

River and Stream Water Quality Monitoring Report for Water Year 2007



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Cover photo: The Methow River at Winthrop, taken by Jim Ross.

River and Stream Water Quality Monitoring Report for Water Year 2007

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Abstract

The Washington State Department of Ecology (Ecology) collected monthly water quality data at 118 stream monitoring stations during Water Year (WY) 2007 (October 1, 2006 through September 30, 2007). We also collected 30-minute interval temperature data at 54 sites, mostly from July through September 2007. 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 documents methods and data quality, and presents the data for WY 2007. A description of Ecology's long-term monitoring program and access to historical data can be found on Ecology's Internet web site at www.ecy.wa.gov by clicking on "Environmental Assessment," "Long-term Monitoring," and then "River and Stream Water Quality."

Most quality control results were within the limits specified in our Quality Assurance Management Plan and were consistent with findings in previous years. Except where noted otherwise, data collected in WY 2007 by Ecology's River and Stream Monitoring Program can be used without qualification.

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Many Ecology staff contributed time, effort, and expertise to the Water Year 2007 program.

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- Jason Myers spent hours standing before the buret titrating dissolved oxygen samples for our holding time experiment.
- Bill Ward was responsible for the continuous stream temperature monitoring project.
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- Cindy Cook and Joan LeTourneau formatted and edited the final report.

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- Deborah Case, Pam Covey, and Nancy Jensen performed sample tracking services. Pam retired at the end of this water year—she will be missed.
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- Leon Weiks, Sally Cull, and Dean Momohara provided sample container supplies and transport services.

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 basic program consists of monthly water quality monitoring for conventional characteristics at 62 long-term stations and 20 basin (rotating) stations on rivers and streams throughout Washington State.

In Water Year 2007, we monitored 36 additional stations associated with special project: 23 in the Eastern Region, 4 in the Northwest Region, 1 in the Central Region, and 8 in the Southwest Region.

- Twelve of these stations were associated with the “Intensively Monitored Watersheds” project (see www.ecy.wa.gov/programs/eap/imw).
- Fourteen special projects stations were designed to evaluate water quality conditions in Snake River tributaries.
- Six stations were added as part of a larger Spokane River study.
- Three supported a Total Maximum Daily Load (TMDL) study in the South Fork of the Palouse River.
- One evaluated fecal coliform bacteria concentrations entering the state in the Palouse River.
- One was added to assess the feasibility of moving the Wenatchee River station upstream to Sleepy Hollow.

We also collected 30-minute interval temperature data from about July through September 2007 at many long-term and a few basin stations, as well as conducted bi-monthly metals monitoring at selected stations.

The primary goals of the *River and Stream Ambient Monitoring Program* are to characterize water quality and to evaluate spatial and temporal changes in water quality (trends).

Within Ecology, data generated by ambient monitoring are used to:

- Determine if designated uses are supported (e.g., www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html).
- Identify trends in water quality characteristics (e.g., Hallock, 2005).
- Refine and verify TMDL models.
- Develop water quality based permits.
- Provide water quality information necessary to prioritize grant awards.
- Conduct miscellaneous site-specific evaluations (e.g., Hallock, 2004).

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 WY 2007 monitoring program, discuss data quality, and present results. More detailed analyses and interpretations of ambient monitoring data are reported elsewhere.

A generalized assessment of water quality at particular stations is provided online (www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html) in the form of a water quality index (WQI; Hallock, 2002). The WQI and trends at long-term stations are reported in *Washington State Water Quality Conditions in 2005 Based on Data from the Freshwater Monitoring Unit* (Hallock, 2005).

Other Ecology programs conduct their own analyses. For example, Ecology's Water Quality Program applies its own data reduction procedures prior to producing Washington State's Water Quality Assessment [303(d) & 305(b) Report] (www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html).

Methods

Sampling network

The ambient monitoring network in WY 2007 consisted of monthly water collection at 62 long-term stations, 20 regional ("basin") stations, and 36 special project stations (Table 1 and Appendix A). All 118 stations were sampled year-round except three special project stations on the Palouse River that were dropped after April 2007, and six special project stations on the Spokane River that were not established until June 2007.

