River and Stream Water Quality Monitoring Report for Water Year 2003

July 2004

Publication No. 04-03-031

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River and Stream Water Quality Monitoring Report for Water Year 2003

by
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Abstract

The Washington State Department of Ecology (Ecology) collected monthly water quality information at 84 stream monitoring stations during Water Year (WY) 2003 (October 1, 2002 through September 30, 2003), though three stations were only monitored during part of the year. Two stream reaches were assessed for degradation due to turbidity. We also collected 30-minute interval temperature data at 54 sites from June through September 2003. The principal goals of this ongoing monitoring program are to characterize the rivers and streams of Washington State and to track changes in water quality.

This report is intended to document methods and data quality, and to present the data for WY 2003. A description of Ecology's long-term monitoring program and access to historical data can be found on Ecology's Internet web site at http://www.ecy.wa.gov listed as "River and Stream Water Quality" under "Environmental Info." and "Watersheds."

Acknowledgments

Many people contributed time, effort, and expertise to the Water Year 2003 program.

- Bruce Barbour, Chris Coffin, George Onwumere, Jim Ross, Bill Ward, and Chad Wiseman collected samples. Thanks for the long hours behind the wheel and a remarkable dedication to get the job done.
- Bill Ward was responsible for the continuous temperature monitoring project.
- Thanks to Ann Armstrong, who prepared the final document, Joan LeTourneau, who proofed it, and Rob Plotnikoff and Chris Burke, who reviewed it.

At Manchester Environmental Laboratory:

- Pam Covey, Karin Feddersen, and Debi Case did the sample tracking.
- Kamilee Ginder, Tim Albertson, Bridget Mason, Aileen Richmond, Sara Sekerak, and Jamie Martin performed general chemistry analyses.
- Nancy Jensen and Lorisa McLean were responsible for the microbiology.
- Sally Cull, Randy Knox, Meredith Jones, and Dean Momohara worked on low-level metals.
- Will White was the sample courier.

Introduction

The Washington State Department of Ecology (Ecology) and its predecessor agency have operated a long-term ambient water quality monitoring program since 1959. The current program consists of monthly water quality monitoring for conventional constituents at about 82 stations on rivers and streams within Washington State. (The actual number of stations varies slightly depending on funding and special projects.) In addition, in 2003 we added a turbidity assessment at selected stream reaches, and continued programs to collect 30-minute interval temperature data at long-term stations from June through September and bi-monthly metals monitoring at a few selected stations.

The principal goals of the stream ambient monitoring program are to characterize stream water quality and to evaluate spatial and temporal changes in water quality (trends). Within Ecology, the data generated by the Freshwater Monitoring Unit (FMU) are used to determine if designated uses are supported (e.g., Ecology, 1998), refine and verify TMDL models, develop water quality based permits, prepare 305(b), 303(d), and other management reports, provide water quality information necessary to prioritize grant awards, and conduct miscellaneous site-specific evaluations. Our data are provided free to the public and are widely used by academics, consultants, local government entities, schools, and others interested in the quality of Washington's flowing waters.

The purpose of this report is to describe the Water Year (WY) 2003 monitoring program, discuss data quality, and present results. More detailed analyses and interpretations of ambient monitoring data are reported elsewhere. The FMU analyzes results at specific stations in response to specific needs (e.g., Hallock, 2003a). A generalized assessment of water quality at particular stations is provided online (http://www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html) in the form of a water quality index (WQI; Hallock, 2002a). The WQI and trends at long-term stations are reported in "Condition of Fresh Waters in Washington State for the Year 2002" (Plotnikoff, *et al.*, 2003). (Our reports are available through our web site.) Other programs conduct some analyses of their own; for example, Ecology's Water Quality Program applies its own data reduction procedures prior to producing Washington's 305(b) and 303(d) reports.

Methods

Sampling Network

The ambient monitoring network in WY 2003 consisted of monthly water collection at 62 long-term stations and 22 regional ("basin") stations. Of the basin stations, 1 station (09J090; Longfellow Creek) was actually a WY 2004 station where monitoring began one month early at the request of Ecology's Northwest Regional Office. The Chumstick Creek station (45C070) was moved downstream about 400 meters (to 45C060) because of beaver activity. Eagle Creek (45Q060) and Goose Creek (43C070) were dry during five and four months, respectively. Other stations were sampled year-round.

1. Long-term stations are monitored every year to track water quality changes over time (trends) and to assess inter-annual variability, as well as to collect current water quality information. These stations are generally located near the mouths of major rivers, below major population centers, upstream from most anthropogenic sources of water quality problems, or where major streams enter the state. We monitor 62 long-term stations.

2. Basin stations are generally monitored for one year only (although they may be re-visited every five years) to collect current water quality information. These stations are selected to support the waste discharge permitting process, TMDL assessments, site-specific needs, and to allow expanded coverage over a long-term network. Basin station sampling was focused (but not necessarily exclusively) in the following basins during WY 2003: Mid Columbia, Upper Yakima, Kitsap, and Lower Columbia. Some basin stations are selected to target known problems and may not necessarily reflect ambient conditions.

The locations of ambient stations monitored during WY 2003 are presented in Table 1. Appendix A lists current and historical monitoring locations and the years they were monitored by Ecology and its predecessor agencies. Historical data for these stations are available from the FMU on request. Also, a description of our long-term monitoring program, access to historical data, and previous annual reports can be found on Ecology's internet web site at http://www.ecy.wa.gov under "Environmental Info." and "Watersheds."

Table 1. Ecology stream monitoring stations for Water Year 2003.
(Status: L=long term; B=basin)

Station		Status	Station		Status
01A050	Nooksack R @ Brennan	L	27D090	EF Lewis R nr Dollar Corner	L
01A120	Nooksack R @ No Cedarville	L	28A100	Columbia R. @ Vancouver	B
03A060	Skagit R nr Mount Vernon	L	31A070	Columbia R @ Umatilla	L
03B050	Samish R nr Burlington	L	32A070	Walla Walla R nr Touchet	L
04A100	Skagit R @ Marblemount	L	32B075	Touchet R. @ Cummins Rd.	B
05A070	Stillaguamish R nr Silvana	L	32C070	Mill Cr @ Swegle Rd	B
05A090	SF Stillaguamish @ Arlington	L	33A050	Snake R nr Pasco	L
05A110	SF Stillaguamish nr Granite Falls	L	34A070	Palouse R @ Hooper	L
05B070	NF Stillaguamish @ Cicero	L	34A170	Palouse R @ Palouse	L
05B110	NF Stillaguamish nr Darrington	L	34B110	SF Palouse R @ Pullman	L
07A090	Snohomish R @ Snohomish	L	35A150	Snake R @ Interstate Br	L
07C070	Skykomish R @ Monroe	L	35B060	Tucannon R @ Powers	L
07D050	Snoqualmie R nr Monroe	L	36A070	Columbia R nr Vernita	L
07D130	Snoqualmie R @ Snoqualmie	L	37A090	Yakima R @ Kiona	L
08C070	Cedar R @ Logan St/Renton	L	37A205	Yakima R @ Nob Hill	L
08C110	Cedar R nr Landsburg	L	39A090	Yakima R nr Cle Elum	L
09A080	Green R @ Tukwila	L	41A070	Crab Cr nr Beverly	L
09A190	Green R @ Kanaskat	L	41J070	Lind Coulee @ Hwy 17	B
09J090[a]	Longfellow Cr abv 24-25th St juctn	B	43C070[b]	Goose Creek nr Wilbur	B
10A050	Puyallup R @ Puyallup	B	45A070	Wenatchee R @ Wenatchee	L
10A070	Puyallup R @ Meridian St	L	45A110	Wenatchee R nr Leavenworth	L
10C095	White River @ R Street	B	45C060[c]	Chumstick Cr. nr mouth	B
11A070	Nisqually R @ Nisqually	L	45C070[c]	Chumstick Cr nr Leavenworth	B
13A060	Deschutes R @ E St Bridge	L	45D070	Brender Cr nr Cashmere	B
15E070	Union R nr Belfair	B	45E070	Mission Cr nr Cashmere	B
15G050	Little Mission Cr. @ Hwy 300	B	45Q060[d]	Eagle Cr. nr mouth	B
15H050	Stimpson Creek @ Hwy 300	B	45R050	Noname Creek nr Cashmere	B
15J050	Big Mission Cr. @ Hwy 300	B	46A070	Entiat R nr Entiat	L
15K070	Olalla Cr. @ Forsman Rd.	B	48A070	Methow R nr Pateros	L
16A070	Skokomish R nr Potlatch	L	48A140	Methow R @ Twisp	L
16C090	Duckabush R nr Brinnon	L	49A070	Okanogan R @ Malott	L
18A050	Dungeness R nr Mouth	B	49A190	Okanogan R @ Oroville	L
18B070	Elwha R nr Port Angeles	L	49B070	Similkameen R @ Oroville	L
20B070	Hoh R @ DNR Campground	L	53A070	Columbia R @ Grand Coulee	L
22A070	Humptulips R nr Humptulips	L	54A120	Spokane R @ Riverside State Pk	L
23A070	Chehalis R @ Porter	L	55B070	Little Spokane R nr Mouth	L
23A100	Chehalis R @ Prather Rd	B	56A070	Hangman Cr @ Mouth	L
23A160	Chehalis R @ Dryad	L	57A150	Spokane R @ Stateline Br	L
24B090	Willapa R nr Willapa	L	60A070	Kettle R nr Barstow	L
24F070	Naselle R nr Naselle	L	61A070	Columbia R @ Northport	L
26B070	Cowlitz R @ Kelso	L	62A090	Pend Oreille R @ Metaline Falls	B
27B070	Kalama R nr Kalama	L	62A150	Pend Oreille R @ Newport	L

[a] This station was picked up in September, at the very end of the WY. Sampling continued into WY 2004.
[b] Dry in October and July through September.
[c] 45C070 was moved downstream to 45C060 beginning in January 2003, due to beaver activity.
[d] Dry in October through December, August and September.

Sample Collection and Analysis

The majority of water samples were collected as single near-surface grab samples from highway bridges. Twelve water quality constituents were monitored at all stations monthly in WY 2003 (Table 2). Sample collection and analytical methods are described in earlier annual reports (e.g., Hallock, et al., 1998), our field monitoring protocols (Ward, 2002), the FMU quality assurance documents (Hallock and Ehinger, 2003 and Hopkins, 1996), and Manchester Environmental Laboratory's (MEL) Laboratory User's Manual (Ecology, 2003).

Any long-term monitoring program will experience changes in sampling or analytical procedures that can potentially affect results. Normally, changes will result in improved precision or reduced bias. Most changes will have only a minor affect on a synoptic analysis of the data, but even minor improvements in procedures can mislead the unwary analyst of long-term trends. We made no substantive changes to collection or analytical procedures in WY 2003; however, clarifications were made to methods references to better reflect the actual procedures used by MEL. The high bias in total phosphorus measurements, reported in our last annual report (Hallock, 2003b), continued through WY 2003. (We changed method beginning with WY 2004.) All total phosphorus data from this period have been coded as estimates (J) and given quality codes indicating there may be something suspicious about the datum (code 4; quality codes less than 5 are routinely reported). All known and suspected changes to methods and procedures during the history of the stream monitoring program, as well as large-scale environmental changes that may affect a trend analysis, are documented in Appendix B.

Table 2. Standard water quality constituents monitored at all stations monthly in Water Year 2003 as part of Ecology's river and stream ambient monitoring program.

conductivity	suspended solids, total	phosphorus, total
oxygen, dissolved	turbidity	ammonia, total
pH	fecal coliform bacteria	nitrate + nitrite, total
temperature	phosphorus, soluble reactive	nitrogen, total

Continuous Temperature Monitoring

The Environmental Monitoring and Trends Section (EMTS) continued to collect temperature data at 30-minute intervals at most of our long-term ambient monitoring stations as well as at some basin stations. This is the third consecutive year for this program. Fifty-four sites were monitored successfully in 2003. The purpose of this monitoring is to collect season-long diurnal temperature data that may be used for trend analyses and to determine compliance with current and proposed water quality standards.

Two Onset Stow Away TidbiT® temperature loggers were deployed at each station, one in water and one in air. All loggers were shaded with a PVC pipe and installed in a location representative of the surrounding environment. Stream loggers were installed about six inches

off the stream bottom to minimize potential influence from groundwater inflow. Loggers were placed in a free flowing location at a depth to avoid exposure to air resulting from low flows.

We deployed the loggers in June and July and retrieved them in September. Detailed protocols are recorded in Ward (2003).

Metals Monitoring

Renewed funding allowed us to continue metals monitoring in WY 2003 after a two-year interruption in WYs 2000 and 2001. Metals samples were collected bi-monthly beginning in October at 12 stations (Table 3). Samples were analyzed for hardness, total mercury, and total recoverable and dissolved arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc. Beginning in November, total arsenic was collected bimonthly at one station (Lind Coulee) where other studies had reported occasional high results. Collection and analytical methods are discussed in more detail in Hopkins (1996).

Table 3. Stations where metals were monitored bi-monthly in Water Year 2003.

Station	Name	Station	Name
07C070	Skykomish R @ Monroe	32A070	Walla Walla R nr Touchet
08C070	Cedar R @ Logan St/Renton	33A050	Snake R nr Pasco
09A080	Green R @ Tukwila	41J070[a]	Lind Coulee @ Hwy 17
10A050	Puyallup R @ Puyallup	49B070	Similkameen R @ Oroville
10C095	White River @ R Street	57A150	Spokane R @ Stateline Br
28A100	Columbia R. @ Vancouver	61A070	Columbia R @ Northport
31A070	Columbia R @ Umatilla		

[a] Total recoverable arsenic only, collected in alternate months.

Turbidity Assessment

Ecology's turbidity criteria state "turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU" for Class AA and A waters (Washington Administrative Code (WAC) 173-201A-030). The criteria for Class B are 10 NTU over background or 20 percent. "Background" is defined as conditions "up-gradient or outside the area of influence of the discharge" (WAC 173-201A-020). "Background" turbidity is seldom known for our ambient stations, where the source of turbidity is rarely a point discharge.

Hallock (2002b) evaluated turbidities at monitoring stations where upstream turbidity data were available within 60 river miles using the upstream results as "background." Four stations were recommended for listing (and these are currently on the proposed 2002/2004 303(d) list) (http://www.ecy.wa.gov/programs/wq/303d/2002/2002_list.html.) More information was required for several stream reaches, however.

Two of these reaches, Upper Crab Creek and the lower Tucannon River, were sampled three times for turbidity between March and May 2003 (Table 4). Turbidity samples were collected using the same techniques described in Ward (2002) and analyzed on-site using a Hach 2100P portable turbidimeter, calibrated according to the manufacturer's instructions.

Table 4. Stations sampled for turbidity in Water Year 2003 (RM=river mile).

Station	Name	RM	Station	Name	RM
	Crab Creek			**Tucannon River**	
43A070	Crab Cr @ Irby	111.5	35B060	Tucannon R @ Powers	2.3
43A080	Crab Creek @ Odessa	121.7	35B090	Tucannon R @ Smith Hollow	7.9
43A095	Crab Creek @ Amnen Road	131.9	35B100	Tucannon R @ Territorial Road	12.5
43A100	Crab Ck @ Marcelus Road	137.7	35B120	Tucannon R @ Brines Road	17.5
43A110	Crab Creek at Tokio Road	145.7	35B150	Tucannon R nr Marengo	24.8
43A130	Crab Creek @ US23	157.3	35F050	Pataha Cr near mouth	1.1
43A150	Crab Ck @ Bluestem Road	171.5	35F070	Pataha Cr @ Archer Rd	6.1
			35F095	Pataha Cr @ Tatman Road	18.3

Quality Assurance

MEL's Quality Assurance (QA) Program includes the use of quality control charts, check standards, in-house matrix spikes and laboratory blanks, along with performance evaluation samples. For a more complete discussion of laboratory quality assurance, see MEL's Quality Assurance Manual (Ecology, 2001) and Laboratory User's Manual (Ecology, 2003).

The QA program for field sampling consisted of three parts: (1) adherence to a procedures manual for sample/data collection and periodic evaluation of sampling personnel, (2) instrument calibration methods and schedules, and (3) the collection of a field quality control (QC) sample twice during each sampling run. Our QA program is described in detail in Hallock and Ehinger (2003).

The following three types of field QC samples were collected:

- Duplicate (Sequential) Field Samples - These consisted of an additional sample collection made approximately 15-20 minutes after the initial collection at a station. These samples represent the variability due to short-term instream processes, sample collection and processing, and laboratory analysis.

- Duplicate (Split) Field Samples - These consisted of one sample (usually the sequential duplicate) split into two containers that are processed as individual samples. This eliminates the instream variability and isolates the variability to that due to field processing and laboratory analysis.

- Field Blank - These consisted of the submission and analysis of deionized water. These are field process blanks: the blank water was poured into cleaned sample collection equipment to simulate collecting a water sample. The expected value for each analysis is the reporting limit for that analysis. Significantly higher results would indicate that sample contamination had occurred during field processing or during laboratory analysis.

QC samples were submitted semi-blind to the laboratory (they were identified as QC samples, but sample type (duplicate, split, or blank) and station were not identified).

Ninety field QC samples were processed, five field blanks and 85 field splits and sequential samples. In addition, the laboratory analyzed some field QC samples in duplicate (*i.e.*, lab split of the field QC sample). The central tendency of the variance of pairs of split field samples was summarized by calculating the square root of the mean of the sample-pair variances (root-mean-square - RMS). These figures provide an unbiased (and higher) estimate than other commonly used statistics (for example, mean or median of the standard deviations).

A two-tiered system was used to evaluate data quality of individual results. The first tier consisted of four automated checks: holding time, variability in field duplicates, reasonableness of the result, and stoichiometric balance of nutrient species. Results exceeding pre-set limits were flagged. The second tier QC evaluation was a manual review of the data flagged in the first tier. Data were then coded from one through nine (one = data meets all QA requirements, nine = data are unusable). Data with quality codes greater than four are generally not distributed outside the agency.

The quality of the continuous temperature data was assessed by calibration checks utilizing a certified reference thermometer before and after a deployment. If a pre-survey calibration check indicated a logger's accuracy was not within the required limits (either 0.2 °C for water or 0.4 °C for air) when compared to a certified reference thermometer, then the logger was rejected and not deployed. If a logger failed a post-survey calibration check then the results may be rejected or possibly adjusted. In addition, the data were compared to field temperature measurements taken at deployment and retrieval with a calibrated alcohol thermometer. Results were also compared to the monthly measurements collected during normal monitoring surveys. All data were reviewed graphically and anomalies were deleted prior to loading the results into the database.

Results and Discussion

The primary purpose of this report is to present the results of Ecology's stream monitoring in WY 2003. Appendix C contains results for each station monitored in WY 2003. Raw data are available in computer formats on request and are posted on Ecology's World Wide Web pages http:/www.ecy.wa.gov/ (Unpublished data are also available on-line but are considered "preliminary.")

Monthly Ambient Monitoring

A station-by-station data analysis is not within the scope of this report. Individual results exceeding the water quality criteria in Washington's Water Quality Standards (Washington Administrative Code, Chapter 173-201A) are identified in reports on our web site (http://www.ecy.wa.gov/apps/watersheds/riv/exceed). The numeric criteria from the Water Quality Standards are presented in Table 5.

Table 5. Water quality criteria used to evaluate monitoring results. (Results outside the ranges indicated are considered to exceed the criterion.) WAC 173-201A-130 identifies exceptions to the standard criteria for some stream segments. Metals criteria, most of which are a function of hardness, are not listed here.

				Fecal Coliform	
Class	Temperature	Oxygen	pH	10 Percent	Geometric mean
AA	<=16°C	>9.5 mg/L	6.5<=pH<=8.5	<=100	<=50
A	<=18°C	>8.0 mg/L	6.5<=pH<=8.5	<=200	<=100
B	<=21°C	>6.5 mg/L	6.5<=pH<=8.5	<=400	<=200

Of the nearly 12,000 possible results in WY 2003, 134 results (1.1 percent) were missed. Reasons for missing results include sampler error, lab error, bridge reconstruction, and no water in the stream. Appendix D gives detailed explanations for each of these conditions.

Instantaneous discharge was recorded at 61 of the 62 long-term stations. Flows for two stations, Nisqually River at Nisqually and East Fork Lewis River near Dollar Corner, are coded as estimates because the nearest gage was a considerable distance upstream. Flow results from these stations should be used with caution. Flow data were not available for South Fork Stillaguamish River at Arlington. Discharge was recorded at 10 of the 20 regular basin stations. Stream height measurements are available for most stations where discharge was not recorded.

Continuous Temperature Monitoring

Fifty-four stations were successfully monitored in 2003 (Table 6). In addition, the data logger was lost at one station (Willapa River near Willapa, 24B090) and not retrieved at another (Spokane River at Stateline, 57A150) due to high flows (data from this station may be available at some future date).

The seasonal maximum at most stations (43) exceeded current water quality criteria. Forty-five stations exceeded the 16˚C maximum seven-day average of daily maxima. This is the criterion being proposed for most streams in Washington. The warmest stations (and their maximum temperatures) were Walla Walla River (station 32A070, 31.2 ºC), Crab Creek (station 41A070, 29.8 ºC), Palouse River at Palouse (station 34A170, 29.1 ºC), Okanogan R @ Oroville (station 49A190, 28.8 ºC), Similkameen R @ Oroville (station 49B070, 28.0 ºC), Tucannon R @ Powers (station 35B060, 27.2 ºC), and EF Lewis R nr Dollar Corner (station 27D090, 27.0 ºC).

Table 6. Temperature monitoring summary for Water Year 2003 based on 30-minute interval measurements (°C; refer to Table 1 for station names).

	Deployment Maximum			Max 7-day Mean [a]			
Station	Criterion	Max	Date/Time [b]	Max	Date [b]	Deploy	Retrieve
01A050	18	18.6	17:00 14-Aug	18	17-Aug	18-Jun	23-Sep
01A120	18	18.9	19:30 29-Jul	18.4	28-Jul	23-Jul	23-Sep
03B050	18	19.1	18:30 30-Jul	18.3	29-Jul	22-Jul	22-Sep
04A100	16	14.1	17:30 30-Jul	13.8	30-Jul	23-Jul	23-Sep
05A070	18	24.7	19:00 30-Jul	23.4	29-Jul	22-Jul	23-Sep
05A090	18	26.1	19:00 30-Jul	24.9	29-Jul	22-Jul	22-Sep
05A110	16	23.2	14:30 30-Jul	22.1	30-Jul	22-Jul	22-Sep
05B070	18	23.2	18:30 30-Jul	22.3	29-Jul	23-Jul	23-Sep
05B110	18	19.8	17:00 30-Jul	19.2	29-Jul	23-Jul	23-Sep
07C070	18	22.1	20:30 30-Jul	21.3	30-Jul	22-Jul	22-Sep
07D050	18	23.2	14:30 31-Jul	22.2	31-Jul	22-Jul	18-Sep
07D130	18	21	22:30 30-Jul	20.5	29-Jul	21-Jul	24-Sep
08C070	18	21.4	18:00 30-Jul	20.5	29-Jul	21-Jul	24-Sep
08C110	16	14.7	16:00 30-Jul	14.3	30-Jul	21-Jul	24-Sep
09A190	16	19.9	17:30 18-Aug	19.3	02-Sep	21-Jul	24-Sep
10A050	18	18.9	23:00 30-Jul	18.4	29-Jul	25-Jul	24-Sep
10C095	18	21.6	18:00 17-Aug	20.5	17-Aug	25-Jul	24-Sep
11A070	18	18	18:00 30-Jul	17.5	28-Jul	25-Jun	24-Sep
13A060	18	20.8	19:00 30-Jul	19.9	28-Jul	07-Jul	17-Sep
15E070	16	15.9	16:00 30-Jul	15.1	29-Jul	07-Jul	18-Sep
15G050	16	13.3	17:00 30-Jul	12.8	29-Jul	07-Jul	18-Sep
15H050	16	15.8	16:30 30-Jul	15	28-Jul	07-Jul	18-Sep
15J050	16	18	18:30 30-Jul	17.2	28-Jul	07-Jul	18-Sep
15K070	16	15.6	20:00 30-Jul	14.9	28-Jul	07-Jul	18-Sep
16A070	16	15.1	18:30 20-Jul	14.7	20-Jul	07-Jul	18-Sep
16C090	16	15.1	17:00 30-Jul	14.4	30-Jul	08-Jul	16-Sep
18A050	18	18.3	16:30 30-Jul	17.5	30-Jul	08-Jul	16-Sep
18B070	16	17.7	17:30 21-Aug	17.2	18-Aug	08-Jul	16-Sep
20B070	16	18	20:00 29-Jul	17.2	30-Jul	08-Jul	16-Sep
22A070	18	23.3	19:30 29-Jul	21.9	29-Jul	08-Jul	16-Sep
23A070	18	25.5	18:30 30-Jul	24.1	29-Jul	08-Jul	16-Sep
23A160	18	25	18:00 30-Jul	23.5	28-Jul	09-Jul	17-Sep
24F070	18	22.3	17:00 30-Jul	21.1	30-Jul	09-Jul	17-Sep
26B070	18	19.7	18:00 29-Jul	18.9	30-Jul	09-Jul	17-Sep
27B070	18	21.2	19:00 30-Jul	20.3	30-Jul	09-Jul	17-Sep
27D090	18	27	17:00 30-Jul	25.9	29-Jul	09-Jul	17-Sep
32A070	21	31.2	17:00 22-Jul	30	21-Jul	25-Jun	22-Oct
34A170	20	29.1	17:30 22-Jul	28.3	29-Jul	25-Jun	22-Oct
34B110	18	22.6	19:00 27-Jul	22.4	20-Jul	25-Jun	05-Jan
35B060	18	27.2	18:00 22-Jul	26.5	21-Jul	25-Jun	22-Oct
39A090	16	21.7	17:00 31-Jul	21.2	30-Jul	23-Jun	19-Sep
41A070	21	29.8	19:30 28-Jul	28.8	29-Jul	24-Jun	10-Sep
45C070	18	15.5	18:00 26-Jul	14.7	13-Jul	23-Jun	06-Oct
45D070	18	19.6	16:30 23-Jul	19.1	29-Jul	23-Jun	06-Oct
45E070	18	22.5	16:30 20-Jul	20.8	17-Jul	23-Jun	06-Oct
45Q060	18	17.5	15:30 05-Jul	16.6	06-Jul	23-Jun	04-Aug
45R050	18	20.4	17:00 01-Aug	20	29-Jul	23-Jun	06-Nov
46A070	18	23.6	17:00 31-Jul	22.8	29-Jul	23-Jun	09-Sep
48A070	18	24.6	18:00 01-Aug	23.8	29-Jul	24-Jun	10-Sep
48A140	18	20.4	18:00 31-Jul	20.1	29-Jul	24-Jun	10-Sep
49A190	18	28.8	18:30 01-Aug	27.2	31-Jul	08-Jul	10-Sep
49B070	18	28	16:30 01-Aug	26.8	30-Jul	08-Jul	10-Sep
55B070	18	18.1	20:00 23-Jul	17.9	21-Jul	26-Jun	23-Oct
56A070	18	26.1	20:00 22-Jul	25.5	22-Jul	26-Jun	23-Oct

[a] This is the seven-day period with the highest average of daily maximum temperatures.
[b] There may be other dates or other seven day periods with the same maximum. Date shown is middle of seven day period.

Metals Monitoring

During the WY, all of the 1,230 possible results were reported (12 stations x 6 months x 17 metals analytes plus 1 station x 6 months x 1 analyte). Of these, 9 (0.7 percent) exceeded water quality chronic criteria; eight of those were from the Spokane River at Stateline (Table 7).

Table 7. Metals results from WY 2002 exceeding water quality standards chronic criteria (µg/L).

Station	Name	Date	Metal	Criterion	Hardness	Result	Percent Exceeds Criterion
10A050	Puyallup R @ Puyallup	2003-08-18	Mercury, Total	0.012	NA	0.0287	139
57A150	Spokane R @ Stateline	2002-10-14	Zinc, Dissolved	25.7	19.1	29.8	15.9
57A150	Spokane R @ Stateline	2002-12-15	Zinc, Dissolved	27.2	20.4	63.4	133
57A150	Spokane R @ Stateline	2003-02-02	Zinc, Dissolved	27.5	20.7	67.2	144
57A150	Spokane R @ Stateline	2003-04-06	Zinc, Dissolved	28.9	21.9	75.5	162
57A150	Spokane R @ Stateline	2003-04-06	Lead, Dissolved	0.466	21.9	0.691	48
57A150	Spokane R @ Stateline	2003-06-01	Zinc, Dissolved	28.7	21.8	49	70
57A150	Spokane R @ Stateline	2003-06-01	Lead, Dissolved	0.464	21.8	0.609	31
57A150	Spokane R @ Stateline	2003-08-03	Zinc, Dissolved	29.3	22.3	34.6	18.1

Turbidity Assessment

Turbidity tends to increase in rivers from the headwaters to the mouth, even in pristine systems. The purpose of relating a water quality standard to "background" conditions is to avoid identifying water quality violations that may be due to natural increase in turbidity. Measuring turbidity increases from point sources can be accomplished more easily than attributing turbidity increases from non-point sources of pollution. For non-point sources, deciding how much of an increase in a given reach is "natural" and expected, and how much is due to cultural sources can be subjective. Factors that must be considered include geomorphology, distance between sample points, the effects of any tributaries between sample points, and the magnitude of the turbidity difference between upstream and downstream turbidities.

Tucannon River

Turbidities at the downstream-most station (Powers) were high in March, moderate in April, and low in May. Even in March, however, turbidity did not increase much between mainstem stations except below the mouth of Pataha Creek (between Smith Hollow and Territorial Road at river mile 11.2). Turbidities also exceeded the criterion slightly in March at Territorial Road compared to Marengo, 12 miles upstream. Turbidity data are summarized in Table 8. Individual results for these stations are included in Appendix C.

Table 8. Average turbidity measured at various stations in the Tucannon River and Upper Crab Creek basins. The criterion was exceeded if turbidity at the downstream station exceeded upstream station by more than 5 NTU (Tucannon River) or 10 NTU (Crab Creek).

Station	Name	Avg. Turb. (NTU)	No. Exc. Criterion	No. Samples	Upstream Station	River Miles Apart
Tucannon River						
35B060	Tucannon R @ Powers	9.9	0	3	35B090	5.6
35B090	Tucannon R @ Smith Hollow	9.5	NA	3	NA	NA
35F050	Pataha Cr near mouth	31.3	1	3	35F095	17.2
35F070	Pataha Cr @ Archer Rd	32.1	1	3	35F095	11.5
35F095	Pataha Cr @ Tatman Road	27.0	NA	3	NA	NA
35B100	Tucannon R @ Territorial Road	5.6	1	3	35B150	12.3
35B120	Tucannon R @ Brines Road	5.0	0	3	35B150	7.3
35B150	Tucannon R nr Marengo	3.6	NA	3	NA	NA
Crab Creek						
43A070	Crab Cr @ Irby	24.8	3	3	43A150	60
43A080	Crab Creek @ Odessa	45.8	3	3	43A150	49.8
43A095	Crab Creek @ Amnen Road	16.1	1	3	43A150	39.6
43A100	Crab Ck @ Marcelus Road	2.0	0	2[a]	43A150	33.8
43A110	Crab Creek at Tokio Road	4.5	0	3	43A150	25.8
43A130	Crab Creek @ US23	3.0	0	3	43A150	14.2
43A150	Crab Ck @ Bluestem Road	5.3	NA	3	NA	NA

[a] 43A100 was not sampled in March.

Pataha Creek turbidities were very high in March and April and moderate in May, even at the upstream station. Nevertheless, between-station differences exceeded the criterion only in March.

Further monitoring of turbidity in Pataha Creek, especially upstream of Tatman road, and possibly upstream of Rosy Grade Road, may identify reaches in Pataha Creek that should be listed and sources of pollution. The Tucannon is on the proposed 2002/2004 303(d) list based on these data.

Crab Creek

Turbidities at Irby and Odessa were always high; turbidities at Marcelus and upstream were always low. Turbidities at Amnen were high in March, moderate in April, and low in May. Compared to the most upstream station, Bluestem Road, turbidities exceeded the 10 NTU criterion at Irby and Odessa all three months and at Amnen in March only. There were, therefore, sediment sources between Odessa and Amnen and between Amnen and Marcellus.

Shoreline erosion at Sylvan Lake (river mile 126) may account for much of the turbidity at Odessa. This may be "natural"; however, large artificial variations in water levels could prevent the establishment of riparian vegetation that typically protects shorelines from erosion.

During March and, to a lesser extent, April, there was probably at least one sediment source in the six miles between Amnen and Marcellus. (Or possibly between Amnen and Tokio Roads in March; Marcellus wasn't sampled that month.) Only one of three samples exceeded the criterion, so this reach does not qualify for listing under the April 22, 2002 draft listing rules. It may qualify under different decision rules.

Future studies may clarify whether Sylvan Lake is a "natural" turbidity source and whether there is an anthropogenic turbidity source in the reach between Amnen and Marcellus Roads. Crab Creek is on the proposed 2002/2004 303(d) list based on these data.

Quality Assurance

In 2003 we collected more than 14,000 non-QC results (including non-standard constituents). Of these, 982 (6.8 percent) were coded 4 (indicating there may be some question about the quality). Most of these (974) were total phosphorus results that were coded 4 due to a method bias (see Hallock, 2003b). Two results (0.01 percent) were coded > 4 (indicating serious quality questions; data will not be routinely used) because they were analyzed well past holding times. Although results coded >4 are not normally used, they can be provided on request. This practice gives us the opportunity to explain quality issues to prospective users. MEL coded 443 results (3.1 percent) as estimates ("J") and 1793 results (12.4 percent) as below the method detection limit ("U"). Of results below detection, about a third were metals and another third ammonia. Constituents making up the final third were primarily bacteria, nitrate plus nitrite, soluble reactive and total phosphorus, and suspended solids.

RMS values for some constituents are presented according to concentration ranges (Table 9). In practice, the estimates of the variability are strongly influenced by extreme values, especially when sample size is small. Also, because data below the reporting limit are censored and therefore have a variance of zero for sample pairs below this limit, the variability estimate is skewed downward for the lowest concentration ranges.

In general, variability of QC types followed the expected pattern of field sequential samples > field split samples > lab split samples. In a few cases, field sequential samples had less variability than field or lab splits. This typically occurred when the sample size was very low (n=1 or 2). Although MEL usually uses our field QC samples for their lab splits, they frequently split additional samples as well. This can also result in lab split variability greater than that in the field QC samples.

Table 9. Root mean square of the standard deviation of sequential samples, field splits, and laboratory splits. *n* = number of sample pairs. NA=not applicable. Results exceeding QAMP DQO criteria are shown in bold.

