| 72hr | 0.01 | 0.20 | 0.14 | 0.03 |
| WEEK 2 24hr | 0.56 | 0.55 | 0.42 | 0.1 |
| 72hr | 0.93 | 1.05 | 0.54 | 0.23 |

Appendix 7. Antecendent precipitation index (API) for the Chehalis basin during the 1991 sampling period, (K=0.98). Precipitation data obtained from NOAA 1991.

| | GAGING STATION | | | |
|---|---|---|---|---|
| | ABERDEEN | OAKVILLE | CENTRALIA | DOTY |
| DATE | | Precipitation (inches) | | |
| 91JAN21 | 8.0 | 4.6 | 3.4 | 3.4 |
| 91JAN22 | 7.0 | 3.6 | 2.7 | 3.4 |
| 91JAN23 | 6.0 | 3.2 | 2.3 | 2.7 |
| 91JAN28 | 1.1 | 1.2 | 0.9 | 0.6 |
| 91JAN29 | 0.8 | 1.1 | 0.6 | 0.4 |
| 91JAN30 | 0.4 | 0.9 | 0.3 | 0.2 |
| | | | | |
| 91MAR18 | 1.9 | 2.0 | 1.5 | 1.4 |
| 91MAR19 | 1.4 | 1.3 | 1.3 | 1.0 |
| 91MAR20 | 1.5 | 1.3 | 1.2 | 0.8 |
| 91MAR25 | 1.9 | 2.0 | 1.4 | 1.2 |
| 91MAR26 | 2.3 | 1.6 | 1.4 | 1.3 |
| 91MAR27 | 1.9 | 1.4 | 1.1 | 1.0 |