- Long-term stations are monitored every year to track water quality changes over time (trends), assess inter-annual variability, and collect current water quality information. These stations are generally located near the mouths of major rivers, below major population centers, where major streams enter the state, or upstream from most anthropogenic (human-caused) sources of water quality problems.
- 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, and site-specific needs, and to allow expanded coverage over a long-term network. Some basin stations are selected to target known problems and may not necessarily reflect conditions representative of the basin.
- Special project stations are typically sampled to address a particular question, and they are usually supported by funding external to the ambient monitoring program. Special project stations will not necessarily represent typical water quality conditions.

The locations of ambient stations monitored during WY 2007 are presented in Table 1. Appendix A lists current and historical monitoring locations and the years they were monitored by Ecology and its predecessor agency. Historical data for these stations are available from the ambient monitoring program 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 www.ecy.wa.gov under the "Environmental Assessment" program, "Long-term Monitoring," and "River and Stream Water Quality."

Table 1. Ecology stream ambient monitoring stations for Water Year 2007. The key field refers to the map in Appendix A. Specific location information (e.g., latitudes and longitudes) are included in Appendix C.

Key	Station	Location	Status ^a	Key	Station	Location	Status ^a
1	01A050	Nooksack R @ Brennan	L	60	33A050	Snake R nr Pasco	L
2	01A120	Nooksack R @ No Cedarville	L	61	34A070	Palouse R @ Hooper	L
3	01A140	Nooksack R above the MF	B	62	34A170	Palouse R @ Palouse	L
4	01F070	SF Nooksack @ Potter Rd	B	63	34A200	Palouse R nr Stateline	S2
5	01G070	MF Nooksack R	B	64	34B110	SF Palouse R @ Pullman	L
6	01N060	Bertrand Cr @ Rathbone Rd	B	65	34B130	SF Palouse R blw Sunshine	S3
7	01U070	Fishtrap Cr @ Flynn Rd	B	66	34C060	Paradise Cr at Mouth	S3
8	03A060	Skagit R nr Mount Vernon	L	67	34C100	Paradise Cr @ Border	S3
9	03B050	Samish R nr Burlington	L	68	35A150	Snake R @ Interstate Br	L
10	04A100	Skagit R @ Marblemount	L	69	35B060	Tucannon R @ Powers	L
11	05A070	Stillaguamish R nr Silvana	L	70	35L050	Almota Cr @ Mouth	B
12	05A090	SF Stillaguamish @ Arlington	L	71	35L140	Almota Cr @ Klemgard Rd	S4
13	05A110	SF Stillaguamish nr Granite Falls	L	72	35Q050	Little Almota Cr @ Mouth	B
14	05B070	NF Stillaguamish @ Cicero	L	73	35R050	Steptoe Cr @ Mouth	S4
15	05B110	NF Stillaguamish nr Darrington	L	74	35R120	Steptoe Cr blw Stewart	S4
16	07A090	Snohomish R @ Snohomish	L	75	35R140	Steptoe Cr abv Stewart	S4
17	07C070	Skykomish R @ Monroe	L	76	35S060	Wawawai Cr @ Mouth	B
18	07D050	Snoqualmie R nr Monroe	L	77	35U070	Alkali Flat Cr nr Mouth	S4
19	07D130	Snoqualmie R @ Snoqualmie	L	78	35U090	Alkali Flat Cr abv Hay	S4
20	08C070	Cedar R @ Logan St/Renton	L	79	35U140	Alkali Flat Cr @ Little Alkali Rd	S4
21	08C110	Cedar R nr Landsburg	L	80	35U190	Alkali Flat Cr @ Penewawa Rd	S4
22	09A080	Green R @ Tukwila	L	81	35W070	Mud Flat Cr @ Mouth	S4
23	09A190	Green R @ Kanaskat	L	82	35Y070	Penewawa Cr nr Mouth	S4
24	10A070	Puyallup R @ Meridian St	L	83	35Y110	Penewawa Cr @ Looney Br	S4
25	11A070	Nisqually R @ Nisqually	L	84	35Y170	Penewawa Cr abv Goose Cr	S4
26	13A060	Deschutes R @ E St Bridge	L	85	35Z070	Little Penewawa Cr @ Mouth	S4
27	15F050	Big Beef Cr @ Mouth	S1	86	36A070	Columbia R nr Vernita	L
28	15L050	Seabeck Cr @ Mouth	S1	87	37A090	Yakima R @ Kiona	L
29	15M070	Little Anderson Cr @ Ander. Hill Rd	S1	88	37A205	Yakima R @ Nob Hill	L
30	15N070	Stavis Cr nr Mouth	S1	89	39A090	Yakima R nr Cle Elum	L
31	16A070	Skokomish R nr Potlatch	L	90	41A070	Crab Cr nr Beverly	L
32	16C090	Duckabush R nr Brinnon	L	91	45A070	Wenatchee R @ Wenatchee	L
33	17G060	Tarboo Cr nr Mouth	B	92	45A075	Wenatchee R @ Sleepy H. Br.	S5
34	18B070	Elwha R nr Port Angeles	L	93	45A110	Wenatchee R nr Leavenworth	L
35	19C060	West Twin R nr Mouth	S1	94	46A070	Entiat R nr Entiat	L
36	19D070	East Twin R nr Mouth	S1	95	48A070	Methow R nr Pateros	L
37	19E060	Deep Cr nr Mouth	S1	96	48A140	Methow R @ Twisp	L
38	20B070	Hoh R @ DNR Campground	L	97	49A070	Okanogan R @ Malott	L
39	22A070	Humptulips R nr Humptulips	L	98	49A190	Okanogan R @ Oroville	L
40	23A070	Chehalis R @ Porter	L	99	49B070	Similkameen R @ Oroville	L
41	23A160	Chehalis R @ Dryad	L	100	49F070	Bonaparte Cr @ Tonasket	B