Constituent (units)	Range	$s_{error\ (mp)}$ [a]	Field Sequential RMS	*n*	Field Split RMS	*n*	Lab Split RMS	*n*
Electrical conductivity (µS/cm)	≤ 50	4.4	0.58	3	NA	0	No lab splits	
	>50-100	8.8	1.75	19	NA	0		
	>100-150	13.2	0.75	8	5.0	3		
	>150	26.4	2.28	12	0.58	3		
Fecal col. bacteria (colonies /100 mL)	1-1000	88	14	41	No field Splits		3.37	15
	>1000	176	0	1			0.07	6
								1
NH_3-N (µg N /L)	≤ 20	1.76	1.45	38	0.98	37	0.51	56
	>20-100	8.8	1.00	3	1.17	4	1.23	8
	>100	17.6	1.41	1	2.83	1	5.66	1
Nitrogen, total (µg N/L)	≤ 100	8.8	5.33	7	4.46	7	1.05	14
	>100-200	17.6	6.92	6	3.43	6	3.36	11
	>200-500	44	5.57	14	7.42	14	7.57	25
	>500	88	**105**	15	31.4	15	15.6	17
NO_3NO_2-N (µg N /L)	≤ 100	8.8	3.88	11	1.11	11	0.46	24
	>100-200	17.6	0.66	7	0.76	7	0.93	14
	>200-500	44	1.97	12	0.96	12	0.87	12
	>500	88	60.1	12	54.9	12	52.7	20
Oxygen, dissolved (mg O_2 /L)	≤ 8	0.70	0.21	1	0.00	1	No lab splits	
	> 8-10	0.88	0.08	8	0.09	8		
	> 10-12	1.06	0.06	19	0.08	20		
	>12	2.11	0.09	12	0.06	11		
pH	All	0.66	0.06	42	0.03	6	No lab splits	
Phosphorus, soluble reactive (µg P L^{-1})	≤ 50	4.4	0.57	39	0.33	39	0.26	82
	>50-100	8.8	0.43	2	0.94	2	0.25	2
	>100	17.6	3.54	1	0.71	1	0.91	3
Phosphorus, total (µg P/L)	≤ 50	4.4	2.39	35	1.10	34	0.90	58
	>50-100	8.8	4.72	2	1.53	3	0.41	6
	>100	17.6	**69.3**	5	10.3	5	0.88	7
Solids, suspended (mg /L)	≤ 10	0.88	**0.95**	27	No field Splits		0.34	63
	>10-20	1.76	**2.17**	5			0.71	13
	>20-50	4.4	**11.4**	7			0.97	19
	>50	8.8	**24**	3			**12.9**	11
Temperature (ºC)	All	2.64	0.07	42	No field splits		No lab splits	
Turbidity (NTU)	≤ 10	0.88	**1.66**	34	0.66	34	0.06	63
	>10-20	1.76	0.91	5	0.00	4	0.37	11
	>20-50	4.4	0	1	**5.5**	2	0.76	7
	>50	8.8	0	2	0.70	2	2.80	8

[a] Maximum permissible standard error to meet QAMP DQOs (Hallock and Ehinger, 2003).

Variability between paired samples as measured by RMS was quite low and generally similar to that experienced in previous years for all constituents. Only the 20 to 50 NTU turbidity range category failed to meet our Quality Assurance Monitoring Plan (QAMP) Data Quality Objectives (DQO) (Hallock and Ehinger, 2003), which specifies that DQOs be evaluated against field splits where possible. This turbidity category had a very small sample size (n=2 pairs), one of which had unusually high variability. The upper-range (>50 mg/L) of suspended solids lab splits also failed to meet DQOs. Seven field sequential constituent categories failed to meet the DQO criteria, including all four suspended solids ranges, but instream variability is included in these sample pairs so their variability is not a true measure of sampling plus analytical error.

The expected results of the analyses of the blank samples were 'below reporting limits' for all concentrations and turbidity, and less than three μS (micro Siemans) for specific conductivity (Table 10). Temperature, dissolved oxygen, pH, and fecal coliform were not measured on blanks.

Laboratory staff assessed the remaining elements of the laboratory QA program through a manual review of laboratory quality control results including check standards, in-house matrix spikes, and laboratory blanks. Results were within acceptable ranges as defined by MEL's Quality Assurance Manual (Ecology, 2001) or were either re-run or coded as deemed appropriate by laboratory staff (e.g., as an estimate, "J").

No new quality control issues developed this WY that may affect long-term trend analyses. However, two issues require documentation:

- One issue reported in our last annual report continued through this WY. During the course of evaluating a different method for phosphorus analysis, MEL discovered that the total phosphorus method used from May 2000 through September 2003 contains a high bias (4 to 20 ppb). Beginning with WY 2004 (October 2003), we changed methods from Standard Methods 4500PI using an in-line digestion to EPA 200.8M (an ICP/MS method). All data analyzed using the in-line digestion were coded "4" (indicating there was a potential problem with data quality). Trend analyses of total phosphorus data should be interpreted carefully if results collected between May 2000 and September 2003 are included.

- MEL changed several method references to better reflect the actual method used by the lab. Those methods reference changes applicable to our 12 standard constituents, are shown in Table 11. The analytical procedures were not actually changed.

Only one QC result (a calibration check) for temperature monitoring data loggers exceeded the specified limits. Data from the affected air logger was adjusted for bias. Water level changes at a few stations exposed the water temperature logger to air. This problem was readily apparent during a graphical review of the data and affected results were removed prior to loading the data into the database. In one case, somebody had pulled a water TidbiT onto the bank; it was subsequently discovered and returned to its original deployment location the following day during a planned site visit. The affected data were omitted from the finalized data for that station.

Table 10. Results of blind field process blank (deionized water) sample submission.

Constituent	Reporting limit	# Above reporting limit (mean concentration)	Sample size, *n*
Specific conductivity (µS)	NA	NA (mean: 1, std dev: 0.0)	2
Turbidity (NTU)	0.5	0	5
Suspended solids (mg L^{-1})	1.0	0	4
Total phosphorus (µg L^{-1})	10	0	5
Soluble reactive P (µg L^{-1})	3	0	5
Total Nitrogen (µg L^{-1})	25	0	5
NO_3/NO_2-N (µg L^{-1})	10	0	5
NH_3-N (µg L^{-1})	10	0	5

Table 11. Method reference changes (analytical procedures were not changed). (SM=Standard Methods (APHA, 1998), EPA=Environmental Protection Agency (EPA, 1983))

Constituent	Old Reference	New Reference
Fecal Coliform Bacteria	SM16-909C	SM 9222D
Suspended solids (mg L^{-1})	EPA 160.2	SM 2540 D

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Appendix A

Station description and period of record for Ecology's River and StreamAmbient Monitoring Program

Monitoring History for Environmental Assessment Program Ambient Monitoring Stations

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
01A050	Nooksack R @ Brennan	L		X XX XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
01A070	Nooksack R @ Ferndale	B	XXXXXXXX	XX X X			
01A090	Nooksack R nr Lynden	B		X X X			
01A100	Nooksack R @ Hannegan Road	B					
01A120	Nooksack R @ No Cedarville	L	X XXXXXXXX X	XX X XX	XXXXXXXXXX	XX X XXXXX	XXXX
01A140	Nooksack R above the MF	B				X	X
01B050	Silver Cr nr Brennan	B				XX	
01C070	Hutchinson Cr. nr Acme	B					
01D070	Sumas R nr Huntingdon BC	B		X X XXX	XXXXXXXXXX	XXX X	
01D080	Sumas R @ Jones Road	B					X
01D090	Sumas R @ Sumas	B		X X			
01D100	Sumas R. @ Telegraph Rd.	B					
01D120	Sumas R nr Nooksack	B				X	
01E050	Whatcom Cr @ Bellingham	B		X X		X	
01E070	Whatcom Cr @ Lake Outlet	B		X			
01E090	Whatcom Lake nr Bellingham	B	XXX X	X			
01F070	SF Nooksack @ Potter Rd	B				X	X
01G070	MF Nooksack R	B				X	X
01G100	M.F. Nooksack abv Clearwater Cr.	B					
01H070	Terrell Cr nr Jackson Rd.	B					X
01J060	Bar Cr. nr mouth	B					
01K050	Maple Cr. @ mouth	B					
01L050	Anderson Cr. @ mouth	B					
01M090	Kamm Slough @ Northwood Rd.	B					
01N060	Bertrand Cr. nr mouth	B					
01P080	Tenmile Cr. abv Barrett Lake	B					
01Q070	Dakota Cr. @ Giles Rd.	B					
01R090	California Cr. @ Valley View Rd.	B					

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
01S070	Squalicum Cr. @ West St.	B					
03A050	Skagit R @ Conway	B		X X			
03A060	Skagit R nr Mount Vernon	L	X XXXXXXXX X	X XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
03A070	Skagit R nr Sedro Woolley	B		X X X			
03A080	Skagit R abv Sedro Woolley	B					X
03B045	Samish R. nr Mouth	B				X	X
03B050	Samish R nr Burlington	L	X XXXXXXXX X	XX X XXX	XXXXXXXXXX	XX X XXXXX	XXXX
03B070	Samish R nr Hoogdal	B		X			
03B080	Samish R. nr Prairie	B				X	
03C060	Friday Cr Blw Hatchery	B		X		X X	
03C080	Friday Cr at Alger	B		X			
03D050	Nookachamp Ck nr Mouth	B				X	X
03E050	Joe Leary Slough nr Mouth	B					X
03F070	Hill Ditch @ Cedardale Rd	B					X
03G100	E.F. Nookachamps Cr. @ Beaver Lk. R	B					
03H090	Mannser Cr. Nr Hamilton	B					
04A060	Skagit R @ Concrete	B		X X XXX	XXXXXXXXXX	XX X	
04A100	Skagit R @ Marblemount	L	X XXXXXXXX X	X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
04A140	Skagit R @ Newhalem	B		X X			
04B070	Baker R @ Concrete	B	XXXX	XXX	XXXXXXXXXX	XX X	
04B150	Baker Lake @ Boulder Cr	B		XXXXX	X		
04C070	Sauk R nr Rockport	B		XXX	XXXXXXXXXX	XX X	
04C110	Sauk R @ Darrington	B	X XX				
04E050	Finney Cr near Birdsview	B				X	
05A050	Stillaguamish R @ Stanwood	B		X			
05A055	Hat Slough nr Stanwood	B		X			
05A070	Stillaguamish R nr Silvana	L	X XXXXXXXXXX	XX X XXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
05A090	SF Stillaguamish @ Arlington	L		X X XX	XXXXXXXXXX	XX X XXXXX	XXXX
05A100	S.F. Stillaguamish R. @ River Mdws	B					

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
05A105	S.F. Stillaguamish R. @ Jordan Rd.	B					
05A110	SF Stillaguamish nr Granite Falls	L	X XXXXXXX	X		X XXXXX	XXXX
05A150	S.F. Stillaguamish R. @ Verlot	B					
05B070	NF Stillaguamish @ Cicero	L	XXXXXXXX	XX X XX	XXXXXXXXXX	XX X XXXXX	XXXX
05B080	N.F. Stillaguamish R. abv Deer Cr.	B					
05B090	NF Stillaguamish R @ Oso	B		X			
05B110	NF Stillaguamish nr Darrington	L		X		X XXXXX	XXXX
05B200	N.F. Stillaguamish R abv Crevice Cr	B					
05C070	Deer Cr. @ Oso	B					
05C090	Deer Cr. nr Oso	B					
05D070	Pilchuck Cr. @ Bridge 626	B					
05D150	Pilchuck Cr. abv Lake Cr.	B					
05E060	Armstrong Cr. nr Arlington	B					
05F080	Canyon Cr. nr Masonic Park	B					
05G070	Jim Cr. @ Whites Rd.	B					
05H070	Squire Cr. @ Squire Creek Park	B					
05J060	Boulder R. nr mouth	B					
05K060	Lake Cr. nr mouth	B					
05L070	Church Cr. nr Stanwood	B					
07A090	Snohomish R @ Snohomish	L	X XXXXXXXX X	XX X XXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
07A109	Snohomish R nr Monroe NE	B		X			
07A110	Snohomish R nr Monroe SW	B		X			
07A111	Snohomish R nr Monroe (USGS)	B		XX X	XX		
07B055	Pilchuck R @ Snohomish	B		X X XX	XXXXXXXXXX	XXX X	
07B090	Pilchuck R nr Lake Stevens	B		X			
07C070	Skykomish R @ Monroe	L		X X XXX	XXXXXXXXXX	XXXX XXXXX	XXXX
07C090	Skykomish R @ Sultan	B		X X			
07C120	Skykomish R nr Gold Bar	B	X XXXXXXXXXX	X XX	XXXXXXXXXX	XXX	X
07C170	Skykomish R nr Miller R	B		X			

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
07D050	Snoqualmie R nr Monroe	L		X		XX XXXXX	XXXX
07D070	Snoqualmie R nr Carnation	B		X XX XXX	XXXXXXXXXX	XXX X	
07D100	Snoqualmie R abv Carnation	B					X
07D130	Snoqualmie R @ Snoqualmie	L	X XXXXXXXXXX	X XXX	XXXXXXXXXX	XXX XXXXX	XXXX
07D150	M F Snoqualmie R nr Ellisville	B				X	X
07E055	Sultan R @ Sultan	B	XXXXXXXX X	XX X		X	X
07F055	Woods Cr @ Monroe	B		X X		X X	
07G070	Tolt R nr Carnation	B	XXXXXXXXXX	X		X	
07M070	S F Snoqualmie R at North Bend	B				X	
07N070	NF Snoqualmie R near Ellisville	B				X	
07P070	Patterson Ck nr Fall City	B				X X	
07Q070	Raging R @ Fall City	B				X	X
07R050	French Cr nr Mouth	B				X	
08A070	McAleer Cr nr Mouth	B		X			
08A090	Upper McAleer Cr	B		X			
08B070	Sammamish R @ Bothell	B	X XXXXXXXXXX	XX X X XX	XXXXXXXXXX	XXXXX X	
08B110	Sammamish R @ Redmond	B		X		X	
08B130	Issaquah Cr nr Issaquah	B	XXX X	XX X X		X	
08C070	Cedar R @ Logan St/Renton	L	X XXXXXXX	X X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
08C080	Cedar R @ Maplewood	B				X	
08C090	Cedar R @ Maple Valley	B		X		X	
08C110	Cedar R nr Landsburg	L	X XXX	X XX	XXXXXXXXXX	XX XXXXXX	XXXX
08D070	Mercer Slough nr Bellevue	B		X			
08E090	Kelsey Cr @ Monitor Site	B		X			
08E110	Upper Kelsey Cr	B		X			
08F070	May Cr nr Mouth	B		X			
08G070	Valley Cr nr Mouth	B		X			
08H070	Thornton Cr nr Mouth	B		X			
08H100	North Branch Thornton Cr	B		X			

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
08J070	West Branch Thornton Cr	B		X			
08J100	Swamp Creek abv Lynnwood	B				X	
08K070	Ship Canal @ Ballard	B					
08K071	Bear Cr. below Cottage Lake Cr.	B					
08K090	Ship Canal @ Freemont	B				X	
08K100	North Creek nr Everett	B				X	
08K110	Ship Canal @ University	B					
08K130	Ship Canal @ Montlake	B					
08L070	Laughing Jacobs Cr nr Mouth	B					
08M070	SF Thornton Cr @ 107th Ave NE	B					
09A060	Duwamish R @ Allentown Br	B			XXXXXXXXXX	XX	
09A070	Duwamish R @ Foster	B	X XXXXXXXX				
09A080	Green R @ Tukwila	L				XXXXXXXXX	XXXX
09A090	Green R @ 212th St nr Kent	B		X XX	XXXXXXXXXX	XX X	
09A110	Green R @ Auburn	B	XXXXX X	XX			
09A130	Green Abv Big Soos/Auburn	B	X XXXXXXXXXX	X		X	
09A150	Green R nr Auburn	B		X			
09A170	Green R nr Black Diamond	B		X			
09A190	Green R @ Kanaskat	L	X XX	X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
09B070	Big Soos Cr blw Hatchery	B		X X			
09B090	Big Soos Cr nr Auburn	B	XXXX	XX		X X	
09C070	Des Moines Cr nr Mouth	B		X		X	
09C090	Des Moines Cr @ So 200th	B		X			
09D070	Miller Cr nr Mouth	B		X			
09D090	Miller Cr @ Ambaum Blvd SW	B		X			
09E070	Mill Creek @ Orillia	B			XXXXXX	X X	
09E090	Mill Creek - Kent on W Valley Hwy	B			XXXXXX	X	
09F071	Newaukum Cr nr Mouth	B					
09F150	Newaukum Creek nr Enumclaw	B				X	

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
09G071	Springbrook Cr. @ N. end Longacres	B					
09H090	Black R @ Renton	B				X	
09J090	Longfellow Cr abv 24-25th St juctn	B					X
10A050	Puyallup R @ Puyallup	B	X XXXXXXXX X	XXX XXXXX	XXX		XXX
10A070	Puyallup R @ Meridian St	L		X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
10A080	Puyallup R. nr Sumner	B					
10A090	Puyallup R @ McMillin	B		X X			
10A110	Puyallup R @ Orting	B	X XXX XXXXXX	XXX X XX	XXXXXXXXXX	XX X X	
10B070	Carbon R nr Orting	B	XX	XX		X	
10B090	Carbon R @ Fairfax	B		X			
10C070	White R @ Sumner	B		XX XX	XXXXXXXXXX	XX X X	
10C085	White R nr Sumner	B	X	X X		X	
10C090	White R @ Auburn	B	XXXXX	X X			
10C091	White R @ Auburn - A	B					
10C095	White River @ R Street	B				X	XXXX
10C110	White R blw Buckley	B		X			
10C115	White River nr 274th Ave.	B					
10C130	White R @ Buckley	B				X	
10C135	White R. abv Raineer School WWTP	B					
10C140	White R nr Buckley	B		X			
10C150	White R nr Greenwater	B		X			
10D070	Boise Cr @ Buckley	B	XXX	X			X
10D090	Boise Cr nr Enumclaw	B	XXX				
10E050	Salmon Creek nr Mouth	B					
10E070	Salmon Cr @ Sumner	B		X			
10F070	So Prairie Cr nr Crocker	B		X			
10F090	South Prairie Ck nr S. Prairie	B				X	
10F110	South Prairie Cr. @ South Prairie	B					
10F150	South Prairie Cr. @ Burnette	B					

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
10G060	Hylebos Creek at Mouth	B					
11A070	Nisqually R @ Nisqually	L		X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
11A080	Nisqually R @ McKenna	B	X XXXXXXXXXX	X		XX X	
11A090	Nisqually R abv Powell Cr	B		X XX	XXXXXXXXXX	X	
11A110	Nisqually R @ LaGrande	B		X			
11A140	Nisqually R @ Elbe	B		X X XX	X		
12A070	Chambers Cr nr Steilacoom	B	XXXXX	XX X	XXXXXX	XX X X	
12A100	Chambers Cr blw Steilacoom Lk	B	XX	X		XXX	
12A110	Clover Cr abv Steilacoom Lk	B	XXX	X		XXXX	
12A130	Clover Cr nr Parkland	B	XX				
12A140	Clover Creek nr Waller Road	B					
12B070	Leach Cr nr Steilacoom	B	XXX	X			
12C070	Flett Cr @ Custer Rd	B	XXX	X			
12D050	Ponce de Leon Ck nr mouth	B				XXX	
13A050	Deschutes R @ Tumwater	B	XXXXX X	X X			
13A060	Deschutes R @ E St Bridge	L		XX	XXXXXXXXXX	XXXX XXXXX	XXXX
13A080	Deschutes R nr Olympia	B		X X X			
13A100	Deschutes R. @ Rich Rd.	B					
13A120	Deschutes R. @ Waldrick Rd.	B					
13A150	Deschutes R nr Rainier	B	X XXX	X X XX	XXXXXXXXXX	XX X	
13B170	Woodland Cr. nr Lacey	B					
14A060	Goldsborough Cr @ Shelton	B				X X	
14A070	Goldsborough Cr nr Shelton	B	XXX X	X			
15A070	Dewatto R nr Dewatto	B		XXX		X	
15B050	Chico Cr nr Chico	B				X	
15B070	Chico Cr nr Bremerton	B	XXXXX	X			
15C070	Clear Cr @ Silverdale	B				X	
15D090	Tahuya R nr Belfair	B				X	
15E070	Union R nr Belfair	B				X	X

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
15F150	Big Beef Cr. @ Holly Rd.	B					
15G050	Little Mission Cr. @ Hwy 300	B					X
15H050	Stimson Creek @ Hwy 300	B					X
15J050	Big Mission Cr. @ Hwy 300	B					X
15K070	Olalla Cr. @ Forsman Rd.	B					X
15L050	Seabeck Cr. @ mouth	B					
16A070	Skokomish R nr Potlatch	L	XXXXXXXX X	X XXX XX	X XXXXXX	XXXXXXXXXX	XXXX
16B070	Hamma Hamma R nr Mouth	B	XXXXXX X	X X			
16B110	Hamma Hamma R nr Eldon	B		XX		X	
16B120	Hamma Hamma R above Cabin Creek	B					
16C070	Duckabush R @ Mouth	B	XXXXXXXX X	X X			
16C090	Duckabush R nr Brinnon	L		XXX		XXXXXX	XXXX
16D070	Dosewallips R @ Brinnon	B	X XXXXXXXXX	X XXX		X	
16E070	Finch Cr @ Hoodsport	B				X X	
17A060	Big Quilcene R nr mouth	B					XX
17A070	Big Quilcene R nr Quilcene	B	X XXXXXXX	XXX		X X	
17B050	Chimacum Cr. @ mouth	B					
17B070	Chimacum Cr nr Irondale	B				X	
17B090	Chimacum Cr @ Hadlock	B		X			
17B100	Chimacum Cr @ Chimacum	B				X	
17B110	Chimacum Cr nr Chimacum	B		X			
17C070	Jimmycomelately Cr near Mouth	B					XX
17D060	Little Quilcene R. nr mouth	B					
17E060	Snow Cr. @ WDFW	B					
17F060	Salmon Cr. @ West Uncas Rd.	B					
17G060	Tarboo Cr. nr mouth	B					
17H060	Thorndyke Cr. nr mouth	B					
17J050	Pheasant Cr. @ mouth	B					
18A050	Dungeness R nr Mouth	B					XXX

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
18A070	Dungeness R nr Sequim	B	X XXXXXXX	XXX		X X	XX
18B070	Elwha R nr Port Angeles	L	X XXXXXXX X	XXX		XXXXXX	XXXX
18B080	Elwha R @ McDonald Br (USGS)	B		XXXXX	XX		
18C070	Morse Cr. @ Four Seasons Ranch	B					
18C150	Morse Cr. blw Aqueduct	B					
18D060	Matriotti Cr. @ Olympic Game Farm	B					
18E100	Meadowbrook Cr. nr Dungeness	B					
18F250	Agnew Irrigation Dt. nr Sequim	B					
18G250	CCD Irrigation Dt. nr Sequim	B					
18H250	Sequim/Prairie Irrig. Dt. nr Sequim	B					
18J250	Highland Irrigation Dt. nr Sequim	B					
18K250	Independent Irrig. Dt. nr Sequim	B					
18L060	Seibert Cr. @ Old Olympic Hwy.	B					
18M060	Ennis Cr. nr mouth	B					
18N050	Little R. @ mouth	B					
18P070	McDonald Cr. @ Hwy 101	B					
18Q050	Indian Cr. @ mouth	B					
18Q200	Indian Cr. nr Maple Grove	B					
18Q240	Indian Cr. blw Lake Sutherland	B					
18R250	McDonald Irrig. Dt. @ diversion	B					
19A070	Pysht R nr Pysht	B		XXX			
19B070	Hoko R nr Mouth	B		X			
19B090	Hoko R nr Sekiu	B		XX			
19C060	West Twin R. nr mouth	B					
19D070	West Twin R. nr Twin	B					
19E060	Deep Cr. nr mouth	B					
20A090	Soleduck R nr Forks	B		XXX		X	
20A130	Soleduck R nr Fairholm	B	XXXXXXXX X	X			
20B070	Hoh R @ DNR Campground	L	XXXXXXXXXX	X XXX XX	X	XXXXXX	XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
20C070	Ozette R @ Ozette	B	X XX					
20D070	Dickey R nr La Push	B				X		
21A070	Queets R @ Queets	B	XXXXXXXXXX	X X		X		
21A080	Queets R nr Clearwater (USGS)	B		XX	XX			
21A090	Queets R abv Clearwater	B		XX				
21B090	Quinault R @ Lake Quinault	B	X X XXXXXX	X XXX XX	X	X		
21C070	Clearwater R nr Queets	B		XX				
21D070	NF Quinault R @ Amanda	B		XXXXXXXXX	XX			
22A070	Humptulips R nr Humptulips	L	X XXXXXXXXXX	X XXX XX	XXXXXXXXXX	XXXXXXXXXX	XXXX	
22B070	WF Hoquiam R nr Hoquiam	B	XXXXX	XX		X		
22C050	Chehalis R nr Montesano	B		XX XX	XXXXXXXXXX	XXX		
22C070	Chehalis R nr Fuller	B		X X				
22D070	Wishkah R nr Wishkah	B	XXXXX	XX X				
22F090	Wynoochee R nr Montesano	B	X XXXXXXXX X	X XX X				
22G070	Satsop R nr Satsop	B	XXXXXXXXXX	XX X XXX	XXXXXXXXXX	XX X		
22H070	Cloquallum Cr nr Elma	B	XXXX	X X X				
22J070	Wildcat Cr nr McCleary	B		X				
22K070	Bingham Cr. @ Hatchery	B						
23A070	Chehalis R @ Porter	L	X XXXXXXXXXX	XXXX XXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX	
23A100	Chehalis R @ Prather Rd	B				XXX	XX	
23A110	Chehalis R @ Galvin	B		X X X				
23A120	Chehalis R @ Centralia	B		XX	XXXXXXXXXX	XX X		
23A130	Chehalis R @ Claquato	B				X		
23A140	Chehalis R @ Adna	B		X X X				
23A160	Chehalis R @ Dryad	L	X XXXXXXX	XX	XXXXXXXXXX	XXXXXXXXXX	XXXX	
23B050	Newaukum @ Mouth	B				X		
23B070	Newaukum R nr Chehalis	B	XXXXXXXX	X X X		X		
23B090	SF Newaukum R @ Forest	B		X				
23C070	NF Newaukum R @ Forest	B		X				

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
23D055	Skookumchuck R @ Centralia	B				X X	
23D060	Skookumchuck R nr Frost Prairie	B					
23D070	Skookumchuck R nr Centralia	B	X X				
23E070	Black River @ Moon Road Bridge	B				XX X XXX	
23F070	Mill Ck nr Bordeaux	B				X	
23G070	SF Chehalis R @ Curtis	B				X	
24B090	Willapa R nr Willapa	L	XX X	XXXXX XXXX	XX XXXXXX	XXX XXXXX	XXXX
24B100	Willapa R. @ Oxbow	B					
24B130	Willapa R @ Lebam	B	X XX X	XX	XXXXXXXXXX	XXX	
24C060	SF Willapa R @ Fuller St	B					
24C065	S.F. Willapa R. @ South Fork WTP	B					
24C070	SF Willapa R @ South Bend	B		X			
24D070	North R nr Raymond	B		X XX			XX
24D090	North R @ Artic	B				X	
24E070	North Nemah R @ Nemah	B		X X			
24F040	Naselle R @ Mouth	B		X			
24F055	Naselle R @ Naselle	B		X			
24F070	Naselle R nr Naselle	L	XX X	X X XXXX	X	X XXXXX	XXXX
24G070	Bear Branch nr Naselle	B	X	X			
24H070	Middle Nemah R nr Nemah	B		X			
24J070	South Namah R nr Nemah	B		X			
24K060	Fork Cr. @ Willapa Hatchery	B					
24L060	Canon R. @ Kleeb's Trail	B					
24L090	Canon R. @ A-Line Bridge	B					
24M050	Ellsworth Cr. @ mouth	B					
25A070	Columbia R @ Cathlamet	B	XX	X X			
25A075	Columbia R @ Bradwood	B		XXXXXX			
25A110	Columbia R @ Fisher Is Lt	B	XXXXX				
25A115	Columbia R nr Longview	B	XX	X X			

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
25A150	Columbia R blw Longview Br	B	X	X			
25B070	Grays R nr Grays River	B		X XX		X	
25C070	Elochoman R nr Cathlamet	B	X	X XX		X	
25D050	Germany Cr. @ mouth	B					
25E060	Abernathy Cr. nr mouth	B					
25F060	Mill Cr. nr mouth	B					
26B070	Cowlitz R @ Kelso	L	XXXXXXX	XX X XX	XXXXXXXXX	XXXXXXXXXX	XXXX
26B100	Cowlitz R @ Castle Rock	B	XXX	X XXXX			
26B150	Cowlitz R @ Toledo	B	XXXXX	X X XX	X	X	
26B180	Cowlitz nr Kosmos B Cispus	B	X XXXXXXXX				
26B190	Cowlitz R nr Randle	B	X	X X X			
26B200	Cowlitz R nr Kosmos	B		X			
26C070	Coweeman R @ Kelso	B	XXXXX	XX X	XXXXXX	XXX X	
26C080	Coweeman R av Goble Cr	B				X	
26C090	Coweeman R nr Rose Valley	B		X X			
26D070	Toutle R nr Castle Rock	B	XXXXXXXX X	X X X XX	XXXXXXXXX	XXX	
26D090	Toutle R @ Tower Rd	B					
26E070	Cispus R nr Kosmos	B		X	XXX		
27A070	Columbia R @ Kalama	B	XX	X XX			
27A110	Columbia River nr St. Helens	B	XX	X			
27B050	Kalama R @ Kalama	B	XXXXXXXXX	X			
27B070	Kalama R nr Kalama	L		XX XX	XXXXXXXXX	XXX XXXXX	XXXX
27B080	Kalama R blw Upper Hatchery	B					
27B090	Kalama R @ Upper Hatchery	B		X			
27B110	Kalama R @ Pigeon Springs	B		X			
27C070	Lewis R @ Woodland @ I-5	B	XXXXX X	X XX			
27C080	Lewis R @ Co Rd 16	B				X	
27C110	Lewis R @ Ariel	B	X X	XXX	X		
27D090	EF Lewis R nr Dollar Corner	L		XXX	XXXXXXXXX	XXX XXXXX	XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
27D100	EF Lewis R @ Heisson	B					
27D110	EF Lewis nr Heisson	B					
27E070	Cedar Cr nr Etna	B				X	
27E100	Cedar Cr. @ Grist Mill Bridge	B					
27F070	Gee Cr @ Ridgefield	B				X	
28A090	Columbia blw Vancouver WA	B	XX	X			
28A091	Columbia blw Vancouver OR	B	XX	X			
28A100	Columbia R. @ Vancouver	B					X
28A165	Columbia R @ Warrendale	B		XXXXXXX			
28A170	Columbia R blw Bonneville	B	XX	X			
28A175	Columbia R @ Bonneville Dam	B	XX	X X			
28B070	Washougal R @ Washougal	B	X	X XX XX		X	
28B090	Washougal R nr Washougal	B	XXXXXXXX	X			
28B110	Washougal R blw Canyon Ck	B				X X	X
28C070	Burnt Br Cr @ Mouth	B		X			
28C110	Burnt Br Cr @ Vancouver	B		X			
28D070	Salmon Cr @ Salmon Creek	B		X			
28D110	Salmon Cr nr Battle Ground	B		X			
28E070	Weaver Cr nr Battle Ground	B		X			
28F070	Lake R nr Ridgefield	B				X	
28G070	Gibbons Ck nr Washougal	B				X	X
28H070	Campen Cr nr Washougal	B					X
29B070	White Salmon R nr Underwood	B	XXXXXXXXXX	X XX XXXX	XXXX	X	
29C070	Wind R nr Carson	B		X XXXX	XXXX	X	
29D070	Rattlesnake Cr nr Mouth	B				XXX	
29E070	Gilmer Cr nr Mouth	B				XXX	
30A070	Columbia R @ The Dalles	B	XX	XXXXXXXX		X	
30A090	Columbia R @ The Dalles Dam	B	X				
30A100	Columbia R nr Maryhill	B					

Station Number	Name	Long-term or Basin		Water Year Sampled				
				<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
30B060	Klickitat R nr Lyle	B					XX	
30B070	Klickitat R nr Pitt	B		XXX	X XXXXXXX	X		
30C070	Little Klickitat nr Wahkiacus	B			X		XX	
30C090	Little Klickitat R. @ Olson Rd.	B						
30C150	Little Klickitat R. @ Hwy 97	B						
31A070	Columbia R @ Umatilla	L		X	XXXXX		XXXXXXXXX	XXXX
31A090	Columbia R @ McNary Dam	B	X	XXXXXXXXXX				
31A130	Columbia R nr Yakima R Mouth	B		X				
32A070	Walla Walla R nr Touchet	L	X	XXXXXXX	XX XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
32A090	Walla Walla R nr Lowden	B			XX			
32A100	Walla Walla at east Detour Road Br	B					X	X
32A105	Walla Walla R. @ Beet Rd.	B						
32A110	Walla Walla R @ College Pl	B			XX XX			
32A120	Walla Walla R. @ Pepper Bridge	B						
32B070	Touchet R @ Touchet	B			X XX XX	XXXXXXXXXX	XXX X	
32B075	Touchet R. @ Cummins Rd.	B						X
32B080	Touchet at Sims Road	B					X	X
32B090	Touchet R nr Luckenbill Rd	B						
32B100	Touchet R @ Bolles	B			XX		X	X
32B110	Touchet R. @ County Line	B						
32B120	Touchet R nr Dayton	B			XX			
32B130	Touchet R @ Dayton	B	X	X			XX	
32B140	Touchet R above Dayton	B					X	
32C070	Mill Cr @ Swegle Rd	B			X XX			X
32C110	Mill Cr @ Tausick Way	B			X X		X	
32D050	Yellowhawk Cr nr mouth	B						
32D060	Yellowhawk Cr. nr mouth	B						
32E050	N.F. Touchet R. abv Dayton	B						
32E150	N.F. Touchet R. abv Jim Cr.	B						

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
32F060	Dry Cr. nr mouth	B					
32F150	Dry Cr. @ Hwy 125	B					
32G060	Coppei Cr. nr mouth	B					
32G100	Coppei Cr. nr Coppei	B					
32H090	E.P. Ltl Walla Walla R. @ Stateline	B					
32J070	Robinson Fork abv W.F. Touchet	B					
32K070	Wolf Fk Touchet R. @ Mtn. Home Park	B					
32L070	S.F. Touchet R. abv Dayton	B					
32M060	Cottonwood Cr. nr mouth	B					
32M100	Cottonwood Cr. @ Hood Rd.	B					
32N070	Russell Cr. nr Langdon	B					
32N120	Russell Cr. nr Walla Walla	B					
33A010	Snake R nr Mouth	B	X				
33A050	Snake R nr Pasco	L	XXXXXXX X	X		XXXXXXXXX	XXXX
33A05X	Snake R @ Burbank	B					
33A070	Snake R blw Ice Harbor Dam	B	X	X XXXXXX	XXXXXXXXXX	XX	
33A100	Snake R blw Lower Monumental Dam	B					
34A070	Palouse R @ Hooper	L	X XXXXXXXXX	X XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
34A075	Palouse River @ Hwy 26	B					
34A080	Palouse River above Rebel Flat	B					
34A085	Palouse R @ Shields Rd Bridge	B				X	
34A090	Palouse R nr Diamond	B		X X			
34A109	Palouse River blw Colfax	B					
34A110	Palouse R abv Buck Canyon	B		X XX			
34A120	Palouse R at Colfax	B					X
34A170	Palouse R @ Palouse	L		X		XXXXXXXX	XXXX
34B070	SF Palouse R nr Colfax	B		X XX			
34B075	SF Palouse R @ Shawnee Rd	B					
34B085	SF Palouse R at Armstrong Rd	B					