Key	Station	Location	Status ^a	Key	Station	Location	Status ^a
42	24B090	Willapa R nr Willapa	L	101	49F105	Bonaparte Cr abv Tonasket	B
43	24F070	Naselle R nr Naselle	L	102	50B070	Foster Cr @ Mouth	B
44	25D050	Germany Cr @ Mouth	S1	103	53A070	Columbia R @ Grand Coulee	L
45	25E060	Abernathy Cr nr Mouth	S1	104	54A070	Spokane R @ Long Lake	S6
46	25E100	Abernathy Cr @ DNR	S1	105	54A090	Spokane R @ Ninemile Br	S6
47	25F060	Mill Cr nr Mouth	S1	106	54A120	Spokane R @ Riverside Pk	L
48	25F100	Mill Cr @ DNR	S1	107	55B070	Little Spokane R nr Mouth	L
49	26B070	Cowlitz R @ Kelso	L	108	56A070	Hangman Cr @ Mouth	L
50	26F050	Olequa Cr at 7th St	B	109	57A125	Spokane R below Monroe St	S6
51	27B070	Kalama R nr Kalama	L	110	57A148	Spokane R @ Barker Rd	S6
52	27D090	EF Lewis R nr Dollar Corner	L	111	57A150	Spokane R @ Stateline Br	L
53	28A100	Columbia R @ Vancouver	B	112	57A190	Spokane R nr Post Falls	S6
54	28I120	Lacamas Creek @ Goodwin Rd	B	113	57A240	Spokane R @ Coeur d'Alene	S6
55	28J070	Little Washougal Cr @ Blair Rd	B	114	59A130	Colville R @ Chewelah	B
56	30C090	Little Klickitat R @ Olson Rd	B	115	60A070	Kettle R nr Barstow	L
57	30C150	Little Klickitat R @ Hwy 97	B	116	61A070	Columbia R @ Northport	L
58	31A070	Columbia R @ Umatilla	L	117	62A090	Pend Oreille R @ Metaline Falls	B
59	32A070	Walla Walla R nr Touchet	L	118	62A150	Pend Oreille R @ Newport	L

^a Status: L = long-term, B = basin, S1 = IMW Support, S2 = fecal coliform bacteria only, S3 = Palouse River TMDL through April only, S4 = Snake River evaluation, S5 = evaluate moving Wenatchee River station, S6 = Spokane River project beginning in June.

Sample collection and analysis

We collected samples from the majority of stations (86) as single, near-surface grab samples from highway bridges. The rest of the stations were sampled from the bank, off of footbridges, or from culverts. (Sampling locations are identified on our web site.)

Twelve water quality characteristics were monitored at all stations monthly in WY 2007 (Table 2).

Table 2. Water quality characteristics monitored in Water Year 2007.

Characteristic	Method	Reporting Limit
ammonia, total	SM 4500 NH3H	0.01 mg/L
conductivity	SM 2510 B	NA
fecal coliform bacteria	SM 9222 D	1 colony/100 mL
metals: mercury	EPA 245.7	0.002 µg/L
metals: other	EPA 200.8	various
nitrate + nitrite, total	SM 4500 NO3I	0.01 mg/L
nitrogen, total	SM 4500 NB	0.025 mg/L
oxygen, dissolved	SM 4500 OC	NA
pH	EPA 150.1	NA
phosphorus, soluble reactive	SM 4500 PG	0.003 mg/L
phosphorus, total	EPA 200.8 M	0.001 mg/L
suspended solids, total	SM 2540 D	1 mg/L
temperature	Thermistor	NA
turbidity	SM 2130	0.5 NTU

(SM = APHA, 1998; EPA = U.S. Environmental Protection Agency, 1983).

Besides the 12 water quality characteristics, we also record barometric pressure (to calculate percent oxygen saturation) and stream height measurements, where necessary, to enable flow determination for most long-term stations and many basin stations. Sample collection and analytical methods are described in an earlier annual report (Hallock et al., 1998), our field monitoring protocols (Ward et al., 2001), standard operating procedures (Ward, 2007), ambient monitoring quality assurance documents (Hallock and Ehinger, 2003, Hallock, 2007a, and Hopkins, 1996), and Manchester Environmental Laboratory *Lab User's Manual* (Ecology, 2005).

All long-term monitoring programs 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 effect on a synoptic analysis of the data, but even minor improvements in procedures should be considered when evaluating long-term trends.

We made no substantive changes to collection, analytical, or quality control procedures in WY 2007. However, at the end of the WY (beginning October 1, 2007), we changed total phosphorus analytical methods from EPA200.8M (ICP-MS) to SM4500PH (colorimetric with

manual digestion). We made this change because we discovered that at turbidities greater than 4 NTUs, the ICP method is biased low compared to the colorimetric method (Hallock, 2007b).

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.

Continuous temperature monitoring

Ecology’s Freshwater Monitoring Unit collects temperature data at 30-minute intervals at many of our long-term and some current basin ambient monitoring stations as well as at some special request stations. Temperature loggers were deployed at 57 sites in 2007, and data were successfully retrieved from 54 sites. The purpose of this monitoring effort is to collect summer, diel (24-hour) temperature data that may be used for trend analyses and to determine compliance with water quality standards.

Two Onset Stow Away TidbiT® temperature loggers were deployed at each site, 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 temperature 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 mostly in July and retrieved them in September. Detailed protocols are found in Ward (2003), and quality control requirements are found in Ward (2005).

Metals monitoring

Metals monitoring continued in WY 2007 at 12 stations (Table 3). Metals samples were collected every other month beginning in October 2006 (except for 4 missed samples). Samples were analyzed for hardness, total mercury, and total recoverable and dissolved arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc. Collection and analytical methods are discussed in more detail in Hopkins (1996).

We selected stations for metals monitoring based on known problem areas (Spokane River) and where we have little current data.

Table 3. Water Year 2007 bi-monthly sampling stations for metals.