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
34B090	SF Palouse R nr Pullman	B		X X			
34B110	SF Palouse R @ Pullman	L		X X XX	XXXXXXXXXX	XXX XXXXX	XXXX
34B130	SF Palouse R blw Sunshine	B		X			
34B140	SF Palouse R @ Busby	B				X	
34B150	SF Palouse R nr Moscow ID	B					
34C060	Paradise Cr at Mouth	B				X	
34C070	Paradise Cr nr Pullman	B		X			
34C100	Paradise Cr @ Border	B				X	
34D070	SF Palouse Trib Whitman Fm	B		X			
34E070	Rock Creek at Revere	B				X	
34E100	Rock Creek at Escures Property	B					
34F070	Missouri Flat Creek @ Pullman	B					
34F090	Pine Cr @ Rosalia	B				X	
34G070	Snake R @ Lyons Ferry	B					
34H070	Pleasant Valley Cr blw St John	B					X
34J050	Union Flat Cr nr Mouth	B					
34J070	Union Flat Cr @ Winona Rd	B					
34J090	Union Flat Cr @ Hwy 26	B					
34J120	Union Flat Cr @Almota Rd	B					
34K050	Rebel Flat Cr @ Mouth	B					
34K080	Rebel Flat Cr @ Repp Rd	B					
34K120	Rebel Flat Cr @ Fairgrounds	B					
34L050	Cow Cr @ mouth	B					
35A070	Snake R @ Central Ferry	B					
35A100	Snake R blw Lwr Granite Dam	B		X			
35A110	Snake R at Lwr Granite Dam	B					
35A150	Snake R @ Interstate Br	L	XXXXX XX			XXXXXXXXX	XXXX
35A200	Snake R nr Anatone	B		XXXXXXXX			
35B060	Tucannon R @ Powers	L		X XX	XXXXXXXXXX	XXX XXXXX	XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
35B090	Tucannon R @ Smith Hollow	B					X
35B100	Tucannon R @ Territorial Road	B					X
35B110	Tucannon R nr Delaney	B	X X				
35B120	Tucannon R @ Brines Road	B					X
35B150	Tucannon R nr Marengo	B				X	X
35C070	Grande Ronde R nr Anatone	B		X	XXX	X	
35D070	Asotin Cr @ Asotin	B		X		X X	X
35E070	Clearwater R @ US12/95	B				X	
35F050	Pataha Cr near mouth	B					X
35F070	Pataha Cr @ Archer Rd	B				X	X
35F095	Pataha Cr @ Tatman Road	B					X
35F100	Pataha Cr. nr Pataha	B					
35F110	Pataha Cr @ Rosy Grade	B					X
35G060	Joseph Cr. nr mouth	B					
35H050	Couse Cr. @ mouth	B					
35J050	Tenmile Cr. @ mouth	B					
35K050	Alpowa Cr. @ mouth	B					
35L050	Almota Cr. @ mouth	B					
35M060	Deadman Cr. nr mouth	B					
35M100	Deadman Cr. nr Gould City	B					
35N050	Meadow Cr. @ mouth	B					
36A055	Columbia R @ Port of Pasco	B		X			
36A060	Columbia R @ Pasco	B		XX			
36A065	Columbia R @ Richland	B		X			
36A070	Columbia R nr Vernita	L	XX XX	X X XXX XX	XXXXXXXXXX	XX XXXXXX	XXXX
37A040	Yakima R @ I-182	B					
37A060	Yakima R @ VanGiesen Br	B		X XX			
37A070	Yakima R nr Richland	B		X			
37A090	Yakima R @ Kiona	L	X XXX XXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
37A095	Yakima 2 mi blw Prosser	B				X	
37A100	Yakima below Prosser	B				X	
37A110	Yakima R @ Prosser	B		X XX			
37A120	Yakima River @ Euclid Rd. Brdg.	B					
37A130	Yakima R @ Mabton	B		X XX		X	
37A149	Yakima R @ Granger No Side	B		X			
37A150	Yakima R @ Granger So Side	B		X			
37A152	Yakima above Granger Drain	B					
37A170	Yakima R nr Toppenish	B		X XX		X	
37A190	Yakima R @ Parker	B		X XXXXXXX	XXXXXXXXXX	XXX	
37A200	Yakima R abv Ahtanum Cr (USGS)	B		XX X	XX		
37A205	Yakima R @ Nob Hill	L				XXXXX	XXXX
37A210	Yakima R nr Terrace Height	B		XX XX		X	
37B060	Satus Cr @ Satus	B		XX			
37C060	Toppenish Cr nr Satus	B		XX			
37D080	Marion Drin nr Granger	B		XX			
37E070	Wide Hollow Cr @ Union Gap	B		X X		X	
37E090	Wide Hollow Cr @ Goodman	B		X X			
37E120	Wide Hollow Creek @ Randall Park	B					XX
37F070	Sulfur Ck Wasteway @ McGee Rd	B				X	
37F080	Sulphur Creek @ Holaday Road	B					
37G120	Ahtanum Cr @ 62nd Ave	B					XX
38A050	Naches R @ Yakima on US HWY 97	B	XXXXXXX			X XX	X X
38A061	Naches River @ Nelson Bridge	B					
38A070	Naches R @ Yakima	B		X X			
38A110	Naches R @ Naches	B	X X	X			
38A130	Naches R nr Naches	B	XXXX				
38A170	Naches R. @ Nile Rd.	B					
38B070	Tieton R @ Oak Creek	B	XXXX			X	

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
38C070	Rattlesnake Cr nr Nile	B	XX				
38D070	Bumping R @ American R	B	XX				
38E070	American R @ American R	B	XX				
38F070	Little Naches nr Cliffdell	B	XXX			X	
38G120	Cowiche Cr @ Zimmerman rd	B					XX
38H050	S.F. Cowiche Cr. @ mouth	B					
38H080	S.F. Cowiche Cr.nr Cowiche	B					
39A041	Yakima River below Roza Dam	B					
39A050	Yakima R @ Harrison Bridge	B				XX	XXX
39A051	Yakima River @ Umtanum	B					
39A060	Yakima R @ Ellensburg	B				XX	XX
39A070	Yakima R nr Thorp	B		X X			
39A080	Yakima R @ Cle Elum	B	X XXXXXXXXXX	X			
39A090	Yakima R nr Cle Elum	L		X X		XXX XXXXX	XXXX
39B070	Cle Elum R nr Cle Elum	B		X X			
39B090	Cle Elum R nr Roslyn	B				X	
39C070	Wilson Cr @ Thrall	B	XXXX	X X X		X	
39D070	Teanaway R nr Cle Elum	B	XXXXX			X	
39D090	Teanaway R at Highway 970	B					
39E071	Cabin Creek nr Easton	B					
39F050	Wenas Cr. nr Selah	B					
39G060	Naneum Cr. nr Ellensburg	B					
39H050	Sorenson Cr. nr Ellensburg	B					
39J050	Manastash Cr. nr Ellensburg	B					
39K050	Reecer Cr. nr Ellensburg	B					
39L050	Packwood Dt. nr Ellensburg	B					
39M050	Swauk Cr. Nr Cle Elum	B					
39N050	Crystal Cr. Nr Cle Elum	B					
41A070	Crab Cr nr Beverly	L	X XXXXXXXXXX	XXX XX XX	XXXXXXXXXX	XX XXXXXX	XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
41A075	Crab Cr nr Smyrna	B	XXX				
41A090	Crab Cr nr Othello	B		X			
41A101	Crab Creek @ McMannon Road	B					
41A110	Crab Cr nr Moses Lake	B	X		XXXX	X X	X
41B071	Winchester Wasteway @ Gage	B					
41C071	Frenchman Hills Wasteway @ Gage	B					
41D070	Rocky Ford Creek @ Hwy 17	B				X	X
41E070	Sand Hollow Creek on Hwy 26	B				X	
41F100	Rocky Ford Coulee Drain	B				X	
41G070	Rocky Coulee Wasteway @ K NE Road	B					X
41H050	Moses Lake at South Outlet	B					X
41J070	Lind Coulee @ Hwy 17	B					X
42A070	Crab Cr below Adrian	B					X
43A070	Crab Cr @ Irby	B	X			X	X
43A080	Crab Creek @ Odessa	B					X
43A095	Crab Creek @ Amnen Road	B					X
43A100	Crab Ck @ Marcelus Road	B				X	X
43A110	Crab Creek at Tokio Road	B					X
43A130	Crab Creek @ US23	B					X
43A150	Crab Ck @ Bluestem Road	B				X	X
43B090	Lake Ck @ Coffeepot Road	B				X	
43C070	Goose Creek nr Wilbur	B					X
44A070	Columbia R blw Rock Is Dam	B		X XX XX	XXXXXXXXXX	XX	
45A070	Wenatchee R @ Wenatchee	L	XXXXXXXX X	X X XX XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
45A085	Wenatchee R nr Dryden	B		X			
45A100	Wenatchee R @ Leavenworth	B		X			
45A110	Wenatchee R nr Leavenworth	L	X XXXXXXXX	XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
45A240	Wenatchee R. blw Lake Wenatchee	B					
45B050	Icicle Cr. nr mouth	B					

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
45B070	Icicle Cr nr Leavenworth	B		X		X	
45C060	Chumstick Cr. nr mouth	B					X
45C070	Chumstick Cr nr Leavenworth	B				XXX	X X
45D070	Brender Cr nr Cashmere	B				XXX	X X
45D080	Brender Cr. abv Noname Cr.	B					
45D150	Brender Cr. blw Brender Canyon	B					
45E070	Mission Cr nr Cashmere	B				XXX	X X
45E100	Mission Cr. @ Binder Rd.	B					
45F070	Peshastin Cr. @ Green Bridge Rd.	B					
45F100	Peshastin Cr. blw Ingalls Cr.	B					
45F110	Peshastin Cr. abv Ingalls Cr.	B					
45F150	Peshastin Cr. abv Tronsen Cr.	B					
45G060	Chiwaukum Cr. nr mouth	B					
45H060	Chiwawa R. @ Schugart Flat	B					
45J070	Nason Cr. nr mouth	B					
45K070	White R. nr mouth	B					
45K090	White R. nr Plain	B					
45L070	Little Wenatchee R. nr mouth	B					
45L110	Little Wenatchee R. blw Rainey Cr.	B					
45M060	Rainey Cr. nr mouth	B					
45N060	Rock Cr. nr mouth	B					
45P050	White Pine Cr. @ mouth	B					
45Q060	Eagle Cr. nr mouth	B					X
45R050	Noname Creek nr Cashmere	B					X
46A070	Entiat R nr Entiat	L	X XXXXXXX	X XX XX	XXXXXXXXXX	XX XXXXXX	XXXX
46A110	Entiat R. @ Dill Creek Bridge	B					
46A150	Entiat R. @ Tommy Creek Bridge	B					
46A160	Entiat R. blw Entiat Falls	B					
46A170	Entiat R. @ North Fork Campground	B					

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
46B060	Roaring Cr. nr mouth	B					
46C100	Mad R. abv Camp Nine	B					
46D050	Tillicum Cr. @ mouth	B					
46E070	Mud Cr. @ Bisping Canyon Rd.	B					
46F060	Potato Cr. nr mouth	B					
46G060	Stormy Cr. nr mouth	B					
46H050	Preston Cr. @ mouth	B					
46J080	Tommy Cr. Blw USFS Quarry	B					
46K050	Lake Cr. @ mouth	B					
46L050	Pope Cr. @ mouth	B					
47A070	Chelan R @ Chelan	B	XXXXXXXX X	X X XX XX	XXXXXXXXXX	XX X	
47B070	Columbia R @ Chelan Station	B				X X	
48A070	Methow R nr Pateros	L	X XXXXXXX	X XX XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
48A130	Methow R nr Twisp	B		X XX	XXXXXXXXX		
48A140	Methow R @ Twisp	L			X	XX X XXXXX	XXXX
48A170	Methow R @ Weeman Br	B		X			
48A190	Methow R blw Gate Cr	B		X XX	X		
48B070	Chewack R @ Winthrop	B		X			
48C070	Andrews Cr nr Mazama	B		XXXXXXXX	XX		
49A050	Okanogan R nr Brewster	B	X XXXXXXX X	X			
49A070	Okanogan R @ Malott	L	XXX	X X XX XX	XX XXXXXX	XXXXXXXXXX	XXXX
49A090	Okanogan R @ Okanogan	B		X XX	XXXXXXXXX	X	
49A170	Okanogan R @ Janis	B		X			
49A180	Okanogan R @ Tonaskat	B				X	
49A190	Okanogan R @ Oroville	L	XXXXXXX	XX XX	XXXXXXXXXX	XX X XXXXX	XXXX
49B070	Similkameen R @ Oroville	L	XXXXXXX	XX XX	XXXXXXXXXX	XXXXXXXXXX	XXXX
49B090	Similkameen R @ Nighthawk	B				X	
49B110	Similkameen R @ Chopaka, BC	B					XX
49C100	Omak Cr. nr St. Mary's Mission	B					

Station Number	Name	Long-term or Basin	Water Year Sampled <---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
49D080	Johnson Cr. @ Riverside	B					
49E080	Tunk Cr. nr Riverside	B					
49F070	Bonaparte Cr. @ Tonasket	B					
49F150	Bonaparte Cr. @ Aeneas Valley Rd.	B					
49G060	Antoine Cr. nr mouth	B					
49H080	Tonasket Cr. nr Oroville	B					
49J060	Ninemile Cr. nr Oroville	B					
49K090	Toats Coulee Cr. nr Loomis	B					
49L100	Sinlahekin Cr nr Loomis	B					
49M100	N.F. Salmon Cr. nr Conconully	B					
49N050	W.F. Salmon Cr @ mouth	B					
50A070	Columbia R nr Brewster	B	X				
50A090	Columbia R @ Bridgeport	B	X				
51A070	Nespelem R @ Nespelem	B			XXXXXXXXXX	XX X	
52A070	Sanpoil R @ Keller	B	XXXXXXX	X XX XX	XXXXXXXXXX	XX X	
52A110	Sanpoil R 13 mi S. Republic	B				X	
52A170	Sanpoil R blw Republic	B		X			
52A190	Sanpoil R abv Republic	B		X		X	
52B070	Lake Roosevelt from Keller Ferry	B				X	
53A070	Columbia R @ Grand Coulee	L		X XX XX	XXXXXXXXXX	XX X XXXXX	XXXX
54A050	Spokane R @ Mouth	B				XXXX	
54A070	Spokane R @ Long Lake (USGS)	B	X XXXXXXX X	XXXXXXXXXX	XX		
54A089	Spokane R 2 mi blw Ninemile dam	B		XX			
54A090	Spokane R @ Ninemile Br	B		X X			X
54A120	Spokane R @ Riverside State Pk	L		XXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXX
54A130	Spokane R @ Fort Wright Br	B		X X			
55B070	Little Spokane R nr Mouth	L		X X XXX	XXXXXXXXXX	XX XXXXXX	XXXX
55B075	Little Spokane @ Painted Rocks	B				X	
55B080	Little Spokane R nr Griffith Spring	B				XX	

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
55B082	Little Spokane R abv Dartford Creek	B				XX X	
55B085	Little Spokane nr Dartford	B	XXXXXXX				
55B090	Little Spokane R abv Wandermere	B		X			
55B100	Little Spokane R abv Deadman Creek	B				XX X	
55B200	Little Spokane @ Chattaroy	B				X X	
55B300	Little Spokane River @ Scotia	B					
55C065	Deadman Cr nr Mouth	B				X	
55C070	Peone (Deadman) Creek abv L Deep Cr	B				XX	
55C200	Deadman Cr@Holcomb Rd	B					
55D070	Deer Cr nr Chattaroy	B				X	
55E070	Dragoon Cr nr Chattaroy	B				X	
56A070	Hangman Cr @ Mouth	L		X X XXX	XXXXXXXXXX	XX X XXXXX	XXXX
56A200	Hangman Creek @ Bradshaw Road	B				X	
57A120	Spokane R @ Spokane	B		X			
57A130	Spokane R @ Mission St Br	B		X X			
57A145	Spokane R @ Trent Br	B		X			
57A150	Spokane R @ Stateline Br	L	X XXXXXX X	XX X X		XXXXXXXXX	XXXX
57A190	Spokane R nr Post Falls	B		XXXXXXX	XXXXXXXXXX	XX	
59A070	Colville R @ Kettle Falls	B	XXXXXXXXXX	X X XX XX	XXXXXXXXXX	XX X	
59A080	Colville R abv Kettle Falls	B				X	X
59A110	Colville R @ Blue Creek	B		X			X
59A130	Colville R @ Chewelah	B		X			
59B070	Little Pend Oreille @ Hwy 395	B					X
60A050	Kettle R @ Hedlund Bridge	B	X				
60A070	Kettle R nr Barstow	L	XXXXXXX X	X X XX XX	XXXXXXXXXX	XX XXXXXX	XXXX
61A070	Columbia R @ Northport	L	X XXXXXXXXXX	XXXXXXXXXX	XX	XXXXXXXXX	XXXX
61B070	Deep Ck nr Mouth	B				X	X
61C070	Onion Cr nr Northport	B				X	
61D070	Sheep Cr nr Northport	B				X	

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
62A070	Pend Oreille R @ Waneta BC (USGS)	B	XXX					
62A080	Pend Oreille R @ Border	B		XXXXXX	XX			
62A090	Pend Oreille R @ Metaline Falls	B	X XXX			XX XX	XXXX	
62A150	Pend Oreille R @ Newport	L	X XXXXXXX X	X XX	XXXXXXXXXX	XXXXXXXXXX	XXXX	
99A999	asdfasdf	B						

Appendix B

Historical changes in sampling and laboratory procedures, and large-scale environmental changes potentially affecting water quality

This appendix is intended to record changes in methods and procedures used by the Ambient Monitoring Section to collect and analyze river and stream water quality data. Other environmental changes that may potentially affect water quality over a large area are also recorded here. Many of the changes listed below are anecdotal and may or may not have affected data quality. Comments prior to October 1988 are based on interviews with individuals involved with the earlier program. Comments after that date have usually been recorded as the changes occurred.

GENERAL

Jun to Sep 1985: Laboratory moved from SWRO to Manchester.

Oct 1988: Implemented QA/QC program (See memo from David Hallock, October 17, 1988.)

Prior to WY91: Samples were sent to contract labs from time to time. These occurrences are not all recorded here. Records are confusing and only available from bench sheets archived by Manchester Environmental Laboratory.

1994: The use of Polyacrilamide (PAM) to control erosion from rill irrigation is becoming widespread in eastern Washington. Water quality affects are unknown.

1996: Began monitoring discharge at some stations ourselves (mostly basin stations), rather than contracting with USGS.

1997: Contracts for about 80% of the 1.045 million acres in Washington in the Conservation Reserve Program are scheduled to expire. (See http://pnwsteep.wsu.edu)

2001: Began running Central (November 2001) and Eastern (Feb 2002) runs out of regional offices. Barometric pressures calculated from airport readings, either uncorrected, if available, or re-converted to sea level.

Jan-Jun 2002: Some barometric pressures collected from the western part of the state may be off by 1.0 mmHg due to calibration errors. The effect of this amount of error on the percent oxygen saturation calculation is insignificant.

NUTRIENTS

General: Prior to 1980, USGS labs analyzed samples.

1966-1969: One gallon of sample was collected in glass jars and held at room temperature for indefinite periods without preservative.

1970-1973: Unknown methods; may have been preserved with HgCl. Filtered in field.

1973: Lab moved from Tacoma to Salt Lake City.

1973-1974: Chilled, no preservative. Held as long as one week. Filtered in field; kept in brown poly bottle.

1972-1974?: For a short time, TP and NO3 may have been added by filters (probably 72-74). (Personal communications with Joe Rinnella, USGS).

9/30/78: USGS Lab moved to Arvada, CO. Joint program samples sent there; samples collected for Ecology project only may have been analyzed in-house.

~1978: Chilled. Brown poly bottle (the brown poly bottle may have been introduced later). 30 day holding time for NO2+NO3 implemented (status of other nutrients is unknown). (Source of methods prior to 1979: pers. comm. Joe Rinnella, USGS, and Skinner, Earl L. "Chronology of Water Resources Division activities that may have affected water quality values of selected constituents in Watstore, 1970-86. Provisional Report Feb 1989.)

1979: For a while, the USGS lab reported nutrient results to the nearest 0.01 units. Values below 0.005 were reported as 0.00. USGS decided to change all Watstore

data = 0 to 0.01K back to 1973 for NO2+NO3. Decision on other nutrients is unknown but they may also have been changed. Most of the 0s in our database have been converted to 0.01K (K-below the detection limit) but a few 0s may remain in the older data.

1980: USGS requires NO2+NO3 be preserved with HgCl. Status of other nutrients is unknown. Ecology requirements are unknown.

6/1/80 to 1986: Nutrients analyzed by Pat Crawford at SWRO.

Aug 1985: High phosphate values, presumably a result of lab error. (Coded '9-do not use' in our database). (See "Trends in Puget Sound," 1988, Tetra Tech, App. B.)

1986 to Apr 1987: Analyzed by various people, mostly Helen Bates, Steve Twiss, and Wayne Kraft at Manchester.

June, 1985: Switched from Technicon to Rapid Flow Analysis (Alpkem) autoanalyzers

Apr 1987 to present: Analyzed by various people at Manchester.

Jan 1987 to Jul 1987: NO3, NH3, and TP analyzed by contract lab,

Mar 1990: Began using MFS cellulose acetate filters for field filtration of nutrients. Previously use Millipore, type HA (cellulose nitrate?).

17 Sep 90-12 Oct 90: All nutrient samples were contracted out.

Oct 1990: Dissolved ammonia (P608) and dissolved nitrate+nitrite (P631) were added to the Marine network. Totals (P610 and P630) were dropped.

Feb 1991: All nutrients went to contract lab.

Mar 1991: All nutrients went to contract lab.

~1993: Began collecting nutrients in acid-washed poly-bottle passenger rather than in the stainless-steel bucket used for oxygen determinations.

Jul 1994: The phosphorus content in detergents is restricted statewide (SSB 5320). Phosphorus use had been limited in Spokane County one (?) year earlier.

Oct 2000: Nitrate+nitrite method changed from EPA 353.2 to SM 4500NO3I because the later method is more specific. Actual procedures were not changed.

May 2000: MEL switched from manual to inline digestion for total phosphorus. In early 2003, during the course of evaluating a different method for phosphorus analysis, MEL discovered that the in-line method contains a high bias (4 to 20 ppb). Trend analyses of total phosphorus data should be interpreted carefully if results collected between May 2000 and September 2003 are included. (See email from Dean Momohara to David Hallock, 31 March 2003.) Total phosphorus data analyzed using this method (May 2000 through September 2003) have been coded "4" indicating a potential quality problem, and given a difference name ("TP_PInline" rather than the usual "TP_P").

Oct 2000: TP method changed from EPA 365.1 to SM4500PI. The former method specifies a manual digestion, while the latter correctly refers to the in-line digestion used by MEL's Lachat instrument.

October 2000 through February, 2001: A low bias may apply to TN data. Except for December data, MEL deemed the bias to be small enough that the data did not need to be qualified. December TN results were coded as estimates (See email from M. Lee, M. to David Hallock, 8 March 2001.)

Oct 2003: TP method changed from SM4500PI to EPA 200.8M, an ICP/MS method with low detection limits and without the bias associated with in-line digestion.

SUSPENDED SOLIDS

General: Filters were usually used, but sometimes Gooch crucibles were used.

Feb 1978: Began collecting as passenger to oxygen sampler (was previously collected as aliquot of oxygen sampler). (See memo from Bill Yake, 30 Jan 1978 and Ambient Monitoring Procedure-1978(?) notebook.)

Mid-1985 Amount filtered change from 250 (?) to 500 ml.

17 Sep 90-12 Oct 90: Suspended sediment samples were contracted out.

Apr 1991: Began collecting 1000 ml of sample.

Jul 2002: A number of suspended solids results entered into our database as '0' were deleted. We do not know if these results were below reporting limits or "missing data"; 138 results collected between 1972 and 1981 were affected.

Mar 2003: TSS method reference changed from EPA160.2 to SM 2540D. Methods did not change; the latter reference more accurately reflects analytical procedures. See email from Feddersen, Karin, March 24, 2003.

CONDUCTIVITY

Feb 1978: Began calibrating twice monthly using 40, 70, 140, and 200 µmho/cm standards. (See memo from Bill Yake, 30 Jan 1978 and Ambient Monitoring Procedure-1978(?) Notebook)

Oct 1991:All meters were re-calibrated Oct 11, 1991. One conductivity meter was not calibrated above 500 µmhos/cm (and could not be calibrated). This meter had last been calibrated about 1 year earlier. Most meters read higher than the 100 µmhos/cm standard.

Oct 1994: Switched from Beckman model Type RB-5 (which could not be field calibrated) to Orion Model 126 meter, calibrated daily.

1998: Orion meter calibration began drifting during the day. Sometimes meter could only be calibrated to within 4 µmhos of the standard. When this occurred, some samplers would correct the data, others would not. This problem has re-occurred from periodically through the present. Now, these data are coded "J" (estimate).

FECAL COLIFORM BACTERIA

General: for some period in the early 1980s, field personnel may have analyzed some samples

Oct 7, 1975 to Nov 1981: fecal data from eastern Washington may be questionable during this period.

1980 to Mar 1988: No changes; analyzed by Nancy Jensen and others at Manchester.

Mar 1988: Switched to new filter with slightly better recovery.

Sep 2003: FC method reference changed from SM 16-909C to SM 9222D. Methods did not change; the latter reference more accurately reflects analytical procedures. See email from Fedderson, Karin, September 15, 2003.

TURBIDITY

1970s: EPA specified a 2100A turbidimeter. Formerly, turbidity units were FTU (?)

Jan 1976: Turbidity units changed from Jackson Turbidity Units (JTU) to Nephelometric Turbidity Units (NTU). (Source: review of historical reports.) These are roughly equivalent when greater than 25 JTU/NTU, otherwise not.

Sept 1993: Lab began using a new turbidimeter, Hach model "Ratio X/R."

Jan 2003: In our database, the units for turbidity results collected prior to January were changed from NTU back to JTU. Though roughly equivalent at JTUs > 25, these are not equivalent for lower measurements; the original units should have been retained.

FIELD PH

Oct 7, 1975 to Nov 1981: pH data from eastern Washington are questionable during this period.

Feb 1978: Began calibrating meter twice monthly. Previous procedures unknown. (See memo from Bill Yake, 30 Jan 1978 and Ambient Monitoring Procedure-1978(?) notebook)

1986: Changed to Beckman digital pH meter with gel probe.

Dec 91: Changed to Orion model 250A meter with "spare water" liquid probe (uses 1M KCl, rather than 4M). Calibrate daily and check calibration three times during the sampling day.

TEMPERATURE

Feb 1978: Switched from thermometer in bucket to thermister in river. (See memo from Bill Yake, 30 Jan 1978 and Ambient Monitoring Procedure-1978(?) notebook)

Spring 1994: Switched to YSI 300 meter (accuracy +/- 0.4C)

Jan 1, 2001: Began calibrating thermisters prior to each run rather than annually. Some thermisters were found to be as much as 1-2 °C low.

OXYGEN

Oct 1, 1977: Began measuring barometric pressure to calculate percent saturation. Previous saturation calculations were presumably based on elevation.

March 1989: Began applying correction factor to results of Winkler analyses based on titration with sodium biiodate to correct sodium thiosulfate normality to 0.025. Previously, thiosulfate was standardized upon preparation, but not during use.

BAROMETRIC PRESSURE

1995: Began calibrating barometer prior to each run using an on-site mercury barometer rather than pressure as reported by the Olympia airport.

CHLOROPHYLL

15 Mar 90: Switched to fluorometric method (from spectrophotometric). New method has lower detection limit (0.02 µg/L) but less accuracy. (See Memo from Despina Strong, 12 April 1990.)

HARDNESS

7/1/91: Began using 125 ml bottle with HNO3 as preservative. (Previously, aliquot from unpreserved general chemistry bottle was used.)

METALS

May, 1994: Implemented low-level dissolved metals monitoring at selected stations. Metals results prior to this date are questionable unless well above detection limits and have been quality-coded “9” in our database so that they will not routinely be retrieved. Quality problems include inconsistent blank correction and indications of simultaneous peaks and troughs in data series from unrelated stations for results above reporting limits.

Appendix C

Water Year 2002 raw data for Ecology's
River and Stream Ambient Monitoring Program

Data listed in this appendix are available in electronic format by contacting:

Ecology Central Region:	Chris Coffin (509 454-4257; ccof461@ecy.wa.gov)
Ecology Eastern Region:	Jim Ross (509 456-2874; jros461@ecy.wa.gov)
Ecology Northwest Region:	Bill Ward (360 407-6621; bwar461@ecy.wa.gov)
Ecology Southwest Region:	Chad Wiseman (360 407-6682; cwis461@ecy.wa.gov)

Ambient monitoring data from the most recent complete Water Year are available over the Internet on Ecology's web pages (http://www.ecy.wa.gov/). Look under "Environmental Info." and then "Watersheds."

The first two digits of each station number is the Water Resource Inventory Area (WRIA) number. This number can be used to identify which Water Quality Management Areas (WQMA) or "basin" each station is in, according to the table, below:

Basin	WRIAs	Basin	WRIAs
Cedar/Green	8-9	Nooksack/San Juan	1-2
Columbia Gorge	27-29	Okanogan	48-53
Eastern Olympics	13-14, 16-19	Puyallup/Nisqually	10-12
Esquatzel/Crab Creek	36, 42-43	Skagit/Stillaguamish	3-5
Horseheaven/Klickitat	30-31	Spokane	54-57
Island/Snohomish	6-7	Upper and Lower Snake	32-35
Kitsap	15	Upper Columbia/Pend Oreille	58-62
Lower Columbia	24-26	Upper Yakima	38-39
Lower Yakima	37	Wenatchee	40, 44-47
Mid Columbia	41	Western Olympics	20-23

Remarks codes in historical data are defined below. Only "U", "J", and "G" were used in WY 2003.

B,V	Analyte was found in the blank indicating possible contamination
E	Result is an estimate due to interference
G, L	True result is equal to or greater than reported value
H	Sample was analyzed over holding time
J	The reported result is an estimate
K, U	The analyte was not detected at or above the reported result
N	Spike sample recovery outside control limits
P	Result is between the detection limit and the min. quantitation limit (applied to metals)
S	Spreader: one or more bacteria colonies were smeared, possibly obscuring other colonies
X	High background count of non-target bacteria, possibly obscuring additional colonies

Conventionals

Conventional Data Report

Nooksack R @ Brennan

01A050

Class: A
Rivermile: 3.4
Latitude: 48 49 09.1
Longitude: 122 34 43.3
Waterbody: WA-01-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/22/2002 8:15	11.3	772	134	10.65	7.84	5	0.385	0.01 U	0.311		0.019	3.3	29 J
11/20/2002 8:15	7.9	17300	50	11.81	7.48	635	0.632	0.013	0.459		0.0096	350	360 J
12/10/2002 8:30	4.9	1090	129	12.69	7.61	4	0.586	0.037	0.484		0.022	2.6	20 J
Stream was low and clearer than usual.													
1/29/2003 9:00	5.6	5750	97 J	12.14	7.41	110	0.731	0.02	0.629		0.027	32	14 J
2/26/2003 8:25	4.2	2110	117 J	12.48	7.39	9	0.737	0.022	0.682		0.0086	4.9	4 J
3/18/2003 7:30	6.5	5020	82	12	7.47	69	0.501	0.01 U	0.415		0.0064	23	9 J
4/23/2003 8:00	8.9	2950	100		7.52	13	0.429	0.01 U	0.357		0.007	5.2	11 J
DO Titration failed in lab													
5/21/2003 8:20	10	2110	104	11.06	7.52	5	0.354	0.01 U	0.275		0.0074	2.9	21 J
6/18/2003 7:50	14.7	3380	71	9.74	7.56	21	0.13	0.01 U	0.111		0.0057	13	25 J
7/23/2003 7:30	17.2	2160	80	9.38	7.56	58 J	0.1	0.01 U	0.085		0.007	17	27 J
8/20/2003 7:20	15.1	1430	86	9.7	7.56	58	0.17	0.01 U	0.15		0.011	33	46 J
9/23/2003 7:30	13.7	1010	111	10.2	7.56	18	0.285	0.01 U	0.219		0.015	13	27 J

Conventional Data Report

Nooksack R @ No Cedarville

01A120

Class: A
Rivermile: 30.8
Latitude: 48 50 30.5
Longitude: 122 17 32.3
Waterbody: WA-01-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/22/2002 9:35	10.1	735	113	11.25	7.85	3	0.119	0.01 U	0.08		0.0039	2.2	10 J
11/20/2002 9:05	7.4	10600	50	11.91	7.3	337	0.45	0.01 U	0.358		0.0068	150	31 J
12/10/2002 9:10	5.5	1450	104	12.08	7.47	3	0.275	0.023	0.213		0.0086	2.8	7 J
Cond. was 104.5													
1/29/2003 9:47	4.8	4910	76 J	12.75	7.48	45	0.308	0.01 U	0.274		0.013	22	2
2/26/2003 9:20	3.2	1930	92 J	12.69	7.46	6	0.331	0.01 U	0.316		0.0043	2.8	1 J
3/18/2003 8:25	5.1	4650	68	12.2	7.38	34	0.282	0.01 U	0.238		0.0041	14	2 J
4/23/2003 10:05	7	2870	79	10.5	7.32	7	0.17	0.01 U	0.15		0.003	4.5	4 J
5/21/2003 9:05	8.4	2250	84	11.77	7.59	4	0.133	0.01 U	0.097		0.003 U	1.9	20
6/18/2003 8:45	10.8	3520	60	10.86	7.6	34	0.049	0.01 U	0.04		0.0033	23	40 J
7/23/2003 8:30	12.4	2310	67	10.81	7.57	76	0.045	0.01 U	0.037		0.003 U	55	50 J
8/20/2003 8:15	11.2	1600	77	10.9	7.59	52	0.07	0.01 U	0.059		0.003 U	31	10 J
9/23/2003 8:25	11.5	1370	92	10.7	7.44	25	0.14	0.01 U	0.084		0.0036	21	15 J

Conventional Data Report

Skagit R nr Mount Vernon

03A060

Class: A
Rivermile: 15.9
Latitude: 48 26 43.0
Longitude: 122 20 02.0
Waterbody: WA-03-1010

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/21/2002 15:00	11.8	4290	68	10.65	7.65	4	0.058	0.011	0.048		0.003 U	1.3	14
11/19/2002 15:30	8.4	22700	44	11.51	7.26	172	0.211	0.016	0.164		0.0039	35	26
12/9/2002 14:50	6.5	6720	59	11.87		3	0.137	0.018	0.091		0.0053	1.9	1
	pH measurement not recorded.												
1/28/2003 15:45	6	30000	49	12.85	7.26	90	0.2	0.01 U	0.157		0.005	21	3
2/25/2003 14:30	4.7	13700	61 J	12.99	7.4	12	0.156	0.01 U	0.138		0.0037	1.9	1 U
3/17/2003 15:35	7	19900	48	12	7.29	44	0.18	0.01 U	0.149		0.0049	9.4	4
4/22/2003 16:00	8.5	15100	59		7.31	10	0.12	0.01 U	0.096		0.0031	2.8	
	DO titration failed in lab												
5/20/2003 14:45	9.9	10800	52	11.67	7.45	6	0.098	0.01 U	0.067		0.003 U	1.8	5
6/17/2003 15:15	12.7	18200	43	10.96	7.58	10	0.048	0.01 U	0.042		0.003 U	3.8	1 U
7/22/2003 16:00	16.5	9790	49		7.63	6	0.066	0.01	0.021		0.0034	3.5	2
	No DO												
8/19/2003 15:15	15.6	7460	53	10	7.64	88	0.089	0.026	0.043		0.004	50	12
	Location is on new bridge (about 30 yards downstream of old location).												
9/22/2003 15:05	14.6	6460	55	10.1	7.28	8	0.1	0.016	0.041		0.0031	3.6	5

Conventional Data Report

Samish R nr Burlington

03B050

Class: A
Rivermile: 10.4
Latitude: 48 32 45.4
Longitude: 122 20 13.0
Waterbody: WA-03-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 14:30	11.4	31	113	10.15	7.63	4	0.92	0.107	0.691		0.0383	2.2	57
11/19/2002 15:00	9.5	790	67	11.21	7.06	273	1.6	0.05	1.23		0.015	130	770
	very turbid water												
12/9/2002 14:00	4.6	62	101	12.69	7.51	3	0.857	0.041	0.697		0.013	2.4	29
1/28/2003 15:15	7.5	562	67	12.04	7.28	22	1.04	0.01 U	0.948		0.0063	12	15
2/25/2003 13:55	4.5	297	67 J	13.4	7.29	12	1.02	0.01 U	0.956		0.0057	5.7	14
3/17/2003 14:30	8.9	300	64	11.7	7.35	12	0.855	0.01 U	0.722		0.0046	8.2	25
4/22/2003 15:25	10.7	188	78	11.1	7.44	9	0.823	0.015	0.673		0.009	6.1	23
5/20/2003 14:10	11	82	92	11.26	7.66	3	0.743	0.01 U	0.645		0.0065	3.5	53
6/17/2003 14:40	15.7	43	101	10.65	7.94	2	0.844	0.01 U	0.732		0.008	1.3	61
	Low												
7/22/2003 15:20	18.1	26	122		7.84	2	0.803	0.011	0.718		0.0074	1	55
	No DO												
8/19/2003 14:30	15.5	17	126	10.1	7.95	2	0.822	0.01 U	0.756		0.0073	0.7	68
9/22/2003 14:30	12	17	126	10.7	7.54	2	0.824	0.019	0.719		0.0081	1.4	100

Conventional Data Report

Skagit R @ Marblemount

04A100

Class: AA
Rivermile: 78.2
Latitude: 48 31 37.0
Longitude: 121 25 40.0
Waterbody: WA-04-1090

Date/Time		Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/22/2002	11:35	9.6	2520	55	11.75	7.64	1 U	0.074	0.021	0.054		0.003 U	0.5 U	2
11/20/2002	11:00	7.6	7190	30	11.91	7.29	7	0.15	0.01 U	0.109		0.003 U	2.6	1
12/10/2002	11:35	7.4	2750	57	12.08	7.38	1 U	0.109	0.016	0.057		0.0058	0.6	2
1/29/2003	11:35	4.6	9460	57 J	12.55	7.43	6	0.084	0.01 U	0.069		0.003 U	1.2	2
2/26/2003	11:10	5	7270	61 J	13.19	7.47	2	0.071	0.01 U	0.062		0.003 U	0.7	1 U
3/18/2003	10:15	5.1	4760	48	12.8	7.37	4	0.086	0.01 U	0.073		0.003 U	0.6	1
4/23/2003	12:25	6.5	6790	58	11.1	7.48	2	0.066	0.01 U	0.056		0.003 U	0.7	2
5/21/2003	11:05	7.6	4830	56	12.28	7.66	1 U	0.66	0.01 U	0.062		0.003 U	0.5 U	1
6/18/2003	10:30	9	9460	43	11.77	7.61	2	0.053	0.01 U	0.044		0.003 U	2.1	4
7/23/2003	11:00	11.3	4510	42	11.32	7.5	2	0.053	0.01 U	0.041		0.003 U	1	2
8/20/2003	10:10	10.6	3380	48	11.2	7.63	2	0.052	0.01 U	0.04		0.003 U	1	1 UJ
9/23/2003	10:20	10.7	3210	52	11.11	7.28	2	0.11	0.014	0.052		0.003 U	1.3	3 J

Pinks Galore. A Sockeye?