Station	Name	Station	Name
01A140	Nooksack R above the MF	30C090	Little Klickitat R @ Olson Rd.
01F070	SF Nooksack @ Potter Rd	34A070	Palouse R @ Hooper
01G070	MF Nooksack R	48A070	Methow R nr Pateros
24B090	Willapa R nr Willapa	53A070	Columbia R @ Grand Coulee
26F050	Olequa Cr at 7th St	57A150	Spokane R @ Stateline Br
28A100	Columbia R @ Vancouver	61A070	Columbia R @ Northport

Quality assurance

Ecology's Manchester Environmental Laboratory (MEL) Quality Assurance (QA) Program includes the use of quality control (QC) charts, check standards, in-house matrix spikes, and laboratory blanks, along with performance evaluation samples. For a more complete discussion of laboratory QA, see MEL's *Quality Assurance Manual* (Ecology, 2001) and the *Lab User's Manual* (Ecology, 2005).

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

Three types of field QC samples were collected.

1. *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 total variability due to short-term, instream dynamics, sample collection and processing, and laboratory analysis.
2. *Duplicate (Split) Field Samples* - These consisted of one sample (usually the duplicate sequential sample) split into two containers that are processed as individual samples. This eliminates the instream variability; remaining variability is attributable to field processing and laboratory analysis.
3. *Field Blank Samples* - 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.

Altogether, 137 field QC samples were processed: 11 field blanks, 63 field duplicates (sequential), and 63 field split samples. In addition, the laboratory conducted its own splits of some field QC samples. 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 based on field QC. The first tier consisted of four automated checks: holding time, variability in field duplicates, reasonableness of the result, and the 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 1 through 9 (1 = data meets all QA requirements, 9 = data are

unusable). Criteria for assigning codes are discussed in more detail in Hallock and Ehinger (2003). We do not routinely use or distribute data with quality codes greater than 4.

Finally, data management includes verification at several stages:

- Field data entry is verified quarterly by comparing field data forms to printouts from the database.
- At the end of the WY, data in Ecology's Environmental Information Management system (EIM) and in the database used for our web presentation are compared to the primary database.
- Plots of flow vs. stage height are visually checked for anomalies.

Flows were plotted against stage for all stations with stage data, and the plots were visually inspected for outliers. For flows determined independent of stage records, this method confirms the flow. (Most flows are derived from continuous recorders and based on date and time, not our stage measurements.) For flows based on our stage, this method confirms that the flow was correctly determined from the flow curve, but can't ensure that stage was correctly recorded.

Dissolved oxygen procedures

For oxygen determination, we use the azide-modified Winkler method, the most precise and reliable titrimetric method (SM 4500 OC; APHA 1998). We do not use calibrated sensors like the Clark-cell probe because most of our samples in a given day are collected at different elevations, which can be problematic for accurate oxygen determination by Clark-cell probe unless the probe is recalibrated at each station. Ward (2007) documents our sample collection and analysis procedures in detail.

APHA (1998) specifies that samples should be titrated within a few to eight hours after adding acid. There are, however, arguments for holding samples before adding acid. Acid oxidizes organic matter (APHA, 1998) and re-suspends the bound iodine, which can result in its loss through the glass stopper during elevation and temperature changes (Mountford, 1969). Both of these effects can cause negative errors. Also, we don't want to carry concentrated sulfuric acid in our sampling vans, nor to process samples in the field. Therefore, we have modified our analytical procedures from APHA by holding the samples in the dark for up to three days before adding acid and titrating.

Some years ago, we tested the effect of holding samples (Rushing, 1990), and we recently conducted a similar experiment. Results from both studies are reported here.

Rushing (1990) analyzed three treatments, two from the Deschutes River (one acidified upon collection and one prior to titration) and aerated tap water acidified prior to titration (Table 4). Rushing collected samples using our standard procedures, and she analyzed samples in triplicate after four different holding times.

Table 4. Study design for evaluating the effect of holding time on dissolved oxygen results.

Treatment	Source	Acidification	Holding times (hours)
A	Deschutes River	At collection	<2, 8, 24, 72
B	Deschutes River	Prior to titration	<2, 8, 24, 72
C	Tap Water	Prior to titration	<2, 8, 24, 72

In our more recent study, we collected 40 samples each from two sites, the Deschutes River at Military Road and Woodard Creek at 28th Lane. We expected the Deschutes site to have relatively low biological oxygen demand (BOD) and high saturation, and the Woodard Creek site to have low saturation and high BOD. We collected samples from the bank, in accordance with Ward (2007).

We randomly assigned the 40 samples to one of four treatments, each with 10 replicates. We added acid to half the samples from each site upon collection; for the other half, acid was added just prior to titration in accordance with Ward (2007). We titrated half the samples immediately upon returning to the lab. We titrated all remaining samples after three days. The four treatments, then, were:

- Acid added in the field, titrated immediately.
- Acid added in the field, titrated after three days.
- Acid added prior to titration, titrated immediately.
- Acid added prior to titration, titrated after three days.

Continuous temperature monitoring

The quality of the continuous temperature data was assessed by calibration checks using 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, the logger was rejected and not deployed (Ward, 2005). If a logger failed a post-survey calibration check, the results may be rejected or, if the bias is small and consistent (i.e., the pre-deployment bias was just within the required limits and in the same direction), results may be 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 finalizing results in the database.

Results and Discussion

The primary purpose of this report is to present the results of Ecology's stream monitoring in WY 2007. The body of the report describes the sampling program and interprets QC results. Appendix C contains results for each station monitored in WY 2007. Raw data are available in computer formats on request and are posted on Ecology's website (www.ecy.wa.gov). Unpublished data are also available online but are considered "preliminary."

Monthly ambient monitoring

A station-by-station data analysis is not within the scope of this report. Individual results not meeting the 1997 water quality criteria in Washington's Water Quality Standards (Washington Administrative Code, Chapter 173-201A), excluding unionized ammonia, are identified in reports on our web site (www.ecy.wa.gov/apps/watersheds/riv/exceed). The unionized ammonia criteria are complicated to determine and are rarely exceeded. In WY 2007, only Bonaparte Creek, at stations both at and above Tonasket, exceeded the chronic criteria (both stations on February 12, 2007).

Effective December 20, 2006, Ecology adopted an aquatic life system for classifying the state's waterbodies, dropping the AA, A, B, and C system in the 1997 standards (Ecology, 2006). Some of the numeric criteria from the new 2006 Water Quality Standards are listed in Tables 5 and 6. Our web presentation still uses the 1997 system. In any case, the ambient monitoring program's comparison of results to water quality criteria is not a formal determination of water quality *violations*. A determination of violations requires additional considerations such as human impact or multiple results not meeting a criterion, and in some cases requires continuous data (see www.ecy.wa.gov/programs/wq/303d/2006/policy1-11_rev.html).

Table 5. Water quality criteria in the 2006 water quality standards associated with aquatic life uses. ^a Results outside the ranges indicated do not meet the criterion.

Aquatic Life Use	Temperature (7DADM) ^b	Oxygen (1-day minimum)	pH
Char spawning	≤9°C	--	--
Char spawning and rearing	≤12°C	>9.5 mg/L	6.5≤pH≤8.5
Salmon and trout spawning	≤13°C	--	--
Core summer salmonid habitat	≤16°C	>9.5 mg/L	6.5≤pH≤8.5
Salmonid spawning rearing and migration	≤17.5°C	>8.0 mg/L	6.5≤pH≤8.5
Salmonid rearing and migration only	≤17.5°C	>6.5 mg/L	6.5≤pH≤8.5
Non-anadromous interior redband trout	≤18°C	>8.0 mg/L	6.5≤pH≤8.5
Indigenous warm water species	≤20°C	>6.5 mg/L	6.5≤pH≤8.5

^a WAC 173-201A-602 (2006) identifies use designations for waterbodies and some exceptions to the standard criteria listed above. Metals criteria, most of which are a function of hardness, are not listed here.

^b 7DADM = seven day average of the daily maximum temperature. Some of the temperature criteria only apply during specified seasons.

Table 6. Water quality criteria in the 2006 water quality standards associated with contact recreation. ^a Results outside the ranges indicated do not meet the criterion.