Conventional Data Report

Stillaguamish R nr Silvana

05A070

Class: A
Rivermile: 11.1
Latitude: 48 11 49.5
Longitude: 122 12 32.0
Waterbody: WA-05-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 13:45	11.9		102	11.25	7.67	3	0.078	0.01 U	0.049		0.0093	1.9	29
	No WWG: Broken												
11/19/2002 14:00	7.7	18574	24	12.42	7.13	703	0.352	0.063	0.233		0.0066	340	71
12/9/2002 13:05	3.2	664	85	12.99	7.33	7	0.385	0.04	0.287		0.015	9.8	12
1/28/2003 14:15	6.4	7806	44	12.44	7.29	90	0.318	0.01 U	0.296		0.021	55	8
	The check bar for the gage had a different value due to a temporary repair.												
2/25/2003 13:00	3.3	2521	57 J	14.21	7.22	19	0.364	0.01 U	0.331		0.0067	19	1
	Gage under temporary repair.												
3/17/2003 13:30	6.6	5947	42	12.1	7.18	53	0.274	0.01 U	0.238		0.0048	32	5
4/22/2003 14:35	8.6	2775	55	11.3	7.31	29	0.261	0.01 U	0.205		0.0068	29	9
	*C-Bar not 58.97												
5/20/2003 12:45	9.6	2948	51	11.47	7.37	31	0.221	0.01 U	0.162		0.0042	18	15
6/17/2003 13:50	17.7	1006	59	10.76	7.81	4	0.11	0.01 U	0.068		0.0036	2.7	10
7/22/2003 14:30	22.3	361	94	9.59	7.73	7	0.19	0.015	0.116		0.012	4.6	19
8/19/2003 13:35	20.6	223	111	10.2	7.99	4	0.12	0.01 U	0.045		0.012	2.4	17
9/22/2003 13:40	14.5	389	80	10.3	7.38	12	0.22	0.014	0.124		0.0082	8.9	12

Conventional Data Report

SF Stillaguamish @ Arlington

05A090

Class: A
Rivermile: 18.2
Latitude: 48 12 03.2
Longitude: 122 07 04.0
Waterbody: WA-05-1040

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 13:05	11.5		83	11.55	7.78	1	0.143	0.01 U	0.123		0.003 U	1.7	14
11/19/2002 13:25	7.7		22	12.52	7.16	910	0.263	0.086	0.175		0.0062	400	74
12/9/2002 12:25	2.7		70	12.69	7.38	12	0.379	0.045	0.283		0.013	23	13
1/28/2003 13:25	6.5		39	12.75	7.18	63	0.41	0.01 U	0.289		0.0057	45	11 J
2/25/2003 12:20	3.2		48 J	13.9	7.3	27	0.336	0.01 U	0.325		0.0046	23	10
3/17/2003 13:00	6.7		36	12.4	7.23	47	0.281	0.01 U	0.233		0.0033	30	4
4/22/2003 13:50	8.4		48	11.6	7.43	47	0.24	0.01 U	0.211		0.0038	36	14
5/20/2003 12:10	9.2		45	11.67	7.37	44	0.228	0.01 U	0.169		0.0037	30	23
6/17/2003 12:55	17.5		49	10.45	7.8	9	0.12	0.01 U	0.085		0.003 U	5.4	6
7/22/2003 13:45	22.8		83	8.97	7.78	9	0.21	0.01 U	0.136		0.0031	5.8	46
	Lots of swimmers												
8/19/2003 12:45	20.1		98	9.7	7.92	6	0.18	0.01 U	0.117		0.003 U	4.1	27
9/22/2003 13:05	14.2		62	11.41	7.5	10	0.21	0.01 U	0.134		0.003 U	8	17

Conventional Data Report

SF Stillaguamish nr Granite Falls

05A110

Class: AA
Rivermile: 34.6
Latitude: 48 06 10.5
Longitude: 121 57 07.0
Waterbody: WA-05-1050

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 12:10	10.9	110	68	11.45	7.39	5	0.025 U	0.01 U	0.016		0.0052	8.7	7
11/19/2002 12:20	7.3	8830	20	13.33	7.28	1578	0.217	0.056			0.0052	550	20
12/9/2002 11:35	2.6	292	58	13.6	7.53	55	0.185	0.022	0.124		0.0074	80	1
1/28/2003 12:30	6.5	1690	34	13.26	7.38	129	0.13	0.01 U	0.109		0.045	130	1 UJ
2/25/2003 11:25	1.9	587	40 J	14.21	7.37	54	0.137	0.01 U	0.13		0.0056	33	1
3/17/2003 11:45	5.2	1380	30	13	7.45	252	0.13	0.01 U	0.087		0.0042	230	2
4/22/2003 12:45	7.2	714	38	12	7.26	71	0.094	0.017	0.08		0.003	50	5
5/20/2003 11:05	7.8	720	37	12.38	7.31	84	0.086	0.01 U	0.05		0.0037	65	9
6/17/2003 12:00	14.8	400	38	10.65	7.95	9	0.039	0.01 U	0.02		0.0031	6.7	6
	Low & Clear												
7/22/2003 12:30		127	63	9.38	7.87	6	0.048	0.01 U	0.012		0.0036	4.3	11
	No Temperature.												
8/19/2003 11:40	18.4	77	79	11.3	8	9	0.044	0.01 U	0.01 U		0.0036	9.7	7
9/22/2003 10:45	12.8	159	51	10.9	7.57	12	0.12	0.01 U	0.064		0.0046	10	16

Conventional Data Report

NF Stillaguamish @ Cicero

05B070

Class: A
Rivermile: 9.5
Latitude: 48 16 03.0
Longitude: 122 00 42.5
Waterbody: WA-05-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/22/2002 13:30	11.8	210	103	12.86	8.54	2	0.057	0.01 U	0.01		0.0081	0.8	3
11/20/2002 12:50	8.3	3930	34	11.71	7.25	67	0.469	0.022	0.378		0.0059	45	12
12/10/2002 13:35	5.6	712	80	12.48	7.59	16	0.351	0.039	0.236		0.02	14	15
1/29/2003 13:38	5.6	2900	44	12.75	7.28	86	0.285	0.01	0.249		0.0347	75	10
2/26/2003 12:50	3.8	1200	61 J	13.09	7.4	9	0.264	0.01 U	0.24		0.0066	7	1 U
3/18/2003 12:05	5.7	2220	46	12.5	7.33	33	0.24	0.01 U	0.204		0.0054	20	1
4/23/2003 14:15	7.8	1420	54	11.1	7.52	20	0.17	0.01 U	0.128		0.0058	12	3
5/21/2003 12:50	8.3	1810	45	12.18	7.45	61	0.153	0.01 U	0.088		0.0039	21	16
6/18/2003 12:25	14.5	786	60	11.26	7.91	5	0.1	0.01 U	0.047		0.0052	3.3	26
7/23/2003 13:15	19.1	318	90	10.2	8.02	9	0.1	0.01 U	0.055		0.0088	5.5	11
	Swimmers upstream												
8/20/2003 12:00	17.3	187	104	10.7	8.37	5	0.056	0.01 U	0.01 U		0.0064	3.2	15
9/23/2003 12:15	13.7	226	96	11.31	7.87	6	0.16	0.01 U	0.07		0.0075	3.3	12

Conventional Data Report

NF Stillaguamish nr Darrington

05B110

Class: A
Rivermile: 30
Latitude: 48 16 48.7
Longitude: 121 42 04.2
Waterbody: WA-05-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/22/2002 12:40	9.7	37.6	98	11.65	7.67	1 U	0.099	0.01 U	0.069		0.0087	0.5 U	1 U
11/20/2002 12:15	7.7	1070	30	11.61	7.2	22	0.382	0.021	0.3		0.0052	8.8	2
12/10/2002 12:55	4.9	138	58	12.18	7.46	3	0.36	0.101	0.165		0.0367	1.2	9
1/29/2003 13:00	5	844	40 J	12.75	7.23	9	0.21	0.01 U	0.17		0.0057	4.2	9
2/26/2003 12:15	3.7	225	48 J	13.19	7.36	1	0.174	0.01 U	0.156		0.0045	0.6	2
3/18/2003 11:25	5.1	680	38	12.3	7.16	5	0.18	0.01 U	0.164		0.0035	3.2	3
4/23/2003 13:25	7.4		43	11.1	7.33	6	0.1	0.01 U	0.085		0.003 U	0.8	3
	No RP: Sampler error												
5/21/2003 12:00	7.8	321	40	12.28	7.48	2	0.85	0.01 U	0.054		0.0032	0.8	6
6/18/2003 11:45	12.3	146	41	10.86	7.53	1 U	0.081	0.01 U	0.056		0.0038	0.9	13
7/23/2003 12:30	15.8	56.4	67	10.4	7.49	1	0.11	0.01 U	0.085		0.0044	0.5 U	5
	Swimmers and dog upstream												
8/20/2003 11:25	13.4	32.3	90	11.2	7.81	1 U	0.12	0.01 U	0.086		0.0065	0.5 U	7
9/23/2003 11:30	12.2	32.3	79	10.6	7.5	1	0.18	0.015	0.109		0.0074	0.5 U	6
	Some Pinks.												

Conventional Data Report

Snohomish R @ Snohomish

07A090

Class: A
Rivermile: 12.7
Latitude: 47 54 38.7
Longitude: 122 05 51.2
Waterbody: WA-07-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 8:40	11.4	1467	80	10.65	7.3	4	0.278	0.036	0.205		0.0077	1.5	24 J
11/19/2002 8:50	7.7	22000	30	11.81	7	99	0.352	0.01	0.263		0.0065	28	66 J
12/9/2002 8:30	4.4	2511	58	12.48	7.21	2	0.365	0.035	0.286		0.0078	1.7	9 J
Dirt like film on water surface related to near high tide condition.													
1/28/2003 8:35	6.5	30198	30	12.55	7.05	42	0.298	0.01 U	0.269		0.0048	17	16 J
2/25/2003 8:35	3.6	9438	40 J	12.99	7.11	7	0.414	0.01 U	0.358		0.0044	3.3	8 J
3/17/2003 8:30	6.4	17821	34	11.8	7.14	14	0.357	0.01 U	0.295		0.005	5.9	18 J
4/22/2003 8:40	8.4	9193	42	10.4	7.08	6	0.257	0.01 U	0.213		0.0049	2.6	13 J
5/20/2003 8:35	9.8	6787	42	11.26	7.26	3	0.188	0.01 U	0.144		0.003 U	2.1	16 J
6/17/2003 8:40	14.3	6253	33	10.15	7.32	3	0.13	0.01 U	0.098		0.0036	2.3	29 J
7/22/2003 8:30	19.5	2412	53	8.87	7.21	4	0.21	0.01 U	0.151		0.0048	2.3	42 J
8/19/2003 8:35	19.4	1372	64	8.8	7.57	3	0.17	0.01 U	0.098		0.0031	1.3	41 J
Slack water, boat and bank fisherman													
9/22/2003 8:55	13.7	2609	49	9.19	7.44	7	0.321	0.055	0.174		0.0042	3	32 J

Conventional Data Report

Skykomish R @ Monroe

07C070

Class: A
Rivermile: 25.6
Latitude: 47 51 08.0
Longitude: 121 57 28.8
Waterbody: WA-07-1160

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 10:40	11.9	1030	46	10.65	7.53	3	0.08	0.01 U	0.07		0.003 U	0.7	2 J
11/19/2002 10:45	7.3	48400	21	12.32	7.55	140	0.349	0.01 U	0.264		0.0036	50	130 J
12/9/2002 10:15	4.3	1560	43	12.69	7.28	1	0.205	0.01	0.163		0.0052	0.9	3 U
1/28/2003 11:00	5.5	16000	28	13.06	7.16	14	0.21	0.01 U	0.178		0.0032	8.4	3 UJ
2/25/2003 10:05	3.2	5650	34 J	13.6	7.14	2	0.219	0.01 U	0.205		0.0031	1.9	1 J
3/17/2003 10:00	5.4	10500	28	12.5	7.32	6	0.18	0.01 U	0.148		0.003 U	4	1 UJ
4/22/2003 10:50	7.2	5460	32		7.05	2	0.153	0.01 U	0.11		0.003 U	1.2	5 J
	DO titration failed in lab												
5/20/2003 10:00	8.6	4170	33	12.08	7.25	1	0.105	0.01 U	0.064		0.003 U	0.9	10 J
6/17/2003 10:30	12.8	4570	25	11.06	7.51	2	0.054	0.01 U	0.028		0.003 U	0.9	3 J
7/22/2003 10:30	17.8	2710	40	10.3	7.52	2	0.11	0.01 U	0.048		0.003 U	0.8	7 J
8/19/2003 10:15	17.9	984	46	9.2	7.62	2	0.094	0.01 U	0.046		0.003 U	0.8	8 J
9/22/2003 10:20	13.3	1380	41	10.6	7.31	3	0.19	0.014	0.098		0.003 U	1.4	12

Conventional Data Report

Snoqualmie R nr Monroe

07D050

Class: A
Rivermile: 2.7
Latitude: 47 48 14.3
Longitude: 122 00 06.0
Waterbody: WA-07-1060

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/21/2002 9:35	11.1	507	71	10.85	7.41	3	0.278	0.01 U	0.253		0.0077	1.2	60
11/19/2002 9:45	8.1		40	11.51	7.76	8	0.343	0.012	0.271		0.006	4	130 J
Too windy for RP													
12/9/2002 9:20	4.4	718	64	12.18	7.29	1	0.38	0.02	0.311		0.0069	1.8	17 J
1/28/2003 9:50	6.6	17700	27	13.06	6.87	63	0.352	0.01 U	0.31		0.0053	22	11 J
2/25/2003 9:20	3.8	3820	43 J	12.89	7.09	10	0.47	0.01 U	0.426		0.0051	5.2	10 J
3/17/2003 9:20	7.1	7350	36	11.4	7	17	0.449	0.012	0.348		0.0074	8.9	16 J
4/22/2003 9:35	9.1	3740	45	11	7.04	11	0.307	0.01 U	0.254		0.0045	3.7	14 J
5/20/2003 9:20	10	2490	46	11.67	7.24	6	0.223	0.01 U	0.167		0.0034	3.9	10 J
6/17/2003 9:15	16.1	1960	40	9.64	7.2	5	0.2	0.011	0.143		0.0045	3.1	26
7/22/2003 9:30	20.6	354	65	8.97	7.26	3	0.276	0.016	0.198		0.0049	1.9	67
8/19/2003 9:15	20.2	391	76	9.6	7.51	2	0.2	0.01 U	0.136		0.004	1.2	43 J
9/22/2003 9:45	13.6	839	45	10	7.52	5	0.313	0.014	0.19		0.0049	2.5	32 J

Conventional Data Report

Snoqualmie R @ Snoqualmie

07D130

Class: A
Rivermile: 42.3
Latitude: 47 31 37.5
Longitude: 121 48 39.3
Waterbody: WA-07-1100

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 9:50	9.8	358	60	10.25	7.22	2	0.234	0.01 U	0.186		0.0038	0.8	21
11/18/2002 10:05	7.1	1640	31	11.71	7.45	3	0.279	0.01 U	0.228		0.003 U	2	7
12/11/2002 10:10	5.4	973	45	11.97	7.35	4	0.278	0.01 U	0.241		0.0036	3.4	9 J
1/27/2003 10:14	5.7	9610	23	12.65	7.1	55	0.22	0.01 U	0.198		0.0035	19	5
2/24/2003 9:50	2.9	2420	32 J	13.6	7.08	7	0.291	0.01 U	0.252		0.0039	4.2	5
3/19/2003 9:45	5.3	2620	32	12.4	7.07	6	0.24	0.01 U	0.211		0.003 U	3.8	6 J
4/21/2003 9:45	8.1	2340	34	11.2	7.23	5	0.2	0.01 U	0.174		0.0051	3.3	15 J
5/19/2003 10:00	6.9	1810	34	12.18	7.34	5	0.165	0.01 U	0.143		0.003 U	2.7	7
6/16/2003 10:30	12.3	1490	32	10.86	7.32	3	0.12	0.01 U	0.093		0.0032	1.7	13
7/21/2003 12:00	16	612	51	10.2	7.35	2	0.18	0.011	0.156		0.0035	1.1	22
8/18/2003 10:00	15.8	384	63	9	7.36	2	0.24	0.012	0.17		0.0038	0.9	120 J
9/24/2003 10:10	11.9	568	51	10.1	7.15	3	0.24	0.01 U	0.171		0.003 U	0.9	19

Conventional Data Report

Cedar R @ Logan St/Renton

08C070

Class: A
Rivermile: 1
Latitude: 47 29 09.0
Longitude: 122 12 28.0
Waterbody: WA-08-1143

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 11:00	10.5	341	70	10.65	7.43	7	0.324	0.061	0.203		0.018	1.4	60
11/18/2002 11:10	9	336	75	11.31	7.44	3	0.378	0.066	0.261		0.021	0.9	49
12/11/2002 11:10	7.5	402	71	11.67	7.45	6	0.375	0.056	0.259		0.017	3.1	140
1/27/2003 11:00	8	1208	62	11.83	7.29	24	0.618	0.01 U	0.727		0.011	6.8	41
2/24/2003 10:55	4.7	847	52 J	13.09	7.46	6	0.376	0.01 U	0.333		0.0078	2.3	12
3/19/2003 10:40	6.8	1386	46	11.9	7.24	6	0.3	0.01 U	0.263		0.0054	2.4	17
4/21/2003 10:45	9.6	734	70	11.1	7.47	3	0.307	0.01 U	0.284		0.0085	1.4	24 J
5/19/2003 10:50	9.8	388	81	14.01	8.73	3	0.154	0.01 U	0.102		0.0038	1.1	17
6/16/2003 11:15	13.5	379	80	11.97	8.14	4	0.17	0.01 U	0.119		0.0055	0.9	96
7/21/2003 13:45	18.9	164	90	10.61	7.83	2	0.19	0.01 U	0.177		0.01	0.9	120
8/18/2003 11:20	16		102	11.1	7.8	3	0.2	0.01 U	0.154		0.008	1.1	270
9/24/2003 11:15	12.6	259	81	11.51	7.72	7	0.22	0.01 U	0.161		0.0062	1.4	200

Conventional Data Report

Cedar R nr Landsburg

08C110

Class: AA
Rivermile: 25.1
Latitude: 47 23 29.3
Longitude: 121 55 09.5
Waterbody: WA-08-1150

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 9:00	9.9	404	54	11.15	7.58	1	0.14	0.01 U	0.123		0.0053	0.5 U	1
11/18/2002 9:15	8.7	285	61	12.62	7.48	1	0.192	0.01 U	0.181		0.0064	0.5	1 U
12/11/2002 9:00	7.8	300	57	11.57	7.78	1	0.192	0.01 U	0.173		0.0054	0.7	13 J
1/27/2003 9:05	7.2	754	46	12.14	7.23	6	0.38	0.01 U	0.359		0.0069	3.1	1 UJ
2/24/2003 9:00	4.8	780	40 J	12.69	7.27	4	0.223	0.01 U	0.192		0.0053	1	1 UJ
3/19/2003 8:55	6	1380	35	12.3	7.26	5	0.16	0.01 U	0.138		0.0038	1.3	1 UJ
4/21/2003 9:00	8.9	584	58	11.1	7.39	2	0.21	0.01 U	0.177		0.0075	0.9	1 UJ
5/21/2003 15:10	10.8	413	63	11.47	7.87	1 U	0.161	0.01 U	0.142		0.0064	0.5 U	1 U
	Moved to day three.												
6/16/2003 9:40	10.1	330	68	11.26	7.55	1	0.19	0.01 U	0.167		0.0073	0.5 U	10
7/21/2003 10:50	11.9	314	67	11.12	7.61	1 U	0.14	0.01 U	0.16		0.0059	0.5 U	3 J
8/18/2003 9:10	9.8	224	76	11.2	7.72	1 U	0.23	0.01 U	0.202		0.007	0.5 U	55 J
9/24/2003 8:55	11.1	289	63	10.7	7.57	1	0.19	0.01 U	0.144		0.0041	0.5 U	1 J

Conventional Data Report

Green R @ Tukwila

09A080

Class: A
Rivermile: 12.4
Latitude: 47 27 56.0
Longitude: 122 14 47.9
Waterbody: WA-09-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 11:55	12.2	245	150	9.24	7.36	6	0.477	0.046	0.336		0.012	2.3	54
11/18/2002 11:45	8.8	252	143	10.3	7.26	4	0.506	0.034	0.367		0.013	2.9	28
12/11/2002 12:15	6.4	212	157	10.45	7.3	13	0.654	0.1	0.426		0.012	10	460
1/27/2003 11:30	7.6	4050	56	11.73	7.21	71	0.698	0.019	0.576		0.026	31	80
	Muddy												
2/24/2003 12:00	4.7	3720	47 J	13.19	7.33	34	0.363	0.01 U	0.303		0.012	15	11
3/19/2003 11:25	7.2	1730	71	11.2	7.27	14	0.539	0.01 U	0.446		0.015	7.4	12
4/21/2003 11:25	9.7	1600	85	11.1	7.24	9	0.389	0.01	0.309		0.01	2.6	60
5/19/2003 11:15		1060											
	No Access - Bridge Construction												
6/16/2003 12:50	17.2	511	139	8.83	7.22	8	0.427	0.046	0.299		0.013	3	35
	Gage was moved to downstream side of bridge because of construction.												
7/21/2003 14:33	22.3	234	113	9.79	7.4	7	0.459	0.05	0.335		0.011	2.7	49
	Temporary RP spot.												
8/18/2003 12:10	19.4	238	161	8.9	7.39	5	0.38	0.055	0.232		0.011	2.7	84
	Temporary RP location.												
9/24/2003 12:35	15.4	320	125	9.29	7.3	11	0.445	0.042	0.291		0.014	3.8	84

Conventional Data Report

Green R @ Kanaskat

09A190

Class: AA
Rivermile: 57.6
Latitude: 47 19 10.0
Longitude: 121 53 32.3
Waterbody: WA-09-1030

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 8:05	10.5	149	56	10.65	7.6	2	0.154	0.01 U	0.087		0.0049	0.9	1 J
11/18/2002 8:10	7.2	143	58	11.71	7.57	1	0.193	0.01 U	0.14		0.0058	0.8	1 J
12/11/2002 8:20	4.5	96	57	12.48	7.64	1 U	0.165	0.01 U	0.146		0.0042	0.8	4 J
1/27/2003 8:10	6.2	3730	36	12.75	7.1	32	0.306	0.03	0.236		0.012	26	10 J
2/24/2003 8:05	3.2	2840	34 J	13.6	7.23	15	0.198	0.01 U	0.174		0.0092	8.2	3 J
3/19/2003 7:50	5.8	1090	37	12.3	7.43	3	0.15	0.01 U	0.133		0.0084	2.1	2 J
4/21/2003 8:05	7.4	1100	39	11.7	7.99	2	0.085	0.01 U	0.064		0.0068	1.1	1 UJ
5/19/2003 8:25	8.1	745	47	12.08	7.66	1	0.051	0.01 U	0.019		0.0047	0.8	1 J
6/16/2003 8:35	11.3	308	46	11.16	7.74	2	0.064	0.01	0.025		0.0076	0.8	9 J
7/21/2003 9:00	13.9	129	54	10.51	7.68	2	0.12	0.018	0.06		0.005	0.8	18 J
8/18/2003 8:30	15.4	162	58	10.1	7.62	1	0.17	0.015	0.095		0.0048	0.8	20 J
9/24/2003 8:05	13.5	237	58	10.5	7.37	3	0.17	0.01 U	0.091		0.0033	1.3	14 J

Conventional Data Report

Longfellow Cr abv 24-25th St juctn

09J090

Class: A
Rivermile: 2
Latitude: 47 32 41.0
Longitude: 122 21 48.0
Waterbody: WA-09-1000

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
9/23/2003 14:15	14.5	0.78	305	9.69	7.83	2	1.35	0.01 U	1.23		0.0343	1.3	180

Conventional Data Report

Puyallup R @ Puyallup

10A050

Class: A
Rivermile: 5.7
Latitude: 47 12 49.4
Longitude: 122 20 24.8
Waterbody: WA-10-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 14:40	10.7	1380	91	11.15	7.5	25	0.222	0.016	0.159		0.025	20	29 J
11/18/2002 14:00	8.9	2690	70	11.21	7.18	28	0.165	0.01	0.102		0.014	11	12
12/11/2002 15:20	6.1	1060	102	12.18	7.4	17	0.497	0.06	0.323		0.0353	11	100 J
1/27/2003 14:02	7	8050	58	12.34	7.26	525 J	0.556	0.019	0.461		0.017	120	49
2/24/2003 15:00	4.1	3650	66 J	13.29	7.34	83 J	0.493	0.017	0.427		0.012	12 J	8
3/19/2003 13:30	6	4290	65	12.2	7.23	78 J	0.38	0.015	0.306		0.013	6.9	43
4/21/2003 13:55	9.5	3630	72	11	7.28	29 J	0.365	0.032	0.259		0.017	9.4 J	110
5/19/2003 13:30	9.5	1950	78	13.7	8.03	3	0.19	0.013	0.099		0.013	1.5	11
6/16/2003 15:30	15.1	3440	56	10.35	7.47	34	0.083	0.014	0.052		0.014	18	9
7/21/2003 17:05	17.9	2570	55	10.81	7.38	618	0.099	0.016	0.081		0.018	470	100
8/18/2003 15:00	15.3	1480	63	10.5	7.32	615 J	0.12	0.02	0.07		0.021	400 J	92
9/24/2003 14:20	12.9	1210	87	10.6	7.39	133	0.25	0.026	0.153		0.0333	110	120

Conventional Data Report

Puyallup R @ Meridian St

10A070

Class: A
Rivermile: 8.3
Latitude: 47 12 10.0
Longitude: 122 17 33.0
Waterbody: WA-10-1020

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/23/2002 14:10	10.6	1390	90	11.05	7.45	26	0.2	0.014	0.144		0.024	19	130 J
11/18/2002 13:25	8.9	2680	70	11.11	7.36	22	0.158	0.01 U	0.101		0.015	11	17
12/11/2002 14:50	6	1060	101	11.97	7.43	18	0.487	0.06	0.319		0.0301	12	130
1/27/2003 13:23	7	8130	58	12.44	7.22	503	0.541	0.019	0.458		0.017	140	46
2/24/2003 14:05	4	3680	65 J	13.4	7.34	51 J	0.482	0.011	0.422		0.013	9.3 J	3
3/19/2003 12:55	6	4300	65	12.3	7.23	36	0.379	0.01 U	0.307		0.013	7.4	32
4/21/2003 13:30	9.4	3610	70	11.5	7.35	28	0.344	0.033	0.241		0.013	9	77
5/19/2003 12:55	9.1	1950	78	13.6	8.05	3	0.186	0.013	0.103		0.012	1.5	13
Stream running clear. (TSS added manually 5 Mar 04)													
6/16/2003 15:00	14.9	3440	56	10.35	7.55	25	0.078	0.014	0.049		0.013	17	6
7/21/2003 16:30	17.9	2590	55	10.51	7.38	501	0.11	0.016	0.079		0.017	430	88
8/18/2003 14:25	14.7	1500	62	10.7	7.31	545 J	0.13	0.019	0.07		0.021	400 J	83
9/24/2003 13:40	12.4	1210	82	11.01	7.42	160	0.2	0.021	0.121		0.024	130	59

Conventional Data Report

White River @ R Street

10C095

Class: A
Rivermile: 8
Latitude: 47 16 31.0
Longitude: 122 12 22.0
Waterbody: WA-10-1030

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 13:20	9.4	390 J	94	12.16	8.03	25	0.096	0.01 U	0.065		0.02	13	9
11/18/2002 12:45	7.7	195 J	100	13.13	8.35	4	0.247	0.01 U	0.177		0.0379	3.3	5
12/11/2002 13:55	5.6	185 J	97	13.09	7.88	5	0.262	0.01 U	0.207		0.024	3	7
1/27/2003 12:30	6.7	3850	58	12.34	7.33	1166 J	0.58	0.013	0.499		0.025	130	29
Grit in bucket													
2/24/2003 13:15	3.8	1590	61 J	13.5	7.35	105 J	0.447	0.01 U	0.398		0.013	9.6 J	2
3/19/2003 12:20	6	1950	59	12.4	7.38	47	0.292	0.01 U	0.234		0.012	5.4	13
4/21/2003 12:45	9.2	531	74	11.6	7.65	4	0.356	0.01 U	0.303		0.019	1.8	14
Took stage height from box and measured 23.14. Talk to Dave Hallock about where on the box it was measured from.													
5/19/2003 12:10	10.4	419	73	12.58	8.7	5	0.103	0.01 U	0.035		0.0079	1.5	1 U
Stream running clear.													
6/16/2003 14:10	17.8	335 J	64	10.25	7.99	21	0.1	0.01 U	0.058		0.017	9.4	2
7/21/2003 15:40	19.3	1240 J	56	10.4	7.6	233 J	0.082	0.01 U	0.069		0.021	170	31
8/18/2003 13:30	17.6	367 J	70	10.3	8.08	73	0.044	0.01 U	0.029		0.018	90	16
9/24/2003 13:05	14	385	86	10.8	8.04	26	0.073	0.01 U	0.027		0.0355	25	16

Conventional Data Report

Nisqually R @ Nisqually

11A070

Class: A
Rivermile: 3.4
Latitude: 47 03 43.0
Longitude: 122 41 42.0
Waterbody: WA-11-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/23/2002 16:00	12.5	792 J	70	10.85	7.63	7	0.165	0.01 U	0.124		0.01	17	5
11/18/2002 15:30	9.8	1194 J	69	11.51	7.33	26	0.24	0.01 U	0.174		0.0098	29	2
12/11/2002 16:30	8.1	911 J	72	11.47	7.39	25	0.27	0.01 U	0.184		0.0099	29	26
1/27/2003 14:50	7.4	3291 J	61	12.14	7.31	43	0.419	0.04	0.323		0.016	24	12
2/24/2003 16:05	5.6	1765 J	62 J	13.09	7.41	8	0.458	0.024	0.36		0.011	11	3
3/19/2003 14:25	6.7	2910 J	58	11.9	7.28	8	0.357	0.01 U	0.278		0.0096	7	2
4/21/2003 14:45	8.9	1768 J	64	11	7.39	6	0.346	0.01 U	0.273		0.01	4.1	13
5/19/2003 14:30	10.6	1410 J	66	13.29	8.28	4	0.294	0.01 U	0.204		0.012	3	7
	Stream running clear.												
6/16/2003 17:00	14.8	1093 J	61	11.97	7.96	4	0.18	0.01 U	0.115		0.0084	1.8	1
7/23/2003 17:25	17.1	987 J	70	10.51	7.83	6	0.144	0.01 U	0.103		0.0084	1.8	9
8/18/2003 16:40	18.6	725 J	71	10.5	7.84	6	0.16	0.01 U	0.095		0.0087	3.3	9 J
9/24/2003 15:12	16.4	644 J	73	10.7	7.78	14	0.18	0.01 U	0.106		0.02	17	1

Conventional Data Report

Deschutes R @ E St Bridge

13A060

Class: A
Rivermile: 0.6
Latitude: 47 00 43.0
Longitude: 122 54 07.0
Waterbody: WA-13-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/28/2002 8:45	9.5	76	151	10.4	7.4	1 U	0.99	0.015	0.907		0.019	0.9	9 J
11/18/2002 9:13	8.3	206	108		7.44	8	0.675	0.01 U	0.576		0.014	4.7	44
12/9/2002 9:03	6.2	70	135	11.42	7.05	1 U	0.877	0.011	0.793		0.016	0.9	4
1/27/2003 9:55	9	1280	55	10.91	7.06	55	0.591	0.012	0.505		0.015	22	96
2/24/2003 9:30	5.1	478	81	12.02	7.22	5	0.628	0.01 U	0.572		0.014	3.8	7
3/17/2003 8:35	8.1	733	73	10.81	6.83	18	0.633	0.01 U	0.538		0.013	9	16 J
4/21/2003 9:50	10.7	326	102	10.1	7.4	4	0.667	0.01 U	0.577		0.012	2.6	20 J
5/19/2003 8:45	10.5	241	109	10.8	7.46	3	0.605	0.01 U	0.491		0.0053	1.3	51
6/16/2003 9:00	14.2	132	141	9.13	7.14	4	0.928	0.023	0.793		0.015	6.4	27
7/21/2003 10:30	16.5	97	143	8.8	7.47	3	0.913	0.015	0.839		0.018	1.5	27 J
8/18/2003 9:40	15.7	81	148	8.88	7.4	3	0.882	0.012	0.799		0.015	1.3	31 J
9/22/2003 10:35	12.3	55	143	9.69	7.04	2	0.878	0.013	0.763		0.016	1.2	37 J

Conventional Data Report

Union R nr Belfair

15E070

Class: AA
Rivermile: 2.4
Latitude: 47 27 50.0
Longitude: 122 49 48.0
Waterbody: WA-15-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/29/2002 12:00	8.9		100	10.7	7.47	1	0.284	0.01 U	0.236		0.016	1	140
11/19/2002 12:05	9.8		81	9.49	7.21	24	0.901	0.057	0.607		0.021	6.7	180
	salmon present												
12/10/2002 13:30	7.3		93	10.61	7.48	10	0.621	0.116	0.36		0.0357	3.5	310
	salmon and salmon carcasses present												
1/28/2003 13:42	8.8		67	11.02	6.78	11	0.623	0.01 U	0.566		0.013	3.4	9
2/25/2003 12:21	5.9		90	11.11	7.32	4	0.444	0.01 U	0.409		0.015	2	3
3/18/2003 13:03	8.1		72	11.22	7.64	7	0.513	0.01 U	0.443		0.012	3.2	15
4/22/2003 13:27	10.5		93	10.7	7.41	4	0.379	0.01 U	0.315		0.014	1	11
5/20/2003 13:45	10.6		98	12.12	7.74	2	0.244	0.01 U	0.191		0.01	1.1	81
6/17/2003 12:00	12.7		104	10.15	7.53	11	0.318	0.01 U	0.262		0.017	2	140
	Read river guage												
7/22/2003 13:00	14.7		107	9.6	7.5	3	0.302	0.01 U	0.263		0.017	1.3	120
8/19/2003 11:45	13.3		103	10.3	7.49	2	0.263	0.01 U	0.227		0.015	0.8	88
9/23/2003 13:45	11.8		108	9.39	7.32	5	0.486	0.103	0.296		0.0307	1	84
	Summer Chum present												

Conventional Data Report

Little Mission Cr. @ Hwy 300

15G050

Class: AA
Rivermile: 0.6
Latitude: 47 25 48.0
Longitude: 122 52 57.0
Waterbody: WA-15-1060

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/29/2002 13:00	9		96	10.1	7.89	1 U	0.073	0.01 U	0.048		0.0379	0.5 U	5
	salmon present												
11/19/2002 13:12	9.7		83	10.1	7.39	34	1.56	0.194	1.14		0.0563	7.4	11
	fish present; poor tapedown; staff guage needed												
12/10/2002 14:18	7.7		85	11.12	7.15	11	0.895	0.293	0.371		0.0795	3.6	510 J
	salmon and salmon carcasses present												
1/28/2003 14:35	8.6		43	11.83	7.2	8	0.25	0.01 U	0.22		0.013	2.6	8
2/25/2003 13:04	6.6		72	12.42	7.54	1 U	0.156	0.01 U	0.145		0.024	0.6	1 U
3/18/2003 13:45	8.5		50	11.83	7.55	2	0.22	0.01 U	0.177		0.016	0.8	3
4/22/2003 14:10	10.8		74	11.1	7.82	1	0.23	0.01 U	0.088		0.024	0.6	13
5/20/2003 14:45	9.8		88	11.41	7.9	2	0.13	0.01 U	0.089		0.0317	0.9	1 U
6/17/2003 13:15	11.5		97	10.55	7.78	2	0.11	0.011	0.104		0.0375	1.1	110
7/22/2003 14:12	12.8		100	10.4	7.87	1 U	0.129	0.01 U	0.106		0.0395	0.5 U	80
8/19/2003 12:45	11.8		99	11.11	7.92	1 U	0.094	0.01 U	0.088		0.0402	0.5 U	27
9/23/2003 14:45	11.2		101	10.9	7.81	1 U	0.11	0.01 U	0.074		0.0394	0.5 U	11

Conventional Data Report

Stimson Creek @ Hwy 300

15H050

Class: AA
Rivermile: 0.1
Latitude: 47 25 02.0
Longitude: 122 54 24.0
Waterbody: WA-15-2040

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/29/2002 12:40	8.4		85	11.5	7.71	1 U	0.072	0.01 U	0.044		0.017	0.5 U	48
11/19/2002 12:32	9.7		67	10.1	7.28	18	1.6	0.128	1.28		0.029	5.3	8
fish present; poor tapedown, but no good spot exists; staff guage needed													
12/10/2002 13:55	7.1		72	11.12	6.99	18	0.824	0.212	0.363		0.0683	8.5	180
salmon and salmon carcasses present													
1/28/2003 14:15	8.5		33	11.73	7.22	7	0.23	0.01 U	0.156		0.0086	1.7	2
2/25/2003 12:45	5.4		56	12.42	7.52	1	0.186	0.01 U	0.173		0.013	0.5 U	6
3/18/2003 13:30	8.1		38	11.83	7.47	2	0.19	0.01 U	0.147		0.0085	1.2	2
4/22/2003 13:51	10.4		57	11.2	7.66	2	0.599	0.01 U	0.085		0.011	0.7	1
5/20/2003 14:20	10		70	11.31	7.85	1	0.09	0.01 U	0.063		0.013	0.8	4
6/17/2003 12:45	12.7		80	10.45	7.71	6	0.13	0.01 U	0.101		0.018	1	15
7/22/2003 13:50	15.3		85	9.8	7.75	2	0.149	0.01 U	0.122		0.019	1	6
8/19/2003 12:15	13.6		87	10.3	7.8	1	0.13	0.01 U	0.108		0.02	0.5	22
9/23/2003 14:20	12.1		88	10.5	7.75	1	0.13	0.01 U	0.084		0.019	0.5 U	14

Conventional Data Report

Big Mission Cr. @ Hwy 300

15J050

Class: AA
Rivermile: 0.1
Latitude: 47 25 56.0
Longitude: 122 52 27.0
Waterbody: WA-15-1070

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/29/2002 13:25	8.8		80	11	7.74	1	0.334	0.047	0.235		0.023	0.9	19
11/19/2002 13:30	9.8		78	9.89	7.38	3	1.24	0.151	0.94		0.0514	2	74
fish present; poor tapedown; staff guage needed													
12/10/2002 14:37	7.1		77	10.71	7.37	9	1.17	0.379	0.61		0.0768	1.8	110
salmon and salmon carcasses present													
1/28/2003 14:58	8.3		37	11.83	7.32	17	0.265	0.01 U	0.218		0.0065	4.4	8
2/25/2003 13:17	5.7		51	12.52	7.63	1	0.259	0.01 U	0.242		0.011	0.9	1 U
Tapedown location was dry. Thalweg shifted away from tapedown location.													
3/18/2003 14:05	8.5		39	11.83	7.53	3	0.24	0.01 U	0.187		0.0065	1.7	2
4/22/2003 14:25	11.4		52	10.9	7.68	2	0.18	0.01 U	0.152		0.0089	0.6	8
5/20/2003 15:05	10.7		66	11.21	8.02	1	0.187	0.01 U	0.155		0.01	0.6	4
No stage height creek had moved													
6/17/2003 13:30	14.1		75	10.55	7.26	1	0.26	0.012	0.221		0.015	0.6	45
Channel had shifted now dry													
7/22/2003 14:30	16.9		80	9.6	7.75	1	0.301	0.01 U	0.272		0.018	0.5 U	36
8/19/2003 13:00	15.1		82	10.1	7.9	2	0.25	0.01 U	0.226		0.018	0.5 U	60
9/23/2003 15:10	13		83	11.31	8.12	1 U	0.21	0.01 U	0.172		0.015	0.6	19

Conventional Data Report

Olalla Cr. @ Forsman Rd.

15K070

Class: AA
Rivermile: 1
Latitude: 47 25 43.0
Longitude: 122 33 59.0
Waterbody:

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/29/2002 14:30	9.3		97	10.8	7.59	4	0.396	0.011	0.294		0.02	1.7	40
11/19/2002 14:47	10.2		90	9.69	7.02	8	1.1	0.015	0.603		0.019	4.4	300
	fish present												
12/10/2002 15:42	7.1		85	10.61	7.03	61	0.77	0.033	0.378		0.024	29	1200
	salmon carcass present												
1/28/2003 15:51	8.7		66	11.02	7.01	11	1.21	0.011	1.01		0.015	5	23
2/25/2003 14:04	5.2		84	12.12	7.24	10	0.648	0.019	0.533		0.017	5.1	15
3/18/2003 15:02	8.2		71	11.42	7.34	13	0.717	0.01 U	0.539		0.016	6.8	78
4/22/2003 15:17	10.4		86	10.5	7.39	5	0.527	0.01 U	0.41		0.018	3.5	43
5/20/2003 16:05	10.1		97	9.69	7.71	5	0.509	0.01 U	0.408		0.021	3.3	28
6/17/2003 14:15	13.1		102	9.94	7.68	3	0.443	0.01	0.361		0.025	1.7	80
7/22/2003 15:40	14.9		105	9.6	7.72	4	0.565	0.015	0.382		0.028	1.8	230
8/19/2003 14:25	13.9		105	10.1	7.76	5	0.394	0.01 U	0.323		0.027	1.6	53
9/23/2003 16:15	12.5		104	10.2	7.64	3	0.387	0.01 U	0.291		0.024	1.6	49

Conventional Data Report

Skokomish R nr Potlatch

16A070

Class: AA
Rivermile: 5.3
Latitude: 47 18 36.0
Longitude: 123 10 33.0
Waterbody: WA-16-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/29/2002 10:30	9.2	186	73	10.19	7.46	1 U	0.059	0.01 U	0.039		0.011	0.5 U	10
11/19/2002 11:05	8.9	11000	42	11.61	7.32	149	0.186	0.02	0.092		0.0076	100	27 J
12/10/2002 12:45	7.7	894	62	10.91	7.75	25	0.179	0.051	0.077		0.015	8.6	24
salmon carcasses present													
1/28/2003 12:06	7.3	2930	50	11.93	7.03	28	0.09	0.01 U	0.066		0.0078	22	2
2/25/2003 11:20	5.5	888	59	12.12	7.54	2	0.072	0.012	0.061		0.0086	2.1	1 U
3/18/2003 11:58	7.3	2390	49	12.04	7.63	22	0.063	0.01 U	0.053		0.0071	18	4
4/22/2003 12:22	9.5	978	62	11.2	7.61	2	0.031	0.01 U	0.036		0.0083	2	1 U
5/20/2003 12:30	10.1	491	68	11.31	7.66	1	0.033	0.01 U	0.016		0.0067	0.7	2
6/17/2003 10:45	11.5	376	74	10.55	7.49	1	0.031	0.01 U	0.024		0.0085	1	3
7/22/2003 12:08	12.7	287	75	10	7.46	2	0.054	0.01 U	0.032		0.0095	0.6	18
8/19/2003 10:45	10.9	258	76	10.4	7.57	1	0.045	0.01 U	0.029		0.0095	0.6	16
9/23/2003 12:20	10.5	223	77	10.3	7.48	1 U	0.075	0.01 U	0.035		0.01	0.8	10
Salmon present													

Conventional Data Report

Duckabush R nr Brinnon

16C090

Class: AA
Rivermile: 4.5
Latitude: 47 41 03.0
Longitude: 123 00 37.0
Waterbody: WA-16-3010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/29/2002 9:20	6.8	47	88	11.9	7.86	1 U	0.031	0.01 U	0.019		0.0031	0.5 U	1 UJ
stage height is an estimate because of low flow and difficulty reading the staff													
11/19/2002 9:34	6.8	1430	48	12.32	7.36	26	0.101	0.011	0.067		0.0046	17	6 J
12/10/2002 11:36	6.4	569	54	12.24	8.07	3	0.095	0.01 U	0.061		0.0037	1.8	12
1/28/2003 11:04	5.4	958	59	12.85	7.68	7	0.038	0.01 U	0.029		0.0038	4.5	1 J
2/25/2003 10:00	3	213	79	13.43	8.11	1 U	0.025 U	0.01 U	0.019		0.0038	0.7	1 J
3/18/2003 10:45	5.4	740	62	12.85	7.86	4	0.03	0.01 U	0.026		0.0032	2.8	1 U
4/22/2003 11:15	6.5	303	75	11.8	7.84	1 U	0.025 U	0.01 U	0.011		0.003 U	1	1 U
5/20/2003 10:00	6.8	237	77	12.32	7.71	2	0.031	0.01 U	0.01 U		0.003 U	0.7	3 J
6/17/2003 9:40	8.2	483	62	11.77	7.7	6	0.025 U	0.01 U	0.01 U		0.003 U	3	2 J
Read river guage													
7/22/2003 11:01	12.3	229	69	10.7	7.78	2	0.025 U	0.01 U	0.01 U		0.003 U	0.6	5
8/19/2003 9:45	11.8	100	82	11.31	7.82	1 U	0.025 U	0.01 U	0.017		0.0032	0.5 U	1 UJ
9/23/2003 11:10	10.1	58	87	11.21	7.82	1 U	0.058	0.01 U	0.026		0.0032	0.5 U	3

Conventional Data Report

Dungeness R nr Mouth

18A050

Class: A
Rivermile: 1
Latitude: 48 08 37.7
Longitude: 123 07 39.7
Waterbody: WA-18-1010

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/29/2002 7:50	8.1	69	160	11.2	7.88	2	0.117	0.01 U	0.086		0.0055	0.8	13 J
11/19/2002 7:55	7.2	1340	133	11.61	7.49	8	0.081	0.01 U	0.044		0.0052	3.1	27 J
12/10/2002 10:10	5.5	904	142	12.24	6.57	2	0.118	0.016	0.072		0.0075	0.9	6
salmon carcasses present													
1/28/2003 9:15	5	2250	92	12.44	6.73	41	0.11	0.01 U	0.076		0.0061	17	7 J
2/25/2003 8:08	1.9	1080	141	13.43	7.17	3	0.075	0.01 U	0.064		0.0048	1	2 J
3/18/2003 9:05	4.7	1870	109	12.85	7.25	47 J	0.11	0.01 U	0.071		0.0059	14	6
4/22/2003 9:42	7	1310	138	11.7	7.78	5	0.064	0.01 U	0.029		0.0054	2.2	10 J
5/20/2003 8:10	7.5	1640	143	11.81	7.51	3	0.053	0.01 U	0.025		0.0033	4.6	50 J
6/17/2003 7:45	9.4	1680	95	11.37	7.66	11	0.033	0.01 U	0.016		0.0038	6.6	64 J
7/22/2003 9:15	12.5	1370	102	10.7	7.8	4	0.031	0.01 U	0.017		0.0035	1.6	88 J
8/19/2003 8:20	13.1	161	128	10.2	7.77	4	0.049	0.01 U	0.035		0.0041	0.9	66 J
9/23/2003 9:20	11.7	933	150	10.4	7.95	2	0.1	0.01 U	0.053		0.0047	1	61 J

Conventional Data Report

Elwha R nr Port Angeles

18B070

Class: AA
Rivermile: 8.1
Latitude: 48 03 56.0
Longitude: 123 34 35.0
Waterbody: WA-18-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/28/2002 15:35	11	227	109	11.2	8.04	1 U	0.025 U	0.01 U	0.01 U		0.0032	0.5 U	1 U
11/18/2002 15:48		1340	88	11.81	7.43	3	0.058	0.01 U	0.031		0.0032	4.7	1
12/9/2002 15:57	6	499	82	12.44	7.31	2	0.052	0.01 U	0.024		0.0038	2.4	1
1/27/2003 15:40	6.1	4430	64	12.85	7.47	85	0.052	0.01 U	0.036		0.0054	95	2
2/24/2003 15:18	5.3	890	91	12.92	7.39	3	0.025 U	0.01 U	0.015		0.0044	3.9	1 U
3/17/2003 14:33	5.9	3360	64	12.75	7.24	85	0.046	0.01 U	0.031		0.005	110	2
4/21/2003 16:20	7.2	1160	93	12.1	7.67	2	0.025 U	0.01 U	0.01 U		0.0048	2.6	1 U
5/19/2003 16:15	10	831	92	11.51	7.86	1	0.025 U	0.01 U	0.01 U		0.003 U	0.9	44
6/16/2003 15:45	11.4	1740	72		7.88	4	0.025 U	0.01 U	0.01 U		0.003 U	4	1
	DO titration error in lab												
7/21/2003 17:15	14.8	1040	82	10.1	7.73	1 U	0.025 U	0.01 U	0.01 U		0.003 U	0.8	1
8/18/2003 16:55	17.3	488	91	10.1	7.91	1 U	0.025 U	0.01 U	0.01 U		0.003 U	0.5 U	1
9/22/2003 17:15	15.8	303	99	10.1	8.01	1	0.057	0.01 U	0.01 U		0.003 U	0.5	1

Conventional Data Report

Hoh R @ DNR Campground

20B070

Class: AA
Rivermile: 16.5
Latitude: 47 48 36.0
Longitude: 124 14 47.0
Waterbody: WA-20-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/28/2002 13:40	10.3	321	83	11.7	7.86	1 U	0.025 U	0.01 U	0.01 U		0.0036	0.7	8
11/18/2002 14:08	8.3	3760	63	11.61	7.39	40	0.187	0.01 U	0.148		0.0049	14	25
12/9/2002 14:28	6.9	913	79	12.14	7.6	3	0.153	0.01 U	0.127		0.0053	2.1	7
1/27/2003 14:10	7.3	7680	57	12.14	7.48	115	0.11	0.01 U	0.089		0.0046	75	9
2/24/2003 13:57	5.7	1930	70	12.62	7.44	6	0.081	0.01 U	0.082		0.0042	4	1 U
3/17/2003 12:55	6.9	5200	60	12.24	7.43	69	0.11	0.01 U	0.094		0.0043	30	3
4/21/2003 14:08	8.5	1690	74	11.6	7.66	4	0.047	0.01 U	0.042		0.0047	2.9	1 U
5/19/2003 14:30	10.8	975	77	11.61	7.69	4	0.025 U	0.01 U	0.01 U		0.003 U	1	1 U
6/16/2003 14:15	13.4	1380	76	10.96	7.74	3	0.025 U	0.01 U	0.01 U		0.003 U	3.2	1 U
7/21/2003 15:30	16.2	1320	69	10.1	7.58	7	0.025 U	0.01 U	0.01 U		0.0032	8	3
8/18/2003 15:30	16.7	776	72	10.2	7.84	6	0.025 U	0.01 U	0.01 U		0.003 U	7.3	1 U
9/22/2003 15:23	13.8	458	77	10.9	7.87	2	0.033	0.01 U	0.01 U		0.003 U	2.5	6

Conventional Data Report

Humptulips R nr Humptulips

22A070

Class: A
Rivermile: 23.6
Latitude: 47 13 48.0
Longitude: 123 57 38.0
Waterbody: WA-22-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/28/2002 12:05	10.5	115	70	11.4	7.51	1 U	0.033	0.01 U	0.01 U		0.0042	0.5 U	10
11/18/2002 11:44	8.6	1610	51	11.51	7.53	11	0.22	0.01 U	0.192		0.0064	13	14
12/9/2002 12:36	6.2	351	59	12.14	7.12	1 U	0.231	0.01 U	0.197		0.0094	0.8	4
1/27/2003 12:35	8.3	5680	41	11.83	7.19	78	0.15	0.01 U	0.158		0.0058	70	4
2/24/2003 12:00	5.1	1640	48	12.92	7.19	3	0.149	0.01 U	0.145		0.0054	4.9	1
3/17/2003 11:19	7.1	3510	42	12.14	7.19	33	0.15	0.01 U	0.13		0.0051	30	4
	muddy water												
4/21/2003 12:30	8.7	1240	51	11.6	7.53	2	0.081	0.01 U	0.079		0.0063	1.9	1
5/19/2003 11:45	9.8	385	55	12.02	7.63	1	0.025 U	0.01 U	0.01 U		0.003 U	1.2	7
6/16/2003 11:45	15.3	218	64	10.65	7.72	1	0.057	0.01 U	0.024		0.0048	1	13
7/21/2003 13:30	21	151	69	9.3	7.55	1	0.057	0.01 U	0.021		0.0049	0.6	26
8/18/2003 13:50	19.8	113	72	9.84	7.65	1	0.054	0.01 U	0.014		0.005	0.5	30
9/22/2003 13:15	14.3	154	66	10.6	7.54	1 U	0.076	0.01 U	0.022		0.0035	0.5 U	19
	Salmon Present												

Conventional Data Report

Chehalis R @ Porter

23A070

Class: A
Rivermile: 33.3
Latitude: 46 56 17.0
Longitude: 123 18 45.0
Waterbody: WA-23-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/28/2002 9:45	10.2	314	124	10.4	7.62	1	0.976	0.011	0.841		0.02	0.9	8 J
11/18/2002 10:14	8.5	1300	111	10.8	7.54	17	0.841	0.033	0.669		0.023	7	14
12/9/2002 10:05	5.4	568	137	12.04	7.58	3	0.915	0.014	0.78		0.018	1.6	1 U
1/27/2003 10:58	9.8	13000	62	10.91	7.26	120	0.794	0.018	0.674		0.015	55	120
2/24/2003 10:18	6	7160	70	11.61	7.47	14	0.755	0.022	0.667		0.012	8.2	9
3/17/2003 9:44	8.7	13500	62	10.81	7.35	37	0.782	0.019	0.649		0.011	15	43
	muddy water												
4/21/2003 10:55	10.7	3940	82	10.19	7.35	11	0.709	0.022	0.572		0.013	5.4	12 J
5/19/2003 10:10	12.2	1790	94	10.8	7.49	7	0.614	0.01 U	0.449		0.0085	2.8	13
6/16/2003 10:00	17.9	772	105	9.23	7.47	5	0.702	0.016	0.563		0.0092	3	14
7/21/2003 11:50	22.5	387	114	8.5	7.65	3	0.725	0.011	0.595		0.0097	1.1	10
8/18/2003 10:50	20.6	342	121	9.04	7.68	2	0.689	0.016	0.565		0.0071	1.2	46 J
9/22/2003 12:00	15.9	349	109	9.79	7.61	2	0.77	0.018	0.617		0.012	1.1	12

Conventional Data Report

Chehalis R @ Prather Rd

23A100

Class: A
Rivermile: 59.9
Latitude: 46 46 31.4
Longitude: 123 02 03.3
Waterbody: WA-23-1010

Date/Time		Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002	16:25	10	187	112	11	7.53	1	0.755	0.095	0.513		0.0468	1	4
11/20/2002	16:12	9.5	2540	73	10.4	7.09	20	1.01	0.0365	0.778		0.015	12	160
12/11/2002	17:07	6.2	1530	126	10.91	7.24	7	0.616	0.139	0.338		0.024	3.9	54
		too windy for RP												
1/29/2003	17:30	7.4	6030	76	11.22	6.68	13	0.821	0.02	0.721		0.015	8.7	37
2/26/2003	17:50	4.9	2960	77	11.91	6.93	5	0.74	0.04	0.642		0.012	5.3	2
3/19/2003	18:00	8.2	5260	68	11.32	7.05	15	0.684	0.028	0.612		0.012	9.1	8
4/23/2003	18:30	11.1	2350	85	10.4	7.11	3	0.572	0.042	0.441		0.013	3.6	19
5/21/2003	16:06	14.7	1020	107	11.51	7.66	2	0.359	0.029	0.237		0.012	2.6	11
6/18/2003	15:45	19.2	509	97		7.77	3	0.314	0.024	0.159		0.0085	1.8	53
7/23/2003	19:52	22.5	184	106	10	7.63	4	0.439	0.033	0.255		0.024	1.3	15
8/20/2003	16:25	20	156	109	12.82	8.53	1 U	0.49	0.015	0.329		0.015	0.6	10
9/24/2003	18:30	17.7	215	103	9.89	7.46	2	0.602	0.04	0.412		0.025	1.3	3
		Pondweed thick on margins and dispersed throughout wetted width												

Conventional Data Report

Chehalis R @ Dryad

23A160

Class: A
Rivermile: 101.7
Latitude: 46 37 52.0
Longitude: 123 14 56.0
Waterbody: WA-23-1100

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 15:29	6.2	44	81	11.9	7.7	1 U	0.091	0.01 U	0.01 U		0.0057	0.9	16
11/20/2002 15:10	10.4	772	61	11.41	7.41	4	1.17	0.01 U	1.06		0.0076	3.1	26
12/11/2002 16:08	6.4	1800	70	11.73	7.23	24	0.842	0.01 U	0.685		0.011	10	200 J
1/29/2003 16:11	7.6	1710	56	12.04	7.21	5	0.667	0.01 U	0.633		0.012	3.5	25
2/26/2003 16:45	5.2	595	57	12.72	7.29	2	0.556	0.01 U	0.541		0.0089	1.3	2
3/19/2003 17:02	8	1610	53	12.34	7.36	6	0.583	0.01 U	0.57		0.01	3.3	17
4/23/2003 17:05	8.5	394	61	11.9	7.65	2	0.36	0.01 U	0.311		0.0089	1.4	10 J
5/21/2003 15:00	12.9	250	67	12.72	8.57	3	0.213	0.01 U	0.107		0.0061	1.6	6
6/18/2003 14:30	15.8	82	77	9.64	7.56	2	0.452	0.014	0.297		0.011	1.3	8
7/23/2003 18:49	23	49	84	9.5	8.05	2	0.21	0.015	0.062		0.0091	1.2	32
8/20/2003 15:25	20.4	41	86	9.79	7.92	1	0.14	0.01 U	0.016		0.0068	1.4	23
9/24/2003 17:43	16.5	44	85	10.5	8.06	2	0.15	0.01 U	0.01 U		0.0056	1.2	13

Conventional Data Report

Willapa R nr Willapa

24B090

Class: A
Rivermile: 17.7
Latitude: 46 39 01.0
Longitude: 123 39 08.0
Waterbody: WA-24-2020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 14:30	7.7	22	75	11.3	7.52	3	0.313	0.021	0.184		0.0075	2	49
salmon present													
11/20/2002 14:16	10.2	960	64	11.01	7.6	12	1.29	0.01 U	1.19		0.0088	6.6	110
12/11/2002 15:20	7.2	1030	65	11.63	7.26	40	0.972	0.021	0.769		0.0095	8.4	490 J
1/29/2003 15:45	8.2	1580	53	11.63	7.35	15	0.909	0.01 U	0.894		0.01	5.7	80 J
2/26/2003 15:41	6.3	685	55	12.52	7.41	3	0.833	0.01 U	0.822		0.0064	1.9	1
3/19/2003 15:42	8.6	1590	51	11.63	7.08	16	0.915	0.01 U	0.884		0.0078	6	44
4/23/2003 16:12	9.5	455	59	11.5	7.36	4	0.604	0.01 U	0.559		0.0081	2	8
5/21/2003 13:45	14	177	63	9.09	7.48	3	0.394	0.011	0.295		0.0056	2.2	13
6/18/2003 13:15	18.5	68	70	8.93	7.4	2	0.365	0.031	0.214		0.0051	1.5	60
7/23/2003 17:55	22.2	31	76	9.5	7.65	3	0.287	0.017	0.149		0.0064	1.4	25
8/20/2003 14:20	20.1	17	78	9.79	7.58	3	0.23	0.014	0.086		0.004	1.8	21
9/24/2003 16:45	15.7	25	75	10.1	7.6	3	0.293	0.02	0.152		0.0048	1.7	16

Conventional Data Report

Naselle R nr Naselle

24F070

Class: A
Rivermile: 17.4
Latitude: 46 22 23.0
Longitude: 123 44 44.0
Waterbody: WA-24-3010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 11:50	5.8	22	61	12.3	7.57	1 U	0.201	0.02	0.12		0.012	0.5 U	28
11/20/2002 12:20	9.4	1090	48	11.61	6.84	15	0.929	0.01 U	0.821		0.013	10	39
	fish present												
12/11/2002 13:42	7.3	878	50	11.93	7.54	31	0.645	0.01 U	0.54		0.0095	11	300
1/29/2003 14:50	8.3	1040	44	11.93	7.52	12	0.492	0.01 U	0.559		0.011	5.2	72
2/26/2003 13:08	5.9	435	49	12.82	7.57	1	0.528	0.01 U	0.535		0.0081	1.5	3
3/19/2003 12:38	8.5	735	45	11.93	7.29	4	0.523	0.01 U	0.526		0.0097	3.5	14
4/23/2003 13:16	8.3	232	51	11.9	7.37	2	0.39	0.01 U	0.359		0.0066	1.1	14
5/21/2003 12:30	11.2	116	55	10.9	7.83	5	0.229	0.01 U	0.207		0.0037	1.1	2
6/18/2003 11:55	16.2	54	60	9.94	7.65	1	0.257	0.014	0.179		0.0069	1.2	43
7/23/2003 14:10	20.2	34	63	9.69	7.7	2	0.21	0.01 U	0.138		0.0069	0.7	30
8/20/2003 12:50	18	23	63	9.74	7.66	1 U	0.14	0.01 U	0.067		0.0046	0.6	22
9/24/2003 13:30	14.3	25	64	9.79	7.5	1	0.257	0.019	0.154		0.0051	0.8	26
	Salmon present												

Conventional Data Report

Cowlitz R @ Kelso

26B070

Class: A
Rivermile: 4.9
Latitude: 46 08 44.0
Longitude: 122 54 47.0
Waterbody: WA-26-1040

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 10:10	10.3	4410	84	11	7.63	5	0.065	0.01 U	0.028		0.0048	2	5
11/20/2002 10:30	10.6	4390	99	11.11	7.42	62	0.244	0.01 U	0.154		0.008	12	35
12/11/2002 12:17	8.1	13200	125	11.53	7.51	27	0.165	0.01 U	0.098		0.007	7.6	63
1/29/2003 13:15	7.3	14700	63	11.93	7.26	225	0.289	0.01 U	0.258		0.0085	21	5 J
2/26/2003 11:45	5.5	12300	64	12.12	7.46	77 J	0.26	0.01 U	0.231		0.0069	25	8
3/19/2003 11:10	7.5	16800	58	12.04	7.42	228	0.24	0.01 U	0.217		0.0067	70	6
4/23/2003 11:45	8.2	12600	70	11.4	7.49	95 J	0.18	0.01 U	0.161		0.0058	13	5
5/21/2003 10:40	11.1	6850	84	10	7.6	21	0.118	0.01 U	0.062		0.0053	3.5	9
6/18/2003 10:15	14.4	5050	89	10.35	7.68	17	0.083	0.01 U	0.04		0.0048	3.1	27
7/23/2003 12:30	17.3	3380	112	9.8	7.52	7	0.091	0.01 U	0.041		0.004	2.3	6
8/20/2003 11:20	14.7	3590	101	10.4	7.46	7	0.08	0.01 U	0.041		0.0035	1.6	12
9/24/2003 12:00	13.7	3260	104	10.2	7.61	7	0.1	0.01 U	0.039		0.0033	1.6	9

Conventional Data Report

Kalama R nr Kalama

27B070

Class: A
Rivermile: 2.8
Latitude: 46 02 51.0
Longitude: 122 50 10.0
Waterbody: WA-27-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 9:52	6.6	184	64	11.6	7.59	1 U	0.149	0.041	0.065		0.018	0.5 U	21
11/20/2002 10:02	8.4	692	40	11.81	7.28	3	0.512	0.01 U	0.438		0.011	1.8	35 J
12/11/2002 11:35	6.6	550	54	12.44	7.72	7	0.661	0.01 U	0.53		0.013	3.4	59
1/29/2003 12:41	6.7	1440	39	12.44	7.3	5	0.507	0.01 U	0.514		0.012	3.1	23
2/26/2003 11:05	4.2	1010	41	13.13	7.49	2	0.645	0.01 U	0.49		0.01	2	4
3/19/2003 10:30	7.1	1310	38	12.44	7.39	4	0.456	0.01 U	0.459		0.011	2.4	12
4/23/2003 11:14	8.1	884	43	11.9	7.55	2	0.353	0.01 U	0.325		0.0093	1.7	6
5/21/2003 9:50	10.2	493	49	11.21	7.69	3	0.235	0.01 U	0.191		0.0085	1.2	5
6/18/2003 9:30	15.3	235	59	9.84	7.57	4	0.17	0.015	0.109		0.0094	1.7	23
7/23/2003 11:15	18.5	186	65	9.5	7.64	3	0.162	0.016	0.094		0.014	1	7
8/20/2003 10:45	16		66	9.89	7.68	2	0.12	0.012	0.06		0.012	0.8	25 J
9/24/2003 10:45	12.5	165	69	9.89	7.52	3	0.27	0.067	0.112		0.018	1	23

Salmon and Salmon carcasses present

Conventional Data Report

EF Lewis R nr Dollar Corner

27D090

Class: A
Rivermile: 10.2
Latitude: 45 48 53.0
Longitude: 122 35 26.0
Waterbody: WA-27-2020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 8:50	5.3	50 J	64	12.3	7.65	1 U	0.108	0.01 U	0.063		0.0042	0.5 U	28 J
	salmon present												
11/20/2002 9:05	8.6	527 J	36	11.81	7.47	2	0.621	0.01 U	0.547		0.0041	2	18 J
12/11/2002 10:50	5.8	843 J	49	12.44	8.03	3	0.389	0.01 U	0.304		0.0036	1.6	44
1/29/2003 11:58	7.1	1120 J	31	12.14	8.19	2	0.476	0.01 U	0.455		0.0061	1.8	7
2/26/2003 10:06	4.1	843 J	32	13.03	7.8	1	0.422	0.01 U	0.419		0.0048	1.4	2 J
3/19/2003 9:43	7.5	1000 J	30	12.24	7.41	1	0.348	0.01 U	0.338		0.0043	1.4	2 J
4/23/2003 10:20	8.4	648 J	35	11.8	7.54	1	0.28	0.01 U	0.242		0.0037	1.6	4 J
5/21/2003 8:50	10.5	411 J	38	10.8	7.69	1	0.21	0.01 U	0.169		0.0037	1.5	5 J
6/18/2003 8:40	17.2	123 J	52	9.44	7.82	1	0.25	0.013	0.176		0.0056	0.8	31 J
7/23/2003 10:35	21.5	55 J	62	9.1	7.68	3	0.19	0.01 U	0.133		0.0045	0.5	79
8/20/2003 9:45	17.8	42 J	67	9.64	7.76	1	0.16	0.01 U	0.102		0.0035	0.5 U	48 J
9/24/2003 9:52	14.3	40 J	68	10.1	7.65	1	0.22	0.01 U	0.134		0.003 U	0.5	20
	Salmon present												