Recreation Use	Fecal Coliform Bacteria	
	10 Percent	Geometric Mean
Extraordinary primary contact recreation	<=100	<=50
Primary contact recreation	<=200	<=100
Secondary contact recreation	<=400	<=200

^a WAC 173-201A-602 (2006) identifies use designations for waterbodies.

Of the 16,000 possible standard water quality results in WY 2007, 541 results (3.4 percent) were missed. Most of these (468) were missed because the station was inaccessible, frozen, or dry. Other reasons for missing results include sampler error (16) and equipment problems (56). We seemed to have particular trouble with pH cables in WY 2007 (this will be discussed at a future Freshwater Technical Coordination Team meeting). Appendix D gives more detailed explanations for each missed sample.

Instantaneous discharge was recorded at all of the 62 long-term stations. On 12 occasions at various long-term stations, flows were either not available or could not be determined because the sampler didn't record the stream height. Flows at Nisqually River at Nisqually (11A070) are coded as estimates because the nearest gage was a considerable distance upstream.

Discharge was recorded at 29 of the 56 basin and special stations.

Continuous temperature monitoring

Fifty-four stations were successfully monitored in 2007 (Table 7). One logger was not retrieved (from the upper Yakima River due to ice). We hope to be able to retrieve this logger when flows drop. The logger from the Kettle River near Barstow was lost, presumably due to vandalism.

Table 7. Temperature monitoring summary for Water Year 2007 based on 30-minute interval measurements (°C; refer to Table 1 for station names). Deployment maximum results exceeding 1997 criteria, and 7DADM results exceeding 2006 criteria (excluding special seasonal criteria), are shown in bold.

Station	Criteria		Deployment Maximum		Max 7-day Mean ^a		Deploy	Retrieve
	1997	2006	Max	Date/Time ^b	Max	Date ^{b, c}		
01A050	18.0	16.0	18.0	15 Aug 16:30	17.1	4-Aug	25-Jul	19-Sep
01A120	18.0	16.0	18.1	02 Aug 19:30	17.5	3-Aug	25-Jul	19-Sep
01G070	16.0	12.0	13.7	06 Aug 19:00	13.2	3-Aug	25-Jul	19-Sep
01N060	18.0	16.0	17.4	28 Jul 20:00	16.9	28-Jul	25-Jul	19-Sep
01U070	18.0	16.0	18.5	05 Aug 18:00	18.2	3-Aug	25-Jul	19-Sep
03B050	18.0	17.5	17.4	27 Jul 19:00	17.0	2-Aug	24-Jul	19-Sep
04A100	16.0	16.0	13.8	24 Aug 19:00	13.3	3-Aug	24-Jul	19-Sep
05A070	18.0	17.5	21.4	15 Aug 19:30	20.3	3-Aug	25-Jul	19-Sep
05A110	16.0	16.0	19.6	15 Aug 16:00	18.1	31-Jul	24-Jul	1-Oct
05B070	18.0	16.0	20.4	02 Aug 19:00	19.6	30-Jul	24-Jul	19-Sep
05B110	18.0	12.0	17.9	05 Aug 17:30	17.3	3-Aug	24-Jul	19-Sep
07D050	18.0	17.5	20.2	03 Aug 21:30	19.8	2-Aug	23-Jul	19-Sep