Conventional Data Report

Columbia R. @ Vancouver

28A100

Class: A
Rivermile:
Latitude: 45 36 40.0
Longitude: 122 36 37.0
Waterbody: WA-CR-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/30/2002 8:00	12.3	123400	132	10.2	7.98	4	0.273	0.018	0.181		0.018	2	4 J
established sampling location upstream from the piling													
11/20/2002 8:07	10.2	128500	130	11.01	7.67	2	0.293	0.01 U	0.219		0.015	2.1	29 J
12/11/2002 9:36	8	124900	155	11.63	7.02	4	0.331	0.01 U	0.251		0.019	2.1	3 J
1/29/2003 9:55	6.2		135	12.34	6.64	6	0.384	0.01 U	0.327		0.018	3.4	5 J
Choppy													
2/26/2003 9:15	4.8		157	12.42	7.37	5	0.507	0.01 U	0.46		0.022	4.6	1 J
3/19/2003 8:50	7.7	193800	133	12.44	7.97	6	0.45	0.01 U	0.388		0.014	4	6 J
4/23/2003 9:20	10.8	247600	137	11.9	7.84	9	0.381	0.01 U	0.317		0.014	5.2	5 J
5/21/2003 7:15	12.8	217600	128	11.31	7.84	9	0.227	0.01 U	0.15		0.0077	4.2	2 J
6/18/2003 7:00	17.5	265200	107	10.25	7.89	9	0.21	0.01 U	0.136		0.013	5.4	12 J
7/23/2003 9:40	22.1	145200	119	9.1	7.86	6	0.168	0.015	0.087		0.012	3	22
8/20/2003 8:20	21.5	129300	120	8.88	8.03	5	0.16	0.019	0.073		0.012	2.9	10 J
9/24/2003 8:40	18.8	105300	131	8.88	7.97	3	0.22	0.019	0.108		0.014	1.4	24 J

Conventional Data Report

Columbia R @ Umatilla

31A070

Class: A
Rivermile: 290.5
Latitude: 45 56 02.0
Longitude: 119 19 31.0
Waterbody: WA-CR-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/16/2002 11:00	15.3	109700	160 J	9.6	8.24	3	0.197	0.01 U	0.134		0.012	2	9
Collected metals samples. Cond drifted between previous station and next station so this reading may be high by as much as 10-15%													
11/14/2002 9:55	11.2	106100	147	10.35	8.38	2	0.295	0.01 U	0.211		0.016	1.2	6
12/18/2002 10:10	8.1	157400	156	11.28	7.94	2 J	0.285	0.01 U	0.257		0.014		2
1/8/2003 9:50	6.1		155	11.71	7.89	2	0.37	0.01 U	0.311		0.0158	1	5
US Army Corp of Engineers installing continuous TDG measurement equipment today.													
2/5/2003 10:20	5.4		197	12.04	7.97	15	0.562	0.014	0.517		0.028	13	13
3/5/2003 9:30	5.3	146900	156	12.71	8.07	4	0.46	0.01 U	0.407		0.015	3.1	2
4/9/2003 10:10	8.5	174500	133	11.61	7.86	6	0.459	0.01 U	0.435		0.02	6.1	4
5/7/2003 9:40	10.3	174500	132	11.87	8.09	5	0.266	0.01 U	0.194		0.0078	3.1	2
6/4/2003 9:40	14.5	301100	102	11.61	7.97	8	0.23	0.015	0.133		0.011	6.7	2
7/9/2003 9:00	19.2	175900	107	9.79	8.32	7	0.16	0.01 U	0.056		0.0042	2.7	4
8/6/2003 10:05	21.2	137700	109	8.73	8.33	6	0.14	0.011	0.062		0.0062	2.5	1 U
9/10/2003 9:30	20 J	85000	124	8.62	8.15	4	0.202	0.013	0.096		0.0074	1.9	2 J

Conventional Data Report

Walla Walla R nr Touchet

32A070

Class: B
Rivermile: 15.3
Latitude: 46 02 16.0
Longitude: 118 45 55.0
Waterbody: WA-32-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/16/2002 9:20	8.6	51	279	10.5	7.9	6	0.59	0.01 U	0.453		0.0358	3.6	16 J
	Collected metals samples.												
11/14/2002 8:40	8.6	155	223	10.55	7.97	10	0.771	0.01 U	0.567		0.0723	3	10 J
12/18/2002 8:40	5.1	284	141	11.79	7.41	9 J	0.895	0.012	0.804		0.115	4.6	22
1/8/2003 8:30	4.4	566	117	12.22	7.77	20	0.928	0.017	0.784		0.0884	10	35 J
2/5/2003 8:40	4.9	2020	96	12.24	7.69	443	1.14	0.025	1		0.059	75	35
3/5/2003 8:10	6.6	857	147	11.59	7.79	82	1.15	0.01 U	1.06		0.0844	16	16 J
	Too windy for tapedown!												
4/9/2003 8:45	11.7	1360	106	10.2	7.65	107	0.785	0.01 U	0.667		0.0588	14	50
5/7/2003 8:20	10.6	877	118	10.35	7.9	29	0.347	0.01 U	0.235		0.03	5.9	52 J
6/4/2003 8:00	19.7	203	224	7.67	7.78	11	0.719	0.055	0.496		0.0551	4.8	100 J
7/9/2003 7:45	21.1	23	370	8.06	8.27	9	0.909	0.028	0.642		0.0717	4.6	40 J
	no BP reading taken												
8/6/2003 8:40	21.1	30 J	403	9.03	8.41	9	0.901	0.033	0.654		0.0924	3.7	110
9/10/2003 8:15	15.8 J	200	230	7.71	7.9	10	1.03	0.01	0.731		0.0928 J	3.5	780 J
	WINDY CONDITIONS MAKE STAGE HEIGHT ESTIMATED												

Conventional Data Report

Touchet R. @ Cummins Rd.

32B075

Class: A
Rivermile: 3
Latitude: 46 03 24.0
Longitude: 118 40 03.0
Waterbody: WA-32-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/16/2002 8:50	7.4	107	105	10.8	7.95	2	0.148	0.01 U	0.055		0.0355	1.7	56 J
11/14/2002 8:05	7.9	47.2	102	11.06	8.15	2	0.129	0.01 U	0.019		0.0463	2.1	11 J
	gauge height 2.08												
12/18/2002 8:00	3.7	76.7	87	12.51	7.72	5 J	0.342	0.01 U	0.272		0.0595	2.9	39 J
1/8/2003 7:50	3.2	152	82	12.82	7.66	15	0.502	0.012	0.402		0.0544	9	72 J
2/5/2003 7:50	4.3	728 J	78	12.75	7.45	525	1.08	0.038	0.889		0.0413	95	44 J
	staff gage submerged or missing. Flow estimated from logger data.												
3/5/2003 7:20	5.8	233	92	12.2 J	7.9	34	0.894	0.01 U	0.82		0.0634	11	28 J
4/9/2003 7:45	11.8	447	78	10.3	7.39	103	0.753	0.01 U	0.626		0.0456	15	16 J
	main gage under water, used secondary gage on bank												
5/7/2003 7:40	10.3	265	90	10.65	8.49	18	0.12	0.01 U	0.01 U		0.012	4.5	25 J
6/4/2003 7:20	18.7	87.5	110	8.28	7.9	13	0.328	0.035	0.079		0.0405	3.4	100 J
7/9/2003 7:00	20.5	8.13	140	7.34	8.2	3	0.325	0.017	0.184		0.0503	1.6	420 J
8/6/2003 7:45	21.3	10.7	135	6.59	7.78	5	0.503	0.025	0.185		0.0793	2.5	710 J
9/10/2003 7:30	15.3 J	37.9	123	8.62	7.9	6	0.278	0.01 U	0.024		0.0618 J	1.9	780 J

Conventional Data Report

Mill Cr @ Swegle Rd

32C070

Class: B
Rivermile: 0.4
Latitude: 46 02 32.0
Longitude: 118 28 12.0
Waterbody: WA-32-1060

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/16/2002 8:10	9.5	100	380	8.69	7.77	2	3.8	0.01 U	3.69		0.133	0.8	2100 J
Cattle immediately upstream w/ access. Probably haven't been there long.													
11/14/2002 7:25	10	140	261	8.93	8.32	1 U	3.79	0.01 U	3.61		0.336	0.5	20 J
12/18/2002 7:20	6.5	230	172	10.56	7.75	1 J	2.75	0.012	2.93		0.414	0.9	4 J
1/8/2003 7:10	4.9	280	130	12.02	7.79	3	1.59	0.01 U	1.48		0.19	2.6	6 J
Stream was braided, significant flow through channel N of main channel.													
2/5/2003 7:00	4.9	320	83	12.04 J	7.31	35	1.18	0.02	1		0.0765	17	18 J
Majority of flow (90%) in new channel to the North.													
3/5/2003 6:45	6.6	220	148	13.12 J	7.96	3	1.41	0.01 U	1.34		0.188	2.7	19 J
4/9/2003 7:00	9.6	408 J	81	10.5	7.37	6	0.685	0.01 U	0.558		0.0829	4.7	52 J
5/7/2003 7:00	7.4	310	95	11.16	7.49	11	0.473	0.01 U	0.369		0.0482	3.3	56 J
no BP recorded, extrapolated reading from Touchet													
6/4/2003 6:25	16.3	120	215	7.67	7.58	4	2.14	0.02	1.95		0.149	1.3	28 J
7/9/2003 6:30	19.2	84	374	5.4	7.52	3	1.46	0.015	1.38		0.0955	1.6	270 J
8/6/2003 7:00	20.5	77	371	3.75	7.38	2	0.19	0.012	0.012		0.125	0.6	300 J
numerous finger sized fish dead at sampling location													
9/10/2003 7:00	15.3 J	130	325	6.8	7.6	3	3.41	0.01 U	3.09		0.176 J	0.8	330 J

Conventional Data Report

Snake R nr Pasco

33A050

Class: A
Rivermile: 2.2
Latitude: 46 13 00.0
Longitude: 119 01 23.0
Waterbody: WA-33-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/16/2002 12:30	15.8	17900	199	9.1	8.02	2	0.377	0.024	0.232		0.0326	1.6	4
Collected metals samples. DOT crew replacing expansion joints about 20' from sample point.													
11/14/2002 11:55	10.5	13900	287	9.94	8.31	3	0.691	0.013	0.492		0.0502	2	10
12/18/2002 12:20	6.9	25000	325	11.17	8.02	2 J	0.764	0.016	0.617		0.0473	1.5	3
1/8/2003 11:25	5.8		301	11.21	8.08	9	0.71	0.01 U	0.595		0.0401	1.6	1
2/5/2003 12:00	5.1		288	12.14	7.92	6	0.957	0.01 U	0.87		0.0446	3.5	1
3/5/2003 11:30	5.2	31700	256	12	7.84	7	1.19	0.01 U	1.1		0.0508	6.8	1
Sampled at pier 200M SSE of Bridge due to high winds. Good spot if poor weather!													
4/9/2003 11:40	8.5	50200	136	11.21	8.01	8	0.59	0.014	0.531		0.0349	9.2	1 U
5/7/2003 11:45	10.9	89700	119	12.18	8.1	6	0.288	0.01 U	0.218		0.017	4.8	1 U
Bridge work in progress, spraying off gravel & dirt													
6/4/2003 11:45	13.2	146900	75	11.71 J	7.79	21	0.18	0.024	0.122		0.017	18	9
7/9/2003 10:15	18.9	38200	83	9.08	7.92	4	0.17	0.014	0.053		0.008	2.7	
8/6/2003 11:35	21.5	32100	97	9.03	7.75	7	0.273	0.028	0.129		0.019	3.6	1
9/10/2003 10:40	19.7 J	22300	133	8.02	8.03	5	0.271	0.029	0.117		0.016	2.5	1

Conventional Data Report

Palouse R @ Hooper

34A070

Class: B
Rivermile: 19.5
Latitude: 46 45 31.0
Longitude: 118 08 48.0
Waterbody: WA-34-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 12:05	8.2	62	343	12.1	8.78	6	0.695	0.017	0.427		0.015 J	4.1	16
11/13/2002 8:35	6.4	103	355	11.37	8.04	7	1.53	0.015	1.21		0.0088	3	11
12/17/2002 8:20	5.4	186	317	11.38	8.39	17 J	2.31	0.026	1.96		0.0656	5.7	40 J
1/7/2003 7:50	3.5	333	300	12.42	8.2	18	2.87	0.023	3.14		0.114	18	36 J
2/4/2003 7:30	3.7	2160	156	12.34	8.03	66	3.87	0.039	3.5		0.0905	70	65 J
3/4/2003 7:40	4	602	255	12.2	8.11	15	4.16	0.01 U	3.94		0.0964	14	13 J
4/8/2003 7:30	9.5	932	218	10.7	8.17	22	4.45	0.01 U	4.01		0.072	15	44 J
5/6/2003 8:30	11.8	531	234	10.35	9.22	6	1.8	0.01 U	1.52		0.0073	3.1	27 J
6/3/2003 7:50	19.1	336	272	8.38	8.4	29	1.34	0.01	1.04		0.0767	9.5	72 J
7/8/2003 7:50	21	45	310	7.34	8.27	13	0.834	0.03	0.614		0.0917	4.4	80 J
8/5/2003 8:25	22.9	20	331	8.02	9.02	22	0.416	0.01	0.022		0.0554	13	88 J
9/9/2003 8:10	15.1 J	34	328	8.32	8.43	26	0.65	0.022	0.358		0.0082	11	1200 J

Conventional Data Report

Palouse R @ Palouse

34A170

Class: A
Rivermile: 121.2
Latitude: 46 54 33.0
Longitude: 117 04 33.0
Waterbody: WA-34-1030

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 9:50	4.9	62	79	11.2	8.15	3	0.124	0.01 U	0.01 U		0.005 J	2.9	50
11/13/2002 11:30	4	106	65	11.57	8.38	1 U	0.12	0.01 U	0.01 U		0.011	3.1	12
12/17/2002 11:25	1.9	193	69	11.79	7.81	10 J	0.275	0.01 U	0.115		0.028	22	110
1/7/2003 11:10	0.2	333	65	12.72	7.44	4	0.503	0.01 U	0.359		0.023	20	88
2/4/2003 10:40	2.2	2100	55	12.04	7.21 J	23	1.27	0.029	1.11		0.044	30	100
3/4/2003 10:40	1.5	611	88	12.3	7.51	5	1.4	0.021	1.25		0.0336	17	10
4/8/2003 10:45	6.9	920	57	10.9	7.48	8	0.625	0.017	0.457		0.0243	12	13
5/6/2003 11:40	8.9	531	70	11.06	7.813	5	0.23	0.01 U	0.118		0.023	10	60
6/3/2003 11:15	17.4	330	65	10.2	8.55	8	0.17	0.01 U	0.01 U		0.02	8.1	84
7/8/2003 11:00	22.3	44	75	8.36	8.06	1	0.2	0.012	0.01 U		0.011	1.5	56
8/5/2003 12:05	23.3	19	95	9.44	8.92	2	0.372	0.014	0.01 U		0.012	1.6	160
9/9/2003 11:20	14.9 J	34	94	7.3	7.74	3	0.367	0.01 U	0.01 U		0.0053	3.3	1700 J

Conventional Data Report

SF Palouse R @ Pullman

34B110

Class: A
Rivermile: 22.2
Latitude: 46 43 57.0
Longitude: 117 10 48.0
Waterbody: WA-34-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 10:40	5.3	5.2	644	11.3	8.25	2	2.81	0.01 U	2.35		0.184	1.3	23
11/13/2002 12:25	6.8	8.33	537	11.16	8.06	1 U	3.44	0.026	2.94		0.0273	1.3	9
12/17/2002 12:10	3.7	14.8	331	11.28	7.93	4 J	2.62	0.026	1.56		0.169	20	830 J
1/7/2003 11:45	2.9	14.8	395	12.12	7.73	2	4.02	0.027	3.9		0.169	36	40
2/4/2003 11:30	2.9	78	252	12.04	7.76	18	9.65	0.055	9.15		0.164	75	130 J
3/4/2003 11:25	3	41.1	338	11.69	7.78	32	6.37	0.026	6.51		0.116	45	32
4/8/2003 11:30	8.3	46.2	279	11.01	7.96	13	6.59	0.012	6.26		0.0895	16	22
5/6/2003 12:20	9	28.6	334	12.69	8.6	5	3.27	0.01 U	3.22		0.067	8.2	59
6/3/2003 12:00	16.4	11.6	421	10	8.44	10	1.87	0.025	1.56		0.222	6.6	110
7/8/2003 11:40	19.2	1.4	517	6.53	7.9	13	1.61	0.173	0.83		0.465	8.3	9500 J
8/5/2003 12:45	19.2	2.01	448	7	8.06	9	1.04	0.038	0.568		0.439	3.7	720
9/9/2003 12:05	14.7 J	19.6	347	7.61	7.73	7	1.82	0.026	1.37		0.384	6.7	7200 J

Conventional Data Report

Snake R @ Interstate Br

35A150

Class: A
Rivermile: 139.6
Latitude: 46 25 15.0
Longitude: 117 02 05.0
Waterbody: WA-35-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 14:50	13.9	12900	353	10	8.29	2	0.772	0.01 U	0.628		0.0647	1.2	2
Center span of bridge freshly painted. Sampled from east side of piling.													
11/13/2002 13:30	8.6	13700	362	11.16	8.57	3	0.79	0.014	0.6		0.0375	1.5	1 U
12/17/2002 13:20	6.4	14000	330	11.58	8.34	3 J	0.853	0.017	0.743		0.0463	1.6	1 U
1/7/2003 13:00	4.6	16300	352	12.42	8.22	3	1.04	0.01 U	0.901		0.0477	2	2
2/4/2003 13:00	5.2	34800	295	12.14	8.31	11	1.11	0.013	0.975		0.0454	7	3
3/4/2003 12:30	4.8	20780	333	12.51	8.29	4	1.08	0.01 U	0.986		0.0516	2.4	1
4/8/2003 12:40	8.5	32900	237	11.41	8.38	9	0.784	0.036	0.578		0.0337	5.2	4
5/6/2003 13:45	10.6	39400	184	10.86	8.33	8	0.392	0.012	0.26		0.026	4.7	12
6/3/2003 13:20	13.3	111000	120	10.5	8.26	105 J	0.287	0.035	0.146		0.023	30	48
River running high and dirty													
7/8/2003 12:55	20.7	22800	149	8.57	8.23	3	0.252	0.01 U	0.124		0.019	1.5	5 J
8/5/2003 15:10	22.2	20000	192	8.02	8.25	9	0.473	0.023	0.285		0.042	5.2	5
9/9/2003 13:35	20 J	19400	275	8.32	8.31	7	0.463	0.01 U	0.274		0.056	3.2	25

Conventional Data Report

Tucannon R @ Powers

35B060

Class: A
Rivermile: 2.3
Latitude: 46 32 16.0
Longitude: 118 09 16.0
Waterbody: WA-35-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 13:05	10.7	74	146	12.2	8.64	2	0.145	0.01 U	0.098		0.0399 J	0.6	25
11/13/2002 9:35	9.6	90	139	11.26	8.28	3	0.267	0.01 U	0.174		0.0497	1	14
12/17/2002 9:25	6.3	103	131	11.69	8.1	9 J	0.426	0.01 U	0.32		0.0568	2.5	15
1/7/2003 9:00	5.3	128	143	12.12	8.1	7	0.403	0.01 U	0.338		0.0495	2.7	28
2/4/2003 8:40	5	433	89	12.44	7.8	98	0.647	0.018	0.527		0.0538	32	28 J
3/4/2003 8:45	6.1	166	132	12	8.01	6	0.434	0.01 U	0.371		0.0539	2.8	25
3/21/2003 8:55		381	99		8.16							19.8	
4/8/2003 8:35	8.6	260	100	11.31	7.93	16	0.37	0.01 U	0.282		0.0418	5.3	42
4/9/2003 8:20		238										6.42	
5/2/2003 8:50		249	104		8.05							3.4	
5/6/2003 9:35	9.2	244	100	11.77	8.19	7	0.083	0.01 U	0.01 U		0.025	2.5	13
6/3/2003 9:00	13.6	199	93	10.4	8.2	16	0.16	0.01 U	0.078		0.034	3.5	83
7/8/2003 8:50	18.2	73	139	9.48	8.23	7	0.23	0.01 U	0.143		0.0429	1.6	110
8/5/2003 9:45	20.1	62	156	9.54	8.4	4	0.23	0.01 U	0.103		0.0424	1.2	140
9/9/2003 9:25	14.7 J	82	141	10.05	8.17	13	0.377	0.01 U	0.269		0.0509	4	850 J

Conventional Data Report

Tucannon R @ Smith Hollow

35B090

Class: A
Rivermile: 7.9
Latitude: 46 30 17.0
Longitude: 118 03 50.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 9:35			90		7.63							19.2	
4/9/2003 8:35												5.91	
5/2/2003 9:05			93		8.03							3.4	

Conventional Data Report

Tucannon R @ Territorial Road

35B100

Class: A
Rivermile: 12.5
Latitude: 46 29 58.0
Longitude: 117 58 39.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 9:50			76		7.58							11.3	
	Split Turb: 11.2												
4/9/2003 9:00												3.41	
5/2/2003 9:25			74		7.91							2.2	

Conventional Data Report

Tucannon R @ Brines Road

35B120

Class: A
Rivermile: 17.5
Latitude: 46 27 56.0
Longitude: 117 53 49.0
Waterbody:

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
3/21/2003 11:00			75		7.61							8.81	
4/9/2003 10:05												2.64	
	Splits:2.66, 3.02												
5/2/2003 10:35			73		7.98							3.4	
	Turb split: 2.3												

Conventional Data Report

Tucannon R nr Marengo

35B150

Class: A
Rivermile: 24.8
Latitude: 46 26 25.0
Longitude: 117 44 56.0
Waterbody: WA-35-2010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 10:40		385	73		7.57							5.46	
4/9/2003 9:50		236										2.75	
5/2/2003 10:20		249	74		8.4							2.7	

Conventional Data Report

Pataha Cr near mouth

35F050

Class: A
Rivermile: 1.1
Latitude: 46 30 44.0
Longitude: 117 58 18.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 9:20		6.25 J	140		7.75							58.4	
4/9/2003 8:50												25.7	
5/2/2003 9:15			168		8.33							9.9	

Conventional Data Report

Pataha Cr @ Archer Rd

35F070

Class: A
Rivermile: 6.1
Latitude: 46 32 43.0
Longitude: 117 53 29.0
Waterbody: WA-35-2013

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 10:00			138		7.72							60.1	
4/9/2003 9:10												27.9	
5/2/2003 9:40			168		8.27							8.4	

Conventional Data Report

Pataha Cr @ Tatman Road

35F095

Class: A
Rivermile: 18.3
Latitude: 46 27 43.0
Longitude: 117 41 19.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/21/2003 10:20			137		7.85							43.4	
Actually collected at Marengo road just downstream. In future will collect at Tatman.													
4/9/2003 9:33												26.3	
5/2/2003 9:55			152		8.34							11.2	

Conventional Data Report

Columbia R nr Vernita

36A070

Class: A
Rivermile: 405
Latitude: 46 38 30.0
Longitude: 119 43 50.0
Waterbody: WA-CR-1030

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/9/2002 11:45	17	23900	123	9.6	8.12	1 U	0.121	0.01 U	0.076		0.0052	0.9	6
Barometer needle hanging on face.													
11/6/2002 10:30	12.1	64100	127	10.3	8.03	1 U	0.144	0.01 U	0.091		0.0058	0.7	1 U
12/4/2002 14:15	9	20300	125	10.6	8.1	1	0.158	0.01 U	0.113		0.006	0.8	1 U
1/8/2003 11:30	5.8	15400	132	12	7.99	1 U	0.19	0.01 U	0.15		0.0043	0.5	1
2/5/2003 11:00	5		130	12.6	8.07	1 U	0.2	0.01 U	0.162		0.003 U	0.7	1 U
Temp. of pH sample = 8.7 C as indicated by pH meter.													
3/5/2003 11:35	5	91100	138	13.1	8.23	11	0.17	0.01 U	0.153		0.0041	0.7	1 U
4/9/2003 11:20	7.1	93000	126	13	8.27	2	0.24	0.01 U	0.189		0.003 U	1.5	1 UJ
pH measured @ 10.4 C.													
5/7/2003 11:25	9.6	147000	132	13.7	8.25	3	0.19	0.01 U	0.141		0.003 U	1.7	1 U
6/4/2003 11:17	13.2	133000	121	12.69	8.1	2	0.14	0.01 U	0.084		0.0031	1.9	3
7/9/2003 11:35	17.5	169000	176	11.26	8.15	3	0.083	0.01 U	0.038		0.003 U	1.3	1 U
pH measured at 18.6 C.													
8/6/2003 11:18	20.1	87400	127	10.45	8.09	2	0.13	0.012	0.043		0.0036	0.7	6
pH measured @ 20.4C. Pressure indicated is pressure at road level approx. 75 ft. above water surface.													
9/10/2003 10:30	19.4	47700	130	9.13	8.08	2	0.15	0.016	0.073		0.0057	0.5 U	2

Conventional Data Report

Yakima R @ Kiona

37A090

Class: A
Rivermile: 29.8
Latitude: 46 15 11.0
Longitude: 119 28 27.0
Waterbody: WA-37-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/9/2002 13:19	16	1660	265	12.1	8.63	4	1.4	0.015	1.17		0.0986	2.4	100
Barometer needle hanging on face. pH meter recalibrated and sample remeasured after initial reading of 8.65.													
11/6/2002 11:45	4.6	1810	262	15.3	8.63	3	1.44	0.01 U	1.27		0.0872	2	3 U
12/4/2002 15:30	4.3	3340	251	13.2	8.25	7	1.71	0.043	1.56		0.123	3.9	23
1/8/2003 12:50	4.2	3670	215	12.9	8.03	26	1.27	0.032	1.07		0.106	14	38
2/5/2003 12:15	4.7	10500	145	12.5	7.93	89	0.8	0.044	0.615		0.0761	37	44
Temp. of pH sample = 7.4 C as indicated by pH meter.													
3/5/2003 12:55	7.8	3240	202	11.7	8.18	14	1.04	0.014	0.953		0.0797	5.7	8
4/9/2003 12:40	12.1	3820	146	12.1	8.5	14	0.464	0.01 U	0.355		0.0454	5	4
pH measured @ 13.2 C.													
5/7/2003 13:21	13.6	3590	157	12.48	8.66	12	0.493	0.01 U	0.368		0.0522	5.1	15
pH meter was recalibrated and sample rechecked after initial reading was 8.70.													
6/4/2003 12:29	17.4	4490	131	9.74	8.01	48	0.595	0.032	0.49		0.0461	18	31
Gage hight recorded was 5.93 however the staff was 5.90.													
7/9/2003 12:47	24	1150	345	11.06	8.71	10	0.975	0.024	0.88		0.0687	3.6	9 J
pH measured at 22.5 C. pH meter calibration checked.													
8/6/2003 12:32	22.8	2140	252	10.55	8.5	13	1.19	0.019	1		0.119	5.1	18
pH measured @ 22.2C.													
9/10/2003 11:52	18.5	2350	274	10.65	8.49	8	1.28	0.01 U	1.14		0.105	2.4	29
Large number of macrophytes rooted in streambed and being carried dowmstream.													

Conventional Data Report

Yakima R @ Nob Hill

37A205

Class: A
Rivermile: 111.3
Latitude: 46 34 54.0
Longitude: 120 27 38.0
Waterbody: WA-37-1040

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/9/2002 15:20	15	2180	98	11.3	8.79	6	0.181	0.01 U	0.106		0.027	3.8	19
pH meter recalibrated and sampled remeasured with a result of 8.79 after the same initial reading. Barometer needle rubbing on face.													
11/6/2002 13:10	4.9	1360	137	14.5	8.58	3	0.377	0.01 U	0.297		0.0377	2	10
12/4/2002 16:40	3.6	1300	127	13.4	8.14	2	0.383	0.01 U	0.316		0.0318	1.4	13
1/8/2003 14:10	4.2	1980	145	13.3	8.15	5	0.521	0.023	0.424		0.041	3.1	6
2/5/2003 14:20	3.6	6000	103	13.1	7.76	16	0.461	0.015	0.357		0.025	8.6	3
Temp. of pH sample = 5.6 C as indicated by pH meter.													
3/5/2003 14:25	5.8	2400	124	12.9	8.27	4	0.327	0.01 U	0.271		0.024	2.5	5
4/9/2003 14:12	10.4	3480	91	12.4	8.51	6	0.094	0.01 U	0.036		0.013	4.3	5
5/7/2003 14:55	9.5	3910	96	12.79	8.73	6	0.11	0.01 U	0.059		0.021	3.5	7
pH meter was recalibrated and sample rechecked after initial reading was 8.82													
6/4/2003 13:52	13.6	5450	78	10.65	7.87	21	0.16	0.011	0.092		0.019	8.2	16
7/9/2003 14:26	18	3410 J	118	11.37	8.86	8	0.21	0.01 U	0.11		0.021	3.8	14
Temperature was variable + or - 0.3 C. pH measured at 18.7 C.													
8/6/2003 14:21	19.7	3770	88	9.94	8.32	10	0.23	0.01	0.128		0.019	3.1	150
pH measured @ 21.2C.													
9/10/2003 13:50	15.6	2420	96	10.76	8.43	10	0.17	0.01 U	0.097		0.027	5	29

Conventional Data Report

Yakima R nr Cle Elum

39A090

Class: AA
Rivermile: 191
Latitude: 47 11 09.0
Longitude: 121 02 36.0
Waterbody: WA-39-1060

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/9/2002 8:35	11.9	322	53	9.5	7.44	1 U	0.027	0.01 U	0.01 U		0.0043	1	6
Barometer needle rubbing on face card.													
11/6/2002 7:30	5.1	289	53	11.4	7.27	1	0.043	0.01 U	0.01		0.0038	0.9	1 UJ
12/4/2002 10:50	3.5	274	52	12.6	7.44	1	0.049	0.01 U	0.024		0.005	0.8	4
Snowing with slush and water running off roads and bridges													
1/8/2003 8:25	3.3	290	58	12	7.62	1 U	0.093	0.01 U	0.068		0.0041	0.7	1 J
2/5/2003 8:25	2.2	1080	59	12.5	7.56	6	0.12	0.01 U	0.073		0.0064	4.6	1
Temp. of pH sample = 4.7 C as indicated by pH meter.													
3/5/2003 7:48	3.9	470	65	11.8	7.77	1	0.06	0.01 U	0.047		0.0082	1	2 J
4/9/2003 7:32	5.5	709	58	11.2	7.66	1	0.032	0.01 U	0.01 U		0.0035	1.2	1 J
pH measured @ 6.9 C.													
5/7/2003 8:10	9.6	421	63	11.77	7.76	2	0.025 U	0.01 U	0.01 U		0.0037	1	16 J
6/4/2003 8:10	8.5	598	58	10.76	7.38	3	0.034	0.01 U	0.01 U		0.003 U	1.7	8 J
7/9/2003 7:59	12.5	566	79	9.44	7.39	3	0.052	0.01 U	0.01 U		0.0036	1.3	23 J
pH measured at 13.7 C.													
8/6/2003 8:10	16	562	50	8.93	7.38	6	0.056	0.01 U	0.01 U		0.003 U	1.8	25 J
pH measured @ 16.6C.													
9/10/2003 6:50	14.5	360	57	8.93	7.41	2	0.037	0.01 U	0.01 U		0.0035 J	0.6	6 J

Conventional Data Report

Crab Cr nr Beverly

41A070

Class: B
Rivermile: 6
Latitude: 46 49 53.0
Longitude: 119 48 54.0
Waterbody: WA-41-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/9/2002 10:32	14.1	269	479	9.8	8.39	5	1.61	0.012	1.34		0.018	3.7	17
Barometer needle hanging on face.													
11/6/2002 9:25	3.7	156	752	12.4	8.39	7	3.2	0.012	2.84		0.0352	4.9	48 J
12/4/2002 13:18	4.5	182	774	13.2	8.46	7	2.92	0.023	2.62		0.0547	4.1	17
1/8/2003 10:20	4.1	189	853	12.2	8.43	9	3.58	0.019	2.88		0.0787	5.4	8
2/5/2003 10:07	5.2	212	847	11.7	8.44	16	3.21	0.023	2.81		0.0661	7.8	12
Temp. of pH sample = 8.8 C as indicated by pH meter.													
3/5/2003 9:59	6.8	170	817	12	8.52	19	3.08	0.01 U	3.3		0.047	9.4	11
4/9/2003 9:45	12.5	260	576	9.6	8.44	72	2.13	0.01 U	1.79		0.023	18	37 J
5/7/2003 10:05	12.6	281	527	9.64	8.29	41	1.32	0.01 U	1.07		0.014	13	16
USGS and the Bureau of Reclamation were taking samples at the site. The agencies are performing an in-depth study of pesticides and including field parameters and sediment.													
6/4/2003 10:15	19.5	153	540	8.32	8.4	80	1.48	0.022	1.3		0.026	25	93
7/9/2003 10:00	18.9	106	799	9.13	8.56	80	1.97	0.016	1.68		0.014	28	84 J
Conductivity meter calibration checked and found to be within limits (100.8/100.3). pH measured at 18.7 C. pH meter calibration checked. DO logger (Levelogger) retreived while visiting site on ambient run. Two additional DO samples taken at the site 2													
8/6/2003 10:20	21.3	202	501	8.12	8.35	112	1.6	0.01 U	1.32		0.019	38	230
pH measured @ 21.4C.													
9/10/2003 8:59	15.5	268	523	9.03	8.36	32	1.71	0.01 U	1.55		0.016 J	7.2	92 J

Conventional Data Report

Lind Coulee @ Hwy 17

41J070

Class: A
Rivermile:
Latitude: 47 00 33.0
Longitude: 119 08 11.0
Waterbody: WA-41-3500

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/13/2002 11:10	10.1		334	11.3	8.14	5	2.34	0.01 U	2.19		0.0317	1.8	59
	Windy: stage height +/- 0.2 ft.												
11/14/2002 13:45	10.9		486	14.41	8.86	2	4.45	0.01 U	4.33		0.0566	1.2	5
12/18/2002 14:35	7.6		552	12	8.17	2 J	4.99	0.02	4.82		0.0762	1.3	12
1/8/2003 13:05	7.1		536	12.02	8.39	3	4.87	0.01 U	5.25		0.0721	1.6	4
2/5/2003 13:45	8.8		502	14.38 J	8.69	2	5.25	0.01 U	4.91		0.0585	1.4	2
3/5/2003 13:00	8.6		582	12.81	8.43	14	5.05	0.01 U	5.48		0.0662	5.1	12
	too windy for tapedown												
4/9/2003 13:30	10.9		183	10.9	8.15	80	0.775	0.018	0.684		0.019	20	81
5/5/2003 12:55	12.2		212	11.37	8.39	69	1.01	0.01 U	0.873		0.023	5.5	32
6/2/2003 13:25	17.2		298	11.71	8.72	42	1.92	0.016	1.82		0.0399	5.3	94
7/7/2003 12:50	18.5		296	10.81	8.38	27	1.75	0.01 U	1.6		0.0349	5.8	120 J
8/4/2003 13:00	19.2		292	12.28	8.3	43	1.89	0.013	1.81		0.0396	8.9	360
9/8/2003 13:00	16.3 J		302	9.23	8.2	18	3.15	0.01 U	2.36		0.0375	2.4	3600 J

Conventional Data Report

Crab Cr @ Irby

43A070

Class: B
Rivermile: 111.5
Latitude: 47 21 38.0
Longitude: 118 50 57.0
Waterbody: WA-43-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 12:00		50	409		8.3							22.5	
4/8/2003 11:10		75										29.9	
5/1/2003 11:40		46	433		8.23							21.9	

Conventional Data Report

Crab Creek @ Odessa

43A080

Class: B
Rivermile: 121.7
Latitude: 47 20 00.0
Longitude: 118 41 10.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 12:30		50 J	370		8.43							41.8	
4/8/2003 11:30		75 J										58.5	
5/1/2003 12:00		46 J	392		8.73							37	

Sampled further upstream near lake outlet: Turb 37.5, ph 8.1, cond 398. Turb split: 39.1

Conventional Data Report

Crab Creek @ Amnen Road

43A095

Class: B
Rivermile: 131.9
Latitude: 47 18 38.0
Longitude: 118 29 09.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 13:01			367		8.24							34.5	
4/8/2003 12:00												10.7	
5/1/2003 12:40			377		8.65							3	

Conventional Data Report

Crab Ck @ Marcelus Road

43A100

Class: B
Rivermile: 137.7
Latitude: 47 18 10.7
Longitude: 118 22 04.7
Waterbody: WA-43-4000

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
4/8/2003 12:30												2.35	
	Several fishermen upstream												
5/1/2003 13:10			370		8.73							1.7	

Conventional Data Report

Crab Creek at Tokio Road

43A110

Class: B
Rivermile: 145.7
Latitude: 47 18 01.0
Longitude: 118 15 01.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 14:50			362		8.36							6.13	
4/8/2003 14:15												5.41	
	Split Turb: 4.86												
5/1/2003 15:00			367		8.85							2	

Conventional Data Report

Crab Creek @ US23

43A130

Class: B
Rivermile: 157.3
Latitude: 47 21 37.0
Longitude: 118 06 25.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 14:25			345		8.22							3.06	
4/8/2003 13:50												3.86	
5/1/2003 14:40			347		8.7							2.2	

Conventional Data Report

Crab Ck @ Bluestem Road

43A150

Class: B
Rivermile: 171.5
Latitude: 47 30 08.6
Longitude: 118 02 13.6
Waterbody: WA-43-4000

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
3/20/2003 13:50			345		8.34							8.18	
4/8/2003 13:15												4.33	
5/1/2003 14:05			342		8.83							3.3	

Conventional Data Report

Goose Creek nr Wilbur

43C070

Class: B
Rivermile:
Latitude: 47 45 29.0
Longitude: 118 44 03.0
Waterbody: WA-43-2030

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
11/12/2002 10:10	7.5		331	6.09	7.74	3	3.06	0.092	2.75		0.0828	0.8	32
12/16/2002 10:10	7.7		279	7.48	7.58	9 J	2.45	0.032	1.55		0.136	4.1	51
1/6/2003 10:30	6.7		314	8.98	7.71	4	2.5	0.01 U	2.77		0.0609	1.5	16
Sampled in duplicate in coordination with Wilbur schools. No QAE-3 entered, however. Data in ResultsAddQC table under "Goose Creek"													
2/3/2003 10:15	6.7		374	8.87	7.92	4	2.75	0.119	2.48		0.113	1.6	2 J
3/3/2003 10:05	5.7		367	10.07	7.73	4	2	0.018	1.97		0.0576	1.5	2
4/7/2003 10:25	7.9		359	10.3	7.29	2	1.99	0.015	1.66		0.0416	1.9	3
5/5/2003 9:45	10.2		394	10.25	7.58	11	1.74	0.025	1.51		0.0686	4.3	22
6/2/2003 10:00	13.7		366	11.51	8.21	6	1.7	0.029	1.48		0.0332	3.1	270 J

Conventional Data Report

Wenatchee R @ Wenatchee

45A070

Class: A
Rivermile: 1.1
Latitude: 47 27 32.0
Longitude: 120 20 07.0
Waterbody: WA-45-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 14:31	14.5	486	79	12.2	8.96	6	0.273	0.01 U	0.202		0.0074 J	0.7	6
pH meter was recalibrated and sample reread after an initial pH of 9.09.													
11/4/2002 12:50	1	405	113	16	8.48	1	0.382	0.01 U	0.323		0.013	0.5 U	2
Ice chunks on river. Very little current visible. River may be backed up by high water in the Columbia River approximately 1 mile downstream.													
12/2/2002 12:45	3.6	754	72	14.8	8.05	2	0.227	0.01 U	0.192		0.0087	0.5 U	7
1/6/2003 14:50	4	996	78	15.8	8.1	2	0.22	0.01 U	0.154		0.0068	1	16
Barometric pressure measured at bridge level approximately 75' above water level.													
2/3/2003 15:30	6.2	4120	54	13.2	8	10	0.14	0.01 U	0.09		0.0043	2	1 U
3/3/2003 14:20	6.1	1410	78	13.6	8.04	3	0.183	0.01 U	0.136		0.0051	0.7	1 U
4/7/2003 15:45	8.3	3280	60	13.2	8.56	6	0.096	0.01 U	0.052	0.0043	0.003 U	2	3
pH measured @ 10.8 C.													
5/5/2003 14:40	11.2	5280	48	12.69	8.13 J	6	0.091	0.01 U	0.055	0.0032	0.0031	1.4	1
Temperature varied from 11.1 to 11.7 while thermister was deployed. Temperature variation is typical for this site. pH reading "J" as meter battery may have been low.													
6/2/2003 14:39	11.6 J	10700	31	11.87	7.64	12	0.087	0.01 U	0.052	0.0046	0.0032	2.9	2
Temperature reading was erratic and variable. Temperature recorded was mid-range of the variation. Temperature variation while monitoring at this site is common.													
7/7/2003 16:47	18.3	3350	50	10.05	8.04	3	0.096	0.01 U	0.048	0.0045	0.0035	1	4
Barometric pressure was not recorded. pH measured at 20.5 C.													
8/4/2003 14:30	21.3	996	62	10.35	8.5	2	0.19	0.01 U	0.122	0.005	0.0035	0.8	8
pH sampled @ 22.2C. River moving very slowly. Rafters and swimmers in river above and below sampling site. Pressure recorded is from barometer located approximately 75ft. Above water surface.													
9/8/2003 15:45	18.4	458	92	11.47	8.97	2	0.335	0.01 U	0.255	0.0073	0.0034	0.5 U	21
Temperature fluctuated between 18.4 and 19.1. Temperature fluctuations are typical for this site.													

Conventional Data Report

Wenatchee R nr Leavenworth

45A110

Class: AA
Rivermile: 35.6
Latitude: 47 40 35.0
Longitude: 120 43 58.0
Waterbody: WA-45-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 10:01	11	345	40	10.3	7.48	2	0.025 U	0.01 U	0.01 U		0.003 U	0.5	2
11/4/2002 9:12	0.1	162	48	13.4	7.01	1	0.039	0.01 U	0.01 U		0.003 U	0.5 U	6
12/2/2002 8:25	3.5	471	37	12.3	7.27	1 U	0.051	0.01 U	0.028		0.0034	0.5 U	1 UJ
1/6/2003 10:03	2.7	565	38	12.9	6.83	6	0.082	0.01 U	0.047		0.003 U	0.6	1
2/3/2003 10:30	3.5	2430	32	12.5	7.22	4	0.1	0.01 U	0.063		0.003	1.1	3
3/3/2003 10:10	2.6	785	38	12.8	6.89	2	0.059	0.01 U	0.043		0.0033	0.6	2
4/7/2003 11:01	5	2060	35	12.5	7.06	2	0.079	0.01 U	0.045	0.0022	0.003 U	0.6	1 U
	pH measured @ 7.7C												
5/5/2003 10:35	6.7	3640	34	12.08	6.95	3	0.077	0.01 U	0.055	0.0028	0.003 U	0.8	1 U
6/2/2003 10:32	7.6	7360	24	11.67	7.74	9	0.074	0.01 U	0.052	0.0028	0.0031	2.1	2
7/7/2003 11:50	14.2	2490	43	10.15	7.74	3	0.035	0.01 U	0.015	0.0049	0.0035	2	1
	Dead battery in sampling van delayed sampling approximately 2 hours beyond normal. pH was measured at 17.1 C.												
8/4/2003 10:05	16.5	792	34	9.84	7.13	2	0.055	0.01 U	0.01 U	0.0018	0.003 U	0.7	6
9/8/2003 11:05	15.7	425	35	9.64	7.47	1	0.041	0.01 U	0.01 U	0.0021	0.003 U	0.5 U	9

Conventional Data Report

Chumstick Cr. nr mouth

45C060

Class: A
Rivermile: 0.2
Latitude: 47 36 18.0
Longitude: 120 38 51.0
Waterbody: WA-45-1200

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
1/6/2003 11:40	4		267	12.9	8	1 U	0.421	0.01 U	0.329		0.021	1	18
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. The creek was sampled approximately 200' u/s from its confluence with the Wenatchee River. The old site was approximately 1/4 mile up-stream an												
2/3/2003 12:15	3.5		234	12.8	8.16	8	0.361	0.01 U	0.218		0.026	3.2	15
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. Sample was taken approximately 200' u/s of mouth. Samples were taken by individually dipping bottles. No barometric pressure recorded.												
3/3/2003 11:35	3.7		286	12.8	8.09	4	0.471	0.01 U	0.379		0.018	1.9	4
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. Sampled by hand because of shallow water.												
4/7/2003 12:35	6.6		298	12	8.26	10	0.421	0.01 U	0.311	0.0302	0.019	4.6	4
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. pH measured @ 8.3 C. Sampled by hand dipping individual bottles. This sample was taken approximately 200' upstream from the mouth and approxi												
5/5/2003 12:12	8.1		316	11.87	8.34	6	0.289	0.01 U	0.214	0.0291	0.021	3	3
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. Hand sampled with individual containers and sampling pole. Site was approx. 200' u/s of mouth and not at the regular site u/s of the culvert a												
6/2/2003 12:22	11.6		285	10.55	8.24	6	0.326	0.01 U	0.252	0.0319	0.024	3	54
	No flow available. No RP or staff gage established. Automated gage approximqtely 1/4 mile u/s out of service. Because of shallow water samples were pulled by hand.												
7/7/2003 13:15	12.9		422	9.74	7.87	1	0.586	0.01 U	0.511	0.0291	0.026	1.2	45
	Tape-down was from a newly established RP at the top of culvert just upstream of sampling site. [NOTE: New staff installed later downstream with bubbler station. This RP obsolete and will not be used.] Samples were taken by hand-held DO sampler and bottl												
8/4/2003 11:12	13.5	2.79	238	9.54	7.54	13	0.792	0.01 U	0.72	0.0232	0.019	5	580 J
	New staff gage installed and new ECY/SHU bubbler gage installed. Sampled with hand held bottles.												
9/8/2003 12:06	12.3	2.57	235	9.34	7.58	12	0.935	0.01 U	0.894	0.0229	0.019	4.2	310
	Hand dipped all sample bottles individually. Hand-held DO sampler used.												

Conventional Data Report

Chumstick Cr nr Leavenworth

45C070

Class: A
Rivermile: 0.2
Latitude: 47 36 26.0
Longitude: 120 38 46.0
Waterbody: WA-45-1200

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 11:10	10.8		287	8.6	7.51	1	1.37	0.01 U	1.25		0.02	0.5 U	5
Beaver dam just downstream of the site. Water backed up to sampling point under bridge. Staff guage not recorded.													
11/4/2002 10:34	5.6		324	9.19	7.44	1 U	1.4	0.01 U	1.3		0.018	0.5 U	15
This sample was taken from a beaver pond backed up under the bridge at the site. No reading of the staff gage at this location was attempted.													
12/2/2002 9:20	6.4		315	10.1	7.58	1	0.919	0.01 U	0.887		0.018	0.5 U	2
No stage height taken. Water at the sampling site was backed up by a beaver dam just downstream.													

Conventional Data Report

Brender Cr nr Cashmere

45D070

Class: A
Rivermile: 0.1
Latitude: 47 31 17.0
Longitude: 120 28 32.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 12:40	12.9	1.28	455	8	7.88	2	3.46	0.01 U	3.24		0.026	1.6	88
Sample was taken downstream of culvert crossing under Sunset Highway. This is the site of a staff gauge and will be the common sampling site.													
11/4/2002 11:40	4.9	1.41	535	9.69	7.79	12	4.06	0.017	3.98		0.027	9	47
Because of shallow water site was sampled using a pole at the staff gage d/s of the culvert under Sunset Hwy.													
12/2/2002 11:12	6.6	1.23	550	9.19	7.78	12	3.87	0.01 U	3.83		0.0322	4.5	92
1/6/2003 13:35	7.3	1.28	551	9.1	7.78	4	4.73	0.012	3.79		0.0419	1.8	35
Creek too shallow for stainless steel sampler. All bottles hand held and filled by dipping.													
2/3/2003 13:15	8.1	1.51	563	9.19	7.83	3	3.56	0.01 U	3.67 J		0.0405	1.6	80
Low water. Sampled by individually dipping bottles. Temperature of sample when pH was recorded was 10.2 C as indicated on pH meter.													
3/3/2003 12:45	8.9		520	10.5	7.81	7	3.79	0.013	3.7		0.026	3.5	84
No flow measurment recorded due to acute cerebral stenosis. Sampled by hand because of shallow water.													
4/7/2003 14:15	10.8	1.6	464	12.2	7.95	4	2.9	0.01 U	2.74	0.0381	0.022	1.5	79 J
ph measured @ 12.3 C. Water shallow, sampled by hand dipping individual bottles.													
5/5/2003 13:25	11.1	4.49	290	10.76	7.84	5	1.35	0.01 U	1.26	0.0284	0.021	3.3	78
Site was hand sampled with individual bottles. Stainless steel bulk sampler was not used.													
6/2/2003 13:05	13.6	4.06	228	9.94	7.75	9	1.2	0.011	1.17	0.0332	0.026	3.9	180
Because of shallow water samples were pulled by hand.													
7/7/2003 14:48	16.8	1.55	489	8.12	7.74	2	1.77	0.011	1.67	0.0385	0.0315	1.3	200
Samples were taken by hand-held DO sampler and bottles. pH measured at 18.0°C.													
8/4/2003 12:59	16.9	1.74	325	8.42	7.71	6	1.67	0.01 U	1.55	0.0391	0.023	2.2	640
pH measured @ 18.3C. Sampled with hand held bottles.													
9/8/2003 13:21	15	2.19	333	8.12	7.7	3	2.37	0.01 U	2.04	0.0315	0.025	1.2	400
Hand dipped all sample bottles individually. Hand-held DO sampler used.													

Conventional Data Report

Mission Cr nr Cashmere

45E070

Class: A
Rivermile: 0.2
Latitude: 47 31 17.0
Longitude: 120 28 29.0
Waterbody: WA-45-1011

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 13:10	13.2	0.59	294	10.5	8.68	1 U	1.16	0.01 U	1.05		0.007	0.8	150
	Because of low water level all samples were dipped by hand except the sampling bucket was used to collect DO. Samples were collected approximately 30 meters up-stream of bridge. pH meter was checked against standard and found to be within acceptable lim												
11/4/2002 12:01	0	1.14 J	352	13.8	8.24	2	1.11	0.01 U	1		0.0046	0.6	84
	No tape down recorded. ECY/SHU bubbler gage established at this site. Creek had ice over much of its surface. Sampling was done using a pole to dip bottles through a hole in the ice. Flow estimated from logger data.												
12/2/2002 11:55	2.7	1.89 J	309	13.3	8.38	1 U	0.878	0.01 U	0.847		0.0051	0.5 U	10
	No tape down recorded. ECY/SHU bubbler gage established at this site. Flow estimated from logger data.												
1/6/2003 14:00	3.4	21.1 J	241	13.2	8.26	3	0.267	0.01 U	0.209		0.0046	2.2	12
	No tape down recorded. ECY/SHU bubbler gage established at this site. Creek too shallow for stainless steel sampling bucket. All bottles filled using hand held sampling rod. Flow estimated from logger data.												
2/3/2003 13:45	4.5	135 J	224	12.8	8.37	286 J	0.22	0.01 U	0.126		0.0095	21	3
	No tape down recorded. ECY/SHU bubbler gage established at this site. Low water. Sample bottles individually dipped. Water temp. of pH sample = 7.9 C as indicated by the pH meter. Flow estimated from logger data.												
3/3/2003 13:05	4.8	27.6 J	289	12.6	8.37	8	0.483	0.01 U	0.429		0.0059	2	8
	No tape down recorded. ECY/SHU bubbler gage established at this site. Sampled by hand because of shallow water. Flow estimated from logger data.												
4/7/2003 14:55	8.5	32.4 J	243	11.9	8.39	18	0.329	0.01 U	0.262	0.0073	0.0038	3.3	1 U
	No tape down recorded. ECY/SHU bubbler gage established at this site. pH measured @ 10.0 C. Water was shallow and bottles were hand dipped individually. Flow estimated from logger data.												
5/5/2003 13:45	8	30.5 J	218	12.18	8.56 J	11	0.2	0.01 U	0.145	0.0071	0.0044	3.4	1
	No tape down recorded. ECY/SHU bubbler gage established at this site. Site was hand sampled with individual bottles. Stainless steel bulk sampler was not used. pH reading "J" as meter battery may have been low. Flow estimated from logger data.												
6/2/2003 13:39	11.6	30.8 J	174	11.37	8.4	10	0.21	0.01 U	0.165	0.0104	0.0078	3.7	23
	No tape down recorded. ECY/SHU bubbler gage established at this site. Because of shallow water samples were pulled by hand. Flow estimated from logger data.												
7/7/2003 15:22	17.6	6.97 J	323	9.54	8.46	5	0.642	0.017	0.56	0.0135	0.012	1.9	120 J
	Stage measurement was made using established RP for tape-down. Chelan CD has developed a rating curve for this site. A permanent Ecology bubbler is also instaled at this site. Samples were taken using hand-held DO sampler and bottles. pH was measured a												
8/4/2003 13:25	20	0.11 J	132	9.34	8.25	1 U	0.275	0.01 U	0.197	0.0088	0.0067	0.8	2100 J
	Tapedown unavailable due to low water level. Sampled with hand held bottles. Flow estimated from logger data.												
9/8/2003 14:12	16	0.57	127	9.74	8.43	1 U	0.383	0.01 U	0.328	0.0081	0.0065	0.8	4400
	Hand dipped sample bottles individually. Hand-held DO sampler used. Flow estimated from logger data.												

Conventional Data Report

Eagle Cr. nr mouth

45Q060

Class: A
Rivermile: 0.2
Latitude: 47 37 35.0
Longitude: 120 38 22.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
1/6/2003 10:55	2.3		428	13.6	8.4	1 U	0.12	0.01 U	0.055		0.015	0.6	1
No RP established. This was the first time there was measurable water in Eagle Creek in Water Year 2003.													
2/3/2003 11:20	2.9		337	12.5	8.23	1	0.254	0.01 U	0.112		0.027	1	1
No RP established. Shallow water. Site sampled by hand dipping sample bottles. Temperature of pH sample = 4.5 C as indicated by the pH meter.													
3/3/2003 11:02	2.8		395	12.8	8.08	2	0.246	0.01 U	0.165		0.014	1.1	1
No RP established. Sampled by hand because of shallow water.													
4/7/2003 11:45	6.8		416	11.8	8.36	6	0.28	0.01 U	0.181	0.0215	0.013	2.2	1
No RP established. pH measured @ 8.8C													
5/5/2003 11:30	8.6		452	11.67	8.29	7	0.19	0.01 U	0.104	0.0219	0.016	2.6	270 J
No RP established.													
6/2/2003 11:40	12.5		443	11.16	8.49	2	0.16	0.01 U	0.077	0.0234	0.018	1.3	23
No RP established. Because of shallow water samples were pulled by hand.													
7/7/2003 12:50	16.1	0.91	650	11.16	8.48	1	0.21	0.01 U	0.116	0.0267	0.023	0.5	140
Conductivity meter calibration was checked and found to be within acceptable limits (100.8/101.3). Tape-down was from RP established and rated by Chelan CD. Site was sampled by hand-held DO sampler and bottles. pH measured at 17.1 C.													

Conventional Data Report

Noname Creek nr Cashmere

45R050

Class: A
Rivermile: 0.01
Latitude: 47 31 17.0
Longitude: 120 28 34.0
Waterbody:

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/7/2002 12:15	13.4		467	8.4	7.77	1	3.73	0.022	3.52		0.033	0.7	740 J
Water too shallow for sampler. All samples hand dipped.													
11/4/2002 11:19	8		525	9.4	7.74	4	4.11	0.14	3.75		0.0438	2.6	2800 J
Sample bottles were dipped using a pole because the water was too shallow for the sampling bucket.													
12/2/2002 10:48	9.4		519	9.19	7.76	6	3.35	0.071	3.2		0.0358	3.5	1300
1/6/2003 13:10	9.2		540	8.6	7.6	5	3.81	0.079	3.49		0.0412	3.2	970 J
Creek was to shallow for the sampler to submerge. All bottles were filled directly using hand held sampling rod.													
2/3/2003 13:05	9.1		576	8.3	7.52	7	4.01	0.054	4.1		0.0473	4	290
Low water. Samples taken by individually dipping bottles.													
3/3/2003 12:20	9.6		567	9.4	7.59	7	5.74	0.055	4.44		0.0442	4.6	150
Sampled by hand because of shallow water.													
4/7/2003 13:50	11.7		552	9.6	7.68	3	3.82	0.02	3.8	0.0577	0.0368	1.8	290 J
pH measured @ 13.2C. Water shallow, sampled by hand dipping individual bottles.													
5/5/2003 13:10	12		298	10.35	7.62	16	1.48	0.01 U	1.5	0.0361	0.021	5.6	160
Site was hand sampled with individual bottles and a sampling pole.													
6/2/2003 13:05	13.6		299	9.34	7.56	4	1.78	0.019	1.74	0.0373	0.027	2.4	450
Because of shallow water samples were pulled by hand.													
7/7/2003 14:31	17.1		499	8.52	7.6	2	1.92	0.017	1.91	0.0349	0.027	1.9	570
Samples were taken using a pole to hold bottles. DO bottle was a direct fill from the stream. pH recorded at 18.9													
8/4/2003 12:35	17	1.75	273	9.54	7.6	2	1.28	0.01	1.34	0.0311	0.024	1.4	470
Sampled using extendable pole to hold bottles. pH measured @19.2C.													
9/8/2003 12:55	15.3	1.73	229	9.03	7.63	3	1.27	0.01 U	1.22	0.0278	0.023	1.6	360
Hand dipped all sample bottles individually.													

Conventional Data Report

Entiat R nr Entiat

46A070

Class: A
Rivermile: 1.5
Latitude: 47 39 48.0
Longitude: 120 14 58.0
Waterbody: WA-46-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002 15:00	12.3	92	105	11.1	8.39	1	0.181	0.01 U	0.141		0.0049	0.6	3
Barometer needle rubbing on face card.													
11/5/2002 15:35	3.2	102	115	13.5	8.02	2	0.21	0.01 U	0.161		0.0059	0.6	4
12/3/2002 14:55	3.3	92	110	13.5	8.17	1	0.161	0.01 U	0.132		0.0045	0.5 U	1
1/7/2003 15:25	3.2	92	118	13.7	8.09	2	0.22	0.01 U	0.187		0.0046	0.5 U	1 U
2/4/2003 16:00	2.9	191	180	13.5	8.02	1	0.18	0.01 U	0.121		0.0056	0.5	1 U
Temp. of pH sample = 8.3 C as indicated by pH meter.													
3/4/2003 16:10	6.7	141	109	12.3	8.53	2	0.18	0.01 U	0.14		0.0078	0.5	1 U
4/8/2003 16:04	11	300	98	11.9	9.01	3	0.073	0.01 U	0.026		0.0052	0.8	1 U
pH measured @ 13.7 C.													
5/6/2003 14:55	8.4	764	65	12.38	8.4	5	0.035	0.01 U	0.011		0.0054	1.6	1
6/3/2003 16:55	9.8	1860	34	11.37	7.45	15	0.043	0.01 U	0.017		0.004	3	4
7/8/2003 16:40	16.2	574	70	9.94	8.25	4	0.06	0.01 U	0.023		0.0042	0.9	1
pH measured at 17.1 C.													
8/5/2003 14:32	18.4	200	76	9.74	8.34	2	0.13	0.01 U	0.066		0.0037	0.6	6
pH measured @ 19.1C.													
9/9/2003 15:20	15.6	108	98	10.86	9.18	1	0.17	0.01 U	0.107		0.0035	0.5 U	13

Conventional Data Report

Methow R nr Pateros

48A070

Class: A
Rivermile: 5
Latitude: 48 04 29.0
Longitude: 119 57 20.0
Waterbody: WA-48-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002 13:35	12.3	301	180	10.8	8.44	1 U	0.303	0.01 U	0.247		0.0035	0.7	2
Barometer needle rubbing on face card.													
11/5/2002 13:35	2.3	267	182	14	8.3	1 U	0.307	0.01 U	0.268		0.0041	0.7	1
12/3/2002 13:27	3.3	267	180	13.6	8.4	1	0.28	0.01 U	0.265		0.003 U	0.5 U	1
1/7/2003 14:01	2.7	290	179	14	8.48	1 U	0.256	0.01 U	0.232		0.0033	0.5 U	1 U
2/4/2003 14:51	2.2	271	181	14.2	8.35	1	0.257 J	0.01 U	0.227		0.003 U	0.5 U	1 U
Temp. of pH sample = 7.0 C as indicated by pH meter.													
3/4/2003 13:26	5.8	271	164	12.8	8.41	3	0.262	0.01 U	0.222		0.005	0.8	1 U
4/8/2003 14:25	10.2	736	153	11.3	8.3	5	0.19	0.01 U	0.148		0.0041	1.4	1 U
pHmeasured @ 13.4 C.													
5/6/2003 13:30	9.4	2410	114	11.67	8.35	5	0.1	0.01 U	0.041		0.0043	1.9	4
6/3/2003 15:23	9.8	6740	61	11.37	7.71	17 J	0.084	0.01 U	0.03		0.003 U	6	6
7/8/2003 14:55	18.2	1330	165	9.74	8.37	1 U	0.094	0.01 U	0.071		0.0032	0.5 U	1
pH measured at 19.2													
8/5/2003 13:13	19.7	433	168	9.34	8.38	1 U	0.22	0.01 U	0.157		0.0032	0.5 U	1 U
9/9/2003 13:39	15.5	245	191	10.25	8.43	1 U	0.326	0.01 U	0.274		0.003 U	0.5 U	3

Conventional Data Report

Methow R @ Twisp

48A140

Class: A
Rivermile: 39.4
Latitude: 48 21 34.0
Longitude: 120 06 47.0
Waterbody: WA-48-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002 12:40	10.7	290	147	11	8.21	1	0.23	0.01 U	0.196		0.0036	0.7	1
Barometer needle rubbing on face card. "J" result.													
11/5/2002 12:15	3.5	237	146	13.1	8.14	1 U	0.233	0.01 U	0.201		0.0039	0.5 U	1 U
Bridge construction ongoing at this site. Sample was taken from the u/s side of the bridge.													
12/3/2002 12:25	3.9	228	145	12.6	8.24	1	0.219	0.01 U	0.208		0.0035	0.5 U	3
1/7/2003 12:35	3.3	211	147	13.4	8.2	1	0.2	0.01 U	0.184		0.003 U	0.5 U	2
2/4/2003 13:20	2.8	220	145	13.8	8.46	1 U	0.22	0.01 U	0.164		0.003 U	0.5 U	1 U
Temp. of pH sample = 5.8 C as indicated by pH meter.													
3/4/2003 12:30	5.1	220	134	12.9	8.21	1	0.19	0.01 U	0.16		0.0052	0.5	1
4/8/2003 12:57	8.5	658	133	11.7	8.18	2	0.17	0.01 U	0.127		0.004	0.8	1 U
pH measured @ 11.9 C													
5/6/2003 12:25	6.4	2240	103	12.28	8.02	3	0.094	0.01 U	0.057		0.0039	1.6	1
Bridge work has resumed on the bridge over the Methow River at Twisp after being stopped for the winter.													
6/3/2003 14:06	8.4	6330	57	11.37	7.67	11	0.082	0.01 U	0.028		0.003 U	3.8	5
Bridge construction ongoing at this site. Sample was take from upstream side of the bridge.													
7/8/2003 13:45	14.2	1220	142	10.45	8.17	1 U	0.083	0.01 U	0.065		0.0033	0.5 U	8
pH measured at 16.2 C. Highway bridge over the Methow River at Twisp was under construction.													
8/5/2003 12:08	16.7	376	142	10.05	8.23	1	0.22	0.01 U	0.176		0.003	0.5 U	9
pH measured @ 18.9. Bridge constuction at Twisp nearing completion. Cleanup and deconstruction of scaffolding to be completed within a few days of time of sampling.													
9/9/2003 12:45	13.5	211	161	10.55	8.31	1 U	0.312	0.01 U	0.269		0.0032	0.5 U	9

Conventional Data Report

Okanogan R @ Malott

49A070

Class: A
Rivermile: 17
Latitude: 48 16 50.0
Longitude: 119 42 12.0
Waterbody: WA-49-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002 11:24	13.8	775	297	9.69	8.31	4	0.131	0.01 U	0.014		0.0056	1.6	22
11/5/2002 11:01	2	715	315	13.1	8.27	3	0.197	0.01 U	0.052		0.0058	0.8	2
12/3/2002 11:10	2.7	801	289	12.9	8.19	3	0.202	0.01 U	0.099		0.0047	1	5
1/7/2003 11:20	3	758	309	12.8	8.16	4	0.23	0.01 U	0.139		0.0089	2.6	9
2/4/2003 12:15	2.4	993	243	13.3	8.19	3	0.18	0.01 U	0.07		0.0066	1.9	2
Temp. of pH sample = 5.7 C as indicated by pH meter.													
3/4/2003 11:35	4.5	649	275	12.5	8.35	3	0.12	0.01 U	0.024		0.0061	1.1	1
4/8/2003 11:30	9.2	1360	195	11.2	8.12	9	0.12	0.01 U	0.021		0.0064	3.9	4
pH measured @ 11.8 C.													
5/6/2003 11:15	10.7	4720	143	10.65	8.07	50	0.11	0.01 U	0.017		0.0064	15	62
River appeared turbid.													
6/3/2003 12:55	12.4	9800	85	10.76	7.81	78 J	0.12	0.01 U	0.012		0.0047	22	73
7/8/2003 12:10	22.1	1610	269	8.73	8.33	4	0.092	0.01 U	0.01 U		0.0046	1.6	27
pH measured at 22.2 C.													
8/5/2003 10:45	22.7	465	311	8.32	8.31	2	0.12	0.01 U	0.01 U		0.0052	1.2	15
pH measured @ 22.4C.													
9/9/2003 11:12	17.5	378	349	8.42	8.34	2	0.17	0.01 U	0.026		0.007	1.2	170

Conventional Data Report

Okanogan R @ Oroville

49A190

Class: A
Rivermile: 78
Latitude: 48 56 21.0
Longitude: 119 25 32.0
Waterbody: WA-49-1040

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002 10:15	16	364	278	9	8.52	6	0.212	0.01 U	0.01 U		0.003 U	2.8	9
11/5/2002 8:45	8.6	441	285	9.4	8.31	5	0.208	0.01 U	0.01 U		0.0038	1.7	12 J
12/3/2002 9:40	5.9	326	291	10.19	8.2	6	0.207	0.01 U	0.01 U		0.0033	1.5	1 U
1/7/2003 9:48	2.9	254	299	11.8	8.23	2	0.23	0.01 U	0.045		0.003 U	0.7	1 U
2/4/2003 10:20	2.6	210	299	12.9	8.32	4	0.24	0.01 U	0.043		0.0032	1.3	1 U
Temp. of pH sample = 3.8 C as indicated by pH meter.													
3/4/2003 9:45	3.9	133	272	12.9	8.4	3	0.17	0.01 U	0.01 U		0.0044	1.5	1 U
4/8/2003 10:10	8.3	119	306	11.5	8.42	6	0.16	0.01 U	0.01 U		0.003 U	3.9	1 UJ
pH measured @ 10.2 C.													
5/6/2003 9:45	13.1	1250	316	10.76	8.58	9	0.18	0.01 U	0.01 U		0.003	2.9	2
6/3/2003 11:31	18.8	825	302	9.94	8.65	9	0.18	0.01 U	0.01 U		0.003 U	4.2	4
7/8/2003 10:29	20.4	280	443	8.32	8.54	9	0.177	0.01 U	0.01 U		0.003 U	4.1	8
pH measured at 21.5 C.													
8/5/2003 8:30	22.9	159	263	8.42	8.54	3	0.2	0.01 U	0.01 U		0.003 U	2	9 J
pH measured @ 22.2C.													
9/9/2003 9:21	20.6	290	295	8.12	8.59	6	0.2	0.01 U	0.01 U		0.003 U	2.4	15

Conventional Data Report

Similkameen R @ Oroville

49B070

Class: A
Rivermile: 5
Latitude: 48 56 05.0
Longitude: 119 26 27.0
Waterbody: WA-49-1030

Date/Time		Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/8/2002	9:30	13.3	374	202	10.19	8.29	2	0.053	0.01 U	0.01 U		0.0037	1.1	6
11/5/2002	8:15	0.9	216	224	14.2	7.95	1	0.083	0.01 U	0.047		0.0049	0.5 U	1 UJ
12/3/2002	8:30	1.8	926	213	13.9	8.18	1 U	0.094	0.01 U	0.062		0.0035	0.5 U	2
		Metals sample taken at this site and a QAC (field blank) for both Dissolved and Total Recoverable metals suites.												
1/7/2003	9:15	3.3	926	224	13.4	8.12	2	0.086	0.01 U	0.044		0.0043	1	1
2/4/2003	9:25	3.4	723	178	13.6	8.09	3	0.084	0.01 U	0.01 U		0.003 U	1.4	1 U
		Temp. of pH sample = 7.8 C as indicated by the pH meter.												
3/4/2003	9:05	4.3	392	213	12.9	8.11	1	0.043	0.01 U	0.01 U		0.0055	0.7	1 U
4/8/2003	9:10	7.5	1110	166	12.4	8.04	3	0.064	0.01 U	0.01 U		0.0033	1.8	9 J
		pH measured @ 9.8 C.												
5/6/2003	9:15	9.3	4410	119	12.18	7.79	21	0.082	0.01 U	0.01 U		0.0057	8.5	10
		EAP/SHU (Howard Christensen) performing flow monitoring at the time of sampling. River appeared turbid.												
6/3/2003	10:20	10.3	12100	78	12.58	7.81	70 J	0.088	0.01 U	0.01 U		0.0036	15	16
7/8/2003	8:31	19.5	1570	211	9.34	8.21	3	0.15	0.01 U	0.01 U		0.0031	1.9	27
		pH measured at 19.8 C.												
8/5/2003	8:02	20.7	325	186	9.23	8.33	1	0.071	0.01 U	0.01 U		0.0032	0.7	1 J
		pH measured at 20.5C.												
9/9/2003	8:40	18.6	189	235	9.13	8.25	1	0.089	0.01 U	0.014		0.0031	0.5	2

Conventional Data Report

Columbia R @ Grand Coulee

53A070

Class: A
Rivermile: 596
Latitude: 47 57 56.0
Longitude: 118 58 51.0
Waterbody: WA-CR-1050

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/13/2002 13:15	17.1	66800	125	8.3	8.2	1 U	0.112	0.01 U	0.068		0.0049	0.5 U	1 U
11/12/2002 11:10	13	116600	104	9.23	7.88	1	0.147	0.01 U	0.088		0.0045	0.6	2
12/16/2002 11:20	5.3	115700	110	10.56	7.79	1 U	0.17	0.01 U	0.112		0.0048	0.8	1 U
1/6/2003 11:30	5.8		123	11.01	7.87	1 U	0.17	0.01 U	0.13		0.0037	0.7	1 U
2/3/2003 11:15	4.5		124	11.93	7.83	1 U	0.19	0.01 U	0.152		0.0031	0.7	1 UJ
3/3/2003 11:15	3.6	113800	158	12.41	7.98	2	0.218	0.01 U	0.191		0.0032	0.7	1 U
4/7/2003 11:20	4.5	117600	126	12.42	7.97	1 U	0.21	0.01 U	0.165		0.003 U	0.9	1 U
5/5/2003 10:40	7.4	205000	137	11.97	7.99	1	0.18	0.015	0.114		0.003 U	1.1	1 U
6/2/2003 11:05	10.8	209300	136	11.11	8.19	2	0.13	0.015	0.072		0.003 U	0.8	1
7/7/2003 9:50	16.4	185000	124	10	8.24	1 U	0.13	0.014	0.034		0.003 U	0.6	1 U
8/4/2003 10:35	18.4	135100	124	8.73	7.99	1 U	0.13	0.01 U	0.052		0.0034	0.5 U	1
9/8/2003 10:50	18.6 J	132400	117	7.81	7.98	1 U	0.125	0.01 U	0.05		0.003 U	0.5 U	310 J

Conventional Data Report

Spokane R @ Riverside State Pk

54A120

Class: A
Rivermile: 66
Latitude: 47 41 48.0
Longitude: 117 29 48.0
Waterbody: WA-54-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 7:55	10.4	2370	139	9.8	8.15	2	0.8	0.01 U	0.732		0.0057	0.7	110 J
11/12/2002 7:45	8	1850	158	10.25	8.21	2	0.971	0.09	0.772		0.0391	1.3	28 J
12/16/2002 7:50	7.5	2470	143	10.46	7.93	3	0.917	0.017	0.814		0.0637	1.9	890 J
1/6/2003 8:20	5.7	3640	101	11.71	7.85	3	0.798	0.01 U	0.718		0.0372	5	7 J
2/3/2003 7:45	4.8	14900	56	13.97	7.69	13	0.482	0.01 U	0.412		0.017	8	14 J
3/3/2003 7:05	4.7	5490	94	12.2	7.86	1	0.558	0.01 U	0.488		0.019	1.3	10 J
4/7/2003 7:50	5.4	14000	66	13.03	7.83	2	0.329	0.01 U	0.267		0.0039	1.9	7 J
5/5/2003 7:15	9.1	9910	78	11.87	7.75	2	0.284	0.01 U	0.221		0.005	1.8	6 J
6/2/2003 7:45	15	7980	79	10.2	8.03	2	0.275	0.01 U	0.211		0.0042	1.4	29 J
7/7/2003 6:50	15	1270	223	9.08	8.22	1	1.11	0.01 U	1.09		0.012	0.6	24 J
8/4/2003 7:40	13.4	645	271	9.13	8.2	2	1.61	0.013	1.52		0.025	1.1	1700 J
9/8/2003 7:40	13.7 J	553	283	8.93	8.14	4	3.23	0.037	2.63		0.0324	2	1300 J

Conventional Data Report

Little Spokane R nr Mouth

55B070

Class: A
Rivermile: 1.1
Latitude: 47 46 59.0
Longitude: 117 31 46.0
Waterbody: WA-55-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/15/2002 7:15	7.8	392	284	9.4	7.81	2	1.47	0.01 U	1.41		0.0098	0.7	28 J
11/12/2002 7:05	6.9	479	258	9.54	7.77	5	1.47	0.01 U	1.27		0.014	1.3	85 J
12/16/2002 7:10	7.3	567	257	9.64	8.04	12	1.4	0.019	1.18		0.025	4.7	130 J
1/6/2003 7:20	5.4	713	218	10.6	7.99	13	1.24	0.01	1.06		0.024	6.1	19 J
2/3/2003 7:05	4.5	954	183	10.61	7.69	17	0.981	0.01 U	0.839		0.03	10	32 J
3/3/2003 6:30	5.6	603	220	10.37	7.78	12	1.17	0.01 U	1.07		0.012	3.7	23 J
4/7/2003 7:10	7.3	919	177	10.1	7.9	14	0.891	0.01 U	0.717		0.013	5.4	8 J
5/5/2003 6:35	10.8	704	221	8.93	7.92	12	0.968	0.01 U	0.853		0.016	3.8	45 J
6/2/2003 7:05	13.4	514	256	7.97 J	8.1	8	1.07	0.01	0.93		0.015	2.5	120 J
7/7/2003 6:15	13.6	394	285	10	8.21	5	1.14	0.01 U	1.11		0.0082	1.4	45 J
8/4/2003 6:50	12.9	360	284	8.22	8.14	2	1.37	0.01 U	1.32		0.0078	0.9	460 J
9/8/2003 7:00	12.9 J	360	264	7.91	8.21	4	1.34	0.01 U	1.29		0.0061	1.1	220 J

Conventional Data Report

Hangman Cr @ Mouth

56A070

Class: A
Rivermile: 0.6
Latitude: 47 39 17.0
Longitude: 117 27 12.0
Waterbody: WA-56-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/13/2002 15:30	8.4	14	357	14.8		2	1.08	0.01 U	0.874		0.013	0.7	3
	Did not record pH.												
11/12/2002 8:35	3.9	26	317	11.47	7.9	3	0.8	0.01 U	0.603		0.014	0.8	25
12/16/2002 8:30	5.3	45	299	10.97	8.02	7	0.859	0.015	0.669		0.024	5.4	33
1/6/2003 8:55	3	193	189	12.12	7.76	9	4.97	0.037	4.68		0.057	70	58
2/3/2003 8:30	3.9	778	135	11.83	7.54	47	5.28	0.028	4.84		0.0879	85	86 J
3/3/2003 7:50	1.8	158	203	12.51	7.85	5	3.78	0.01	3.75		0.048	16	11
4/7/2003 8:35	5.6	240	181	11.41	8	7	3.91	0.01 U	3.52		0.0435	14	7 J
5/5/2003 7:55	10.9	137	226	9.74	7.99	7	1.8	0.021	1.47		0.017	10	27 J
6/2/2003 8:25	16.5	58	277	8.78	8.23	7	0.672	0.016	0.376		0.012	2.4	97 J
7/7/2003 7:35	17.3	8.2	383	6.93	8.13	10	0.835	0.034	0.597		0.014	3.1	170 J
8/4/2003 8:10	16.9	6.2	408	7.1	8.11	4	1.45	0.034	1.2		0.02	2.2	2800 J
9/8/2003 8:20	15.9 J	6.8	348	5.68	8.1	7	1.59	0.115	1.08		0.024	5.6	800 GJ

Conventional Data Report

Spokane R @ Stateline Br

57A150

Class: A
Rivermile: 96.35
Latitude: 47 41 55.0
Longitude: 117 02 37.0
Waterbody: WA-57-1010

Date/Time	Temp	Flow	Conduc-tivity	Oxygen	ph	Suspend. Solids	Total Pers. N.	Ammonia Nitrogen	Nitrate+ Nitrite	Total Phosp.	Soluble Reactive P	Turbid-ity	Fecal Coliforms
	deg. C	CFS	umhos/cm	mg/L	std units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/14/2002 15:00	13.1	1880	45	10.1	8.27	2	0.112	0.01 U	0.045		0.0032	0.8	2
	Collected metals samples.												
11/11/2002 15:55	7.6	1200	45	11.06	8.46	2	0.215	0.018	0.112		0.0039	0.8	6
12/15/2002 7:20	6.3	1880	75	10.66	6.81 J	1	0.198	0.027	0.095		0.0083	2.7	5 J
1/5/2003 7:45	5.1	3260	69	11.11	6.55	1	0.15	0.012	0.06		0.0047	3.2	1 J
2/2/2003 7:25	4.5	12900	51	12.55	7.47	5	0.11	0.01 U	0.057		0.004	2	2
3/2/2003 7:05	3.8	5390	53	11.9	7.54	2	0.172	0.01 U	0.07		0.0048	0.9	2 J
4/6/2003 7:15	4.4	14700	50	12.52	7	2	0.15	0.01 U	0.081		0.003 U	1.8	2 J
5/4/2003 7:20	8.7	9880	47	11.16	6.99	2	0.095	0.012	0.028		0.003 U	2.1	4 J
6/1/2003 6:45	15.6	8250	51	9.69	6.94	3	0.081	0.01 U	0.013		0.003 U	1.4	22 J
7/6/2003 6:40	20.2	600	57	7.85	6.7	2	0.2	0.026	0.081		0.0034	1	17
8/3/2003 7:40	24.2		61	6.9	7.17	2	0.354	0.026	0.198		0.0044	0.7	31
9/7/2003 7:30	21.2 J	85	67	7.51	7.21	2	0.452	0.063	0.241		0.003 U	0.9	150 J

Conventional Data Report

Kettle R nr Barstow

60A070

Class: AA
Rivermile: 10.9
Latitude: 48 47 05.0
Longitude: 118 07 27.0
Waterbody: WA-60-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/14/2002	12:20 7.2	213	218	11.7	8.27	1	0.135	0.017	0.059		0.003 U	0.5 U	1 U
11/11/2002	13:00 3	233	217	13.09	7.93	17 J	0.311	0.01 U	0.227		0.0051	0.6	2
12/15/2002	14:35 3.2	334	185	13.33	8.26	4	0.26	0.01 U	0.172		0.006	4.7	2
1/5/2003	14:40 1.4	395	186	14.14	8	1 U	0.303	0.01 U	0.195		0.003 U	0.5 U	1
2/2/2003	14:45 3	483	171	13.67	8.14	3	0.18	0.01 U	0.101		0.003 U	0.8	1 U
3/2/2003	13:50 2.4	494	169	13.32	8.02	3	0.225	0.01 U	0.137		0.0035	0.6	1
4/6/2003	14:20 6.6	2894	102	12.62	8.21	5	0.12	0.01 U	0.012		0.003 U	1.9	9
5/4/2003	13:45 8.2	9614	68	12.08	7.83	15	0.13	0.01 U	0.017		0.0047	2.8	10
6/1/2003	13:55 9.7	18126	41	12.32	7.87	54 J	0.11	0.01 U	0.01 U		0.0032	8.6	27
7/6/2003	13:20 19.4	2131	110	9.28	8.22	3	0.12	0.01 U	0.042		0.0038	0.8	3
8/3/2003	14:15 21.5	347	198	8.83	8.56	2	0.2	0.01 U	0.03		0.0037	0.5	12
9/7/2003	13:55 18.5 J	119	232	9.84	8.69	2	0.18	0.01 U	0.027		0.0033	0.5	8

Conventional Data Report

Columbia R @ Northport

61A070

Class: AA
Rivermile: 735.1
Latitude: 48 55 21.0
Longitude: 117 46 32.0
Waterbody: WA-CR-1060

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/14/2002 10:50	12.6	76900	122	9.8	8.27	2	0.101	0.012	0.047		0.003 U	0.9	26
	Collected metals samples												
11/11/2002 11:30	7.8	94100	113	10.86	8.39	1	0.138	0.01 U	0.087		0.003 U	0.8	5
12/15/2002 12:55	5.6	106000	126	11.48	7.6	1	0.166	0.01 U	0.111		0.003 U	1	3
1/5/2003 13:00	4.2	72300	148	11.91	7.63	1 U	0.21	0.01 U	0.13		0.003 U	1	1
2/2/2003 13:05	3.2	52600	147	12.44	7.84	1 U	0.17	0.01 U	0.108		0.003 U	0.7	1 UJ
3/2/2003 12:35	3.5	56700	128	12.51	7.86	2	0.15	0.01 U	0.108		0.003 U	0.9	2
4/6/2003 13:05	5.6	72600	132	12.42	7.64	4	0.13	0.01 U	0.079		0.003 U	1.5	1
5/4/2003 12:30	8.8	96600	122	12.18	8.12	3	0.096	0.01 U	0.064		0.003 U	1.4	4
6/1/2003 12:35	12.5	136000	125	12.32	8.05	6	0.11	0.01 U	0.043		0.003 U	2	5
7/6/2003 11:45	16.6	101000	131	10.1	8.27	2	0.1	0.01 U	0.031		0.003 U	0.9	4
8/3/2003 13:00	19.9	108000	135	9.54	8.47	2	0.099	0.01 U	0.018		0.003 U	0.9	44
9/7/2003 12:50	18.4 J	75500	118	9.13	8.38	1	0.13	0.012	0.024		0.003 U	0.6	8

Conventional Data Report

Pend Oreille R @ Metaline Falls

62A090

Class: A
Rivermile: 27
Latitude: 48 51 54.0
Longitude: 117 22 20.0
Waterbody: WA-62-1010

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/14/2002 8:25	11.8	14200	149	9.8	8.38	2	0.068	0.01 U	0.01 U		0.003 U	0.9	1 J
11/11/2002 9:15	5.2	15200	144	11.47	7.93	1	0.092	0.01 U	0.01 U		0.0033	1.2	1 UJ
12/15/2002 10:25	4.1	18600	161	11.69	7.91	1 U	0.082	0.01 U	0.01 U		0.003 U	1.5	1
1/5/2003 10:45	2.4	13100	168	12.32	7.37	2	0.12	0.01 U	0.014		0.003 U	1.7	1
2/2/2003 10:35	2.3	17400	158 J	12.34	7.92	2	0.096	0.01 U	0.021		0.003 U	1.8	1 UJ
3/2/2003 10:15	2.7	14800	162	12.81	7.93	2	0.085	0.01 U	0.012		0.003	1.5	1 U
4/6/2003 10:25	6	31900	130	12.12	8.1	4	0.073	0.01 U	0.012		0.003 U	3	1
5/4/2003 10:15	10.4	32400	128	10.86	8.14	4	0.075	0.01 U	0.01 U		0.003 U	2.6	1 U
6/1/2003 9:55	14.3	57900	142	11.41	8	6	0.071	0.01 U	0.01 U		0.003 U	3.1	7
7/6/2003 9:35	20.2	20000	142	8.87	8.3	3	0.096	0.01 U	0.01 U		0.0031	2	1 U
8/3/2003 10:50	24.3	13000	152	8.22	8.67	2	0.14	0.01 U	0.01 U		0.0036	1.1	2
9/7/2003 10:35	20.6 J	8000	148	8.52	8.46	2	0.13	0.01 U	0.01 U		0.003 U	1.1	1

Conventional Data Report

Pend Oreille R @ Newport

62A150

Class: A
Rivermile: 88.2
Latitude: 48 11 07.0
Longitude: 117 02 02.0
Waterbody: WA-62-1020

Date/Time	Temp deg. C	Flow CFS	Conduc-tivity umhos/cm	Oxygen mg/L	ph std units	Suspend. Solids mg/L	Total Pers. N. mg/L	Ammonia Nitrogen mg/L	Nitrate+ Nitrite mg/L	Total Phosp. mg/L	Soluble Reactive P mg/L	Turbid-ity NTU	Fecal Coliforms #/100/mL
10/14/2002 6:45	12.2	13800 J	138	9.6	8.43	2	0.057	0.01 U	0.01 U		0.003 U	1.4	1 J
11/11/2002 7:30	6.4	12300 J	154	10.86	7.89	1	0.121	0.01 U	0.01 U		0.003 U	3.3	1 UJ
12/15/2002 8:50	4.8	16600 J	170	11.48	7.69	2	0.085	0.013	0.01 U		0.0035	3.9	1 J
1/5/2003 9:00	3.2	9000 J	166	11.71	7.12	2	0.079	0.01 U	0.027		0.003 U	2.6	1 U
2/2/2003 8:55	3.2	13800 J	164	12.24	7.8	2	0.12	0.01 U	0.036		0.003 U	2.4	1 UJ
3/2/2003 8:30	2.3	11100 J	147	12.81	7.82	2	0.082	0.01 U	0.022		0.0031	1.5	1 U
4/6/2003 8:50	5	25500 J	137	11.91	7.79	3	0.094	0.01 U	0.03		0.003 U	2.1	1
5/4/2003 8:40	9.3	30800 J	131	10.76	7.93	4	0.067	0.01 U	0.01 U		0.003 U	2.1	1
6/1/2003 8:15	13.5	56800 J	151	10.6	8.06	5	0.074	0.01 U	0.01 U		0.003 U	3.1	16 J
7/6/2003 7:55	18.9	21900 J	147	9.08	7.93	2	0.1	0.014	0.01 U		0.0035	1.6	1 U
8/3/2003 9:00	24.5	12000 J	151	8.52	8.41	1 U	0.13	0.01 U	0.01 U		0.003 U	1	1
9/7/2003 8:55	20.3 J	7100 J	147	8.42	8.35	1	0.11	0.01 U	0.01 U		0.003 U	1	2

Metals

Metals Data Report

Skykomish R @ Monroe

07C070

Class: A
Rivermile: 25.6
Latitude: 47 51 08.0
Longitude: 121 57 28.8
Waterbody: WA-07-1160

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/21/2002	10:40		17.2	0.1 U	0.1 U	0.5 U	0.25 U	0.5	0.28	0.16	0.02 U	0.002 U	0.22	0.71	8.2	1 U
12/9/2002	10:15		15.6	0.1 U	0.02 U	0.5 U	0.32	0.68	0.56	0.12	0.029	0.0021	0.26	0.45	5 U	1.4
2/25/2003	10:05		13.4	0.1 U	0.1 U	0.5 U	0.25 U	0.68	0.5	0.1 U	0.025	0.004 U	0.24	0.45	5 U	1 U
4/22/2003	10:50		13	0.1 U	0.02 U	0.5 U	0.25 U	1.02	0.46	0.16	0.02 U	0.004 U	0.24	0.44	5 U	1 U
6/17/2003	10:30		9.78	0.1 U	0.02 U	0.5 U	0.25 U	0.53 J	0.51	0.1 U	0.02 U	0.002 U	0.2	0.51	5 U	1.1
8/19/2003	10:15		17.5	0.1 U	0.02 U	0.5 U	0.56	0.91	0.47	0.1 U	0.02 U	0.002 U	0.2	0.65	5 U	1.1

Metals Data Report

Cedar R @ Logan St/Renton

08C070

Class: A
Rivermile: 1
Latitude: 47 29 09.0
Longitude: 122 12 28.0
Waterbody: WA-08-1143

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/23/2002	11:00		30.3	0.1 U	0.1 U	0.5 U	0.25 U	0.54	0.33	0.21	0.02 U	0.002 U	0.18	0.55	5 U	1 U
12/11/2002	11:10		30.3	0.1 U	0.02 U	0.63	0.44	0.85	0.39	0.44	0.049	0.0022	0.26	0.64	5 U	1.5
2/24/2003	10:55		21.9	0.1 U	0.1 U	0.5 U	0.25 U	0.65	0.33	0.11	0.027	0.004 U	0.2	0.4	5 U	1 U
4/21/2003	10:45		30.1	0.1 U	0.02 U	0.5 U	0.25 U	0.64	0.27	0.15	0.029	0.004 U	0.24	0.44	5 U	1 U
6/16/2003	11:15		33.4	0.1 U	0.02 U	0.5 U	0.25 U	0.31 J	0.29	0.11	0.032	0.002 U	0.27	0.54	5 U	1.6
8/18/2003	11:20		44.1	0.1 U	0.02 U	0.5 U	0.29	0.66	0.22	0.16	0.02 U	0.002 U	0.27	0.53	5 U	1 U

Metals Data Report

Green R @ Tukwila

09A080

Class: A
Rivermile: 12.4
Latitude: 47 27 56.0
Longitude: 122 14 47.9
Waterbody: WA-09-1020

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/23/2002	11:55		47.6	0.1 U	0.1 U	0.5 U	0.55	0.48	0.37	0.18	0.029	0.0024	0.35	1.02	5 U	1 U
12/11/2002	12:15		48.4	0.1 U	0.02 U	1.3	0.71	3.11	1.11	3.31	0.244	0.0048	0.54	1.03	17	7.8
2/24/2003	12:00		18.5	0.1 U	0.1 U	0.67	0.25 U	1.75	0.48	0.36	0.04	0.0058	0.25	0.75	7.1	1 U
4/21/2003	11:25		30.6	0.1 U	0.02 U	0.5 U	0.25 U	0.54	0.76	0.2	0.55	0.004 U	0.41	0.5	5 U	2.4
6/16/2003	12:50		40.6	0.1 U	0.02 U	0.5 U	0.37	0.78	0.43	0.17	0.036	0.0034 J	0.4	0.79	6.6	1.6
8/18/2003	12:10		49.3	0.1 U	0.02 U	0.5 U	0.42	0.55	0.36	0.1 U	0.02 U	0.002 U	0.34	0.98	5 U	1 U

Metals Data Report

Longfellow Cr abv 24-25th St juctn

09J090

Class: A
Rivermile: 2
Latitude: 47 32 41.0
Longitude: 122 21 48.0
Waterbody: WA-09-1000

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
9/23/2003	14:15		140	0.1 U	0.02 U	0.5 U	1.1	0.86	0.8	0.37	0.082	0.002 U	1.45	1.59	5 U	3.1

Metals Data Report

Puyallup R @ Puyallup

10A050

Class: A
Rivermile: 5.7
Latitude: 47 12 49.4
Longitude: 122 20 24.8
Waterbody: WA-10-1020

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/23/2002	14:40		34.8	0.1 U	0.1 U	0.5 U	0.25 U	1.64	0.61	0.33	0.041	0.002 U	0.39	0.73	5 U	1 U
12/11/2002	15:20		38	0.1 U	0.02 U	0.5 U	0.29	0.99	0.84	0.1 U	0.071	0.0072	0.48	0.68	5 U	2.1
2/24/2003	15:00		24.9	0.1 U	0.1 U	0.5 U	0.25 U	1.91	0.92	0.26	0.035	0.0049	0.4	0.69	5 U	1 U
4/21/2003	13:55		28.2	0.1 U	0.02 U	0.5 U	0.25 U	1.52	0.92	0.32	0.082	0.004 U	0.4	0.72	5 U	1.4
6/16/2003	15:30		19.9	0.1 U	0.02 U	0.54	0.25 U	1.88	0.68	0.32	0.035	0.002 U	0.26	0.6	5 U	1 U
8/18/2003	15:00		36.2	0.11	0.02 U	8.7	0.25 U	19.9	0.59	3.23	0.02 U	0.0287	0.41	1.16	20	1 U

Metals Data Report

White River @ R Street

10C095

Class: A
Rivermile: 8
Latitude: 47 16 31.0
Longitude: 122 12 22.0
Waterbody: WA-10-1030

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/23/2002	13:20		33.6	0.1 U	0.1 U	0.5 U	0.25 U	1.04	0.54	0.19	0.033	0.002 U	0.26	0.85	5 U	1 U
12/11/2002	13:55		35.7	0.1 U	0.02 U	0.5 U	0.25 U	1.02	0.69	0.11	0.02	0.0026	0.3	0.82	5 U	1 U
2/24/2003	13:15		22.8	0.1 U	0.1 U	0.68	0.25 U	2.91	0.81	0.46	0.023	0.0052	0.36	1.03	5 U	1 U
4/21/2003	12:45		28.2	0.1 U	0.02 U	0.5 U	0.25 U	1.08	0.79	0.29	0.032	0.004 U	0.36	0.69	5 U	1.1
6/16/2003	14:10		22.8	0.1 U	0.02 U	0.5 U	0.25 U	1.25	0.61	0.2	0.023	0.002 U	0.22	0.66	5 U	1 U
8/18/2003	13:30		25.7	0.1 U	0.02 U	0.5 U	0.25 U	3.61	0.66	0.53	0.03	0.002 U	0.18	0.67	5 U	1 U

Metals Data Report

Columbia R. @ Vancouver

28A100

Class: A
Rivermile:
Latitude: 45 36 40.0
Longitude: 122 36 37.0
Waterbody: WA-CR-1010

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/30/2002	8:00		61.9	0.1 U	0.1 U	0.5 U	0.36	0.72	0.72	0.22	0.031	0.002 U	0.44	1.03	5 U	1.3
12/11/2002	9:36		65.7	0.1 U	0.02 U	0.55	0.25 U	1.14	0.7	0.38	0.037	0.002 U	0.48	0.85	5.6	2
2/26/2003	9:15		66.8	0.1 U	0.1 U	0.5 U	0.47	1.03	0.63	0.23	0.028	0.004 U	0.53	1.07	5 U	1 U
4/23/2003	9:20		61.4	0.1 U	0.02 U	0.5 U	0.25 U	1.15	0.72	0.29	0.073	0.004 U	0.58	0.74	5 U	1.2
6/18/2003	7:00		41	0.1 U	0.02 U	0.5 U	0.25 U	0.87	0.84	0.1 U	0.047	0.002 U	0.45	0.83	5 U	2
8/20/2003	8:20		56.5	0.1 U	0.02 U	0.5 U	0.25 U	1.07	0.88	0.17	0.02 U	0.002 U	0.44	0.81	5 U	1.6

Metals Data Report

Columbia R @ Umatilla

31A070

Class: A
Rivermile: 290.5
Latitude: 45 56 02.0
Longitude: 119 19 31.0
Waterbody: WA-CR-1020

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/16/2002	11:00		63.3	0.1 U	0.1 U	0.5 U	0.25 U	0.54	0.44	0.17	0.02 U	0.002 U	0.48	1.05	5 U	1 U
12/18/2002	10:10		70.6	0.1 U	0.02 U	0.5 U	0.48	1.01	0.55	0.14	0.02 U	0.002 U	0.4	0.82	5 U	0.94
2/5/2003	10:20		82.9	0.1 U	0.02 U	0.66	0.62	1.41	0.68	0.32	0.032	0.002 U	0.55	1.65	5 U	1 U
4/9/2003	10:10		61.1	0.1 U	0.1 U	0.5 U	0.5 U	1.42 J	0.78	0.25	0.059	0.004 U	0.66	0.98	5 U	2
6/4/2003	9:40		47	0.1 U	0.02 U	0.5 U	0.25 U	1.21	0.76	0.35	0.035	0.0041	0.47	0.9	5 U	1 U
8/6/2003	10:05		55.7	0.1 U	0.02 U	0.5 U	0.25 U	1.18	0.63	0.35	0.02 U	0.002 U	0.42	0.82	5 U	1 U

Metals Data Report

Walla Walla R nr Touchet

32A070

Class: B
Rivermile: 15.3
Latitude: 46 02 16.0
Longitude: 118 45 55.0
Waterbody: WA-32-1010

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/16/2002	9:20		106	0.1 U	0.1 U	0.5 U	0.76	0.7	0.54	0.18	0.02	0.002 U	0.67	1.01	5 U	1 U
12/18/2002	8:40		61.9	0.1 U	0.02 U	0.5 U	0.54	1.09	0.74	0.17	0.024	0.0053	0.42	0.47	5 U	1.2
2/5/2003	8:40		42.2	0.11	0.02 U	1.5	0.37	6.07	1.18	2.51	0.088	0.011	0.51	0.68	9.1	1.3
4/9/2003	8:45		41.7	0.1 U	0.1 U	2.2	0.5 U	3.44	0.86	1.16	0.073	0.004 U	0.56	0.64	9.4	1 U
6/4/2003	8:00		84.8	0.1 U	0.073	0.5 U	0.46	1.29	1.11	0.2	0.045	0.0022	0.88	0.84	5 U	5.5
8/6/2003	8:40		153	0.1 U	0.02 U	0.5 U	0.95	1.97	1.63	0.16	0.02 U	0.002 U	1.13	2.15	5 U	1 U

Metals Data Report

Snake R nr Pasco

33A050

Class: A
Rivermile: 2.2
Latitude: 46 13 00.0
Longitude: 119 01 23.0
Waterbody: WA-33-1010

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/16/2002	12:30		67.6	0.1 U	0.1 U	0.5 U	0.47	1.01	0.55	0.59	0.02 U	0.002 U	0.53	2.56	5 U	1 U
12/18/2002	12:20		112	0.1 U	0.02 U	0.5	1.2	2.52	0.74	0.31	0.041	0.002 U	0.61	3.3	33	1.1
2/5/2003	12:00		103	0.1 U	0.02 U	0.87	1	1.01	0.7	0.29	0.025	0.002 U	0.56	3.04	5 U	1 U
4/9/2003	11:40		54.2	0.1 U	0.1 U	0.71	0.5 U	1.56 J	0.79	0.32	0.075	0.004 U	0.6	1.4	5 U	1 U
6/4/2003	11:45		29.7	0.1 U	0.02 U	0.8	0.25 U	1.78	0.8	0.6	0.053	0.0054	0.32	1.26	5 U	1 U
8/6/2003	11:35		40.8	0.1 U	0.02 U	0.5 U	0.25 U	0.86	0.54	0.16	0.02 U	0.002 U	0.31	1.44	5 U	1 U

Metals Data Report

Lind Coulee @ Hwy 17

41J070

Class: A
Rivermile:
Latitude: 47 00 33.0
Longitude: 119 08 11.0
Waterbody: WA-41-3500

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
11/14/2002	13:45		175											9.81		
1/8/2003	13:05													11.2		
3/5/2003	13:00		189											10.7		
5/5/2003	12:55		96.1											3.04		
7/7/2003	12:50													4.1		
9/8/2003	13:00		126											4.43		

Metals Data Report

Similkameen R @ Oroville

49B070

Class: A
Rivermile: 5
Latitude: 48 56 05.0
Longitude: 119 26 27.0
Waterbody: WA-49-1030

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/8/2002	9:30		94.6	0.1 U	0.1 U	0.5 U	0.42	0.99	0.81	0.14	0.02 U	0.002 U	0.49	3.07	5 U	1 U
12/3/2002	8:30		97.8	0.1 U	0.02 U	0.5 U	0.75	0.75	0.51	0.1 U	0.036	0.0033	0.73	1.93	5 U	1 U
2/4/2003	9:25		81.4	0.1 U	0.02 U	0.5 U	0.3	1.01	0.74	0.1 U	0.02 U	0.002 U	0.39	1.61	5 U	1 U
4/8/2003	9:10		79.4	0.1 U	0.1 U	0.5 U	0.5 U	1.39 J	0.5 U	0.11	0.02 U	0.004 U	0.62	1.7	5 U	1.1
6/3/2003	10:20		38.3	0.1 U	0.02 U	1.3	0.25 U	4.57	1.18	0.44	0.041	0.0066	0.39	4.33	5.7	1.3
8/5/2003	8:02		94.7	0.1 U	0.02 U	0.5 U	0.4	0.98	0.77	0.1 U	0.02 U	0.002 U	0.54	5.61	5 U	1 U

Metals Data Report

Spokane R @ Stateline Br

57A150

Class: A
Rivermile: 96.35
Latitude: 47 41 55.0
Longitude: 117 02 37.0
Waterbody: WA-57-1010

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/14/2002	15:00		19.1	0.14	0.1 U	0.5 U	0.25 U	0.45	0.31	1.33	0.229	0.002 U	0.22	0.49	33	29.8
12/15/2002	7:20		20.4	0.25	0.255	0.5 U	0.25 U	0.73	0.52	1.11	0.17	0.002 U	0.26	0.39	63.7	63.4
2/2/2003	7:25		20.7	0.41	0.229	0.5 U	0.25 U	0.88	0.59	4.75	0.12	0.0022	0.35	0.58	77.6	67.2
4/6/2003	7:15		21.9	0.3	0.28	0.5 U	0.5 U	0.87 J	0.64	2.52	0.691	0.004 U	0.41	0.44	72.5	75.5
6/1/2003	6:45		21.8	0.27	0.276	0.5 U	0.25 U	0.7	0.54	2.48	0.609	0.002 U	0.3	0.31	55.3	49
8/3/2003	7:40		22.3	0.13	0.098	0.5 U	0.25 U	0.69	0.53	0.89	0.13	0.002 U	0.37	0.5	35	34.6

Metals Data Report

Columbia R @ Northport

61A070

Class: AA
Rivermile: 735.1
Latitude: 48 55 21.0
Longitude: 117 46 32.0
Waterbody: WA-CR-1060

Date/Time		Flow CFS	Hardness mg/L	Tot. Rec. Cadmium ug/L	Dissolved Cadmium ug/L	Tot. Rec. Chromium ug/L	Dissolved Chromium ug/L	Tot. Rec. Copper ug/L	Dissolved Copper ug/L	Tot. Rec. Lead ug/L	Dissolved Lead ug/L	Total Mercury ug/L	Dissolved Nickle ug/L	Tot. Rec. Arsenic ug/L	Tot. Rec. Zinc ug/L	Dissolved Zinc ug/L
10/14/2002	10:50		61	0.1 U	0.1 U	0.5 U	0.25 U	0.49	0.33	0.29	0.025	0.0021	0.47	0.4	5 U	1.8
12/15/2002	12:55		62.8	0.24	0.242	0.5 U	0.25 U	0.78	0.56	0.46	0.045	0.0022	0.51	0.3	5 U	2.8
2/2/2003	13:05		70.7	0.1 U	0.057	0.5 U	0.27	0.74	0.62	0.17	0.031	0.002 U	0.5	0.38	5 U	4.5
4/6/2003	13:05		71.7	0.1 U	0.1 U	0.5 U	0.5 U	0.97 J	0.5 U	0.24	0.038	0.004 U	0.55	0.55	5 U	2
6/1/2003	12:35		65.6	0.1 U	0.021	0.83	0.25 U	4.58	0.64	1.22	0.054	0.002 U	0.47	0.58	45	1.9
8/3/2003	13:00		63.4	0.1 U	0.02 U	0.5 U	0.25 U	1.71	0.49	0.37	0.02 U	0.002 U	0.48	0.4	5 U	1 U

Appendix D

Water Year 2003: Missing Data (12 standard constituents only)

Station	Date	Remarks	Temperature	Conductivity	Oxygen	ph	Suspended Solids	Total Persulf Nitrogen	ammonia-nitrogen	nitrate+nitrite-nitrogen	Phosphorus, total	Phosphorus, Sol Reactive	Turbidity	Fecal Coliform
01A050	2003-04-23	Sampler error: Titration error			X									
03A060	2002-12-09	Sampler error: Not recorded				X								
03A060	2003-04-22	Sampler error: Titr. error; FC sample leaked in transit			X									X
03A060	2003-07-22	Sampler error (bottle numbering confusion)			X									
03B050	2003-07-22	Sampler error (bottle numbering confusion)			X									
05A110	2003-07-22	Sampler error: Not recorded	X											
07C070	2003-04-22	Sampler error: Titration error			X									
09A080	2003-05-19	Bridge Construction. No Access.	X	X	X	X	X	X	X	X	X	X	X	X
13A060	2002-11-18	Sampler error: Titration error			X									
18B070	2002-11-18	Sampler error: Not recorded	X											
18B070	2003-06-16	Sampler error: Titration error			X									
23A100	2003-06-18	Sampler error: Titration error			X									
33A050	2003-07-09	Lab error: Spilled												X
43C070	2002-10-13	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
43C070	2003-07-07	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
43C070	2003-08-04	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
43C070	2003-09-08	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
45Q060	2002-10-07	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
45Q060	2002-11-04	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
45Q060	2002-12-02	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
45Q060	2003-08-04	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
45Q060	2003-09-08	Station Dry	X	X	X	X	X	X	X	X	X	X	X	X
56A070	2002-10-13	Sampler error: Not recorded				X								