Station	Criteria		Deployment Maximum		Max 7-day Mean ^a		Deploy	Retrieve
	1997	2006	Max	Date/Time ^b	Max	Date ^{b, c}		
07D130	18.0	16.0	18.9	02 Aug 22:00	18.2	30-Jul	23-Jul	19-Sep
08C070	18.0	16.0	20.1	02 Aug 16:30	18.8	2-Aug	23-Jul	19-Sep
08C110	16.0	16.0	13.4	02 Aug 16:30	12.9	30-Jul	23-Jul	1-Oct
09A190	16.0	16.0	17.3	29 Aug 17:30	16.7	31-Aug	23-Jul	1-Oct
11A070	18.0	16.0	18.6	30 Aug 17:00	17.7	1-Sep	18-Jul	20-Sep
13A060	18.0	17.5	18.7	02 Aug 19:00	18.2	30-Jul	18-Jul	20-Sep
16A070	16.0	16.0	15.1	29 Jul 17:30	14.7	30-Jul	26-Jul	18-Sep
16C090	16.0	16.0	13.7	02 Aug 17:30	12.7	3-Aug	26-Jul	18-Sep
18B070	16.0	16.0	17.0	11 Sept 17:30	15.9	11-Sep	26-Jul	18-Sep
20B070	16.0	16.0	16.8	29 Aug 20:00	15.8	3-Aug	30-Jul	18-Sep
22A070	18.0	17.5	19.5	23 Aug 18:30	18.2	26-Aug	30-Jul	18-Sep
23A070	18.0	17.5	23.3	02 Aug 18:00	22.1	2-Aug	18-Jul	18-Sep
23A160	18.0	16.0	22.4	02 Aug 17:30	21.1	30-Jul	17-Jul	24-Sep
25D050	18.0	17.5	18.6	28 Jul 16:00	17.7	31-Jul	17-Jul	24-Sep
25E060	18.0	17.5	19.9	02 Aug 17:30	18.7	30-Jul	17-Jul	24-Sep
26B070	18.0	17.5	20.0	02 Aug 18:00	18.6	31-Jul	16-Jul	24-Sep
26F050	18.0	17.5	20.9	16 Jul 17:30	19.5	31-Jul	16-Jul	24-Sep
27B070	18.0	16.0	18.8	02 Aug 20:00	17.9	31-Jul	16-Jul	24-Sep
27D090	18.0	16.0	24.9	02 Aug 17:30	23.3	31-Jul	17-Jul	24-Sep
28J070	18.0	16.0	22.6	02 Aug 19:00	21.2	30-Jul	16-Jul	24-Sep
32A070	21.0	21.0	29.3	11 Jul 16:00	28.2	13-Jul	10-Jul	8-Oct
34A170	20.0	20.0	29.5	05 Jul 18:00	28.5	13-Jul	26-Jun	4-Oct
35B060	18.0	17.5	26.6	23 Jul 17:30	26.0	8-Jul	26-Jun	4-Oct
35L050	18.0	17.5	24.5	03 Jun 18:30	23.2	13-Jul	29-May	4-Oct
35Q050	18.0	17.5	27.0	11 Jul 17:30	26.1	13-Jul	29-May	4-Oct
35R050	18.0	17.5	23.1	05 Jul 20:30	22.2	4-Jul	29-May	8-Aug
35S060	18.0	17.5	21.7	23 Jul 20:00	21.3	13-Jul	29-May	4-Oct
35U070	18.0	17.5	33.1	05 Jul 18:00	31.4	8-Jul	29-May	4-Oct
35W070	18.0	17.5	26.5	05 Jul 19:00	25.3	8-Jul	29-May	4-Oct
35Y070	18.0	17.5	24.8	06 Jul 16:30	24.1	8-Jul	29-May	4-Oct
35Y170	18.0	17.5	26.5	03 Jun 16:00	24.2	1-Jun	29-May	4-Oct
35Z070	18.0	17.5	22.0	03 Jun 16:30	20.4	25-Jul	29-May	4-Oct
41A070	21.0	21.0	27.8	11 Jul 21:00	26.9	12-Jul	6-Jul	13-Nov
46A070	18.0	17.5	21.3	02 Aug 18:00	20.6	5-Aug	5-Jul	10-Oct
48A070	18.0	17.5	21.9	05 Aug 17:30	21.5	4-Aug	2-Jul	8-Oct
48A140	18.0	17.5	19.3	02 Aug 18:00	18.9	31-Jul	2-Jul	8-Oct
49A190	18.0	17.5	27.6	12 Jul 18:30	26.6	14-Jul	2-Jul	8-Oct
49F105	18.0	17.5	23.0	12 Jul 18:30	22.0	13-Jul	2-Jul	7-Oct
50B070	18.0	17.5	29.4	11 Jul 16:30	28.1	8-Jul	2-Jul	10-Sep
55B070	18.0	17.5	18.5	06 Jul 20:00	18.2	8-Jul	28-Jun	27-Sep
56A070	18.0	17.5	26.5	05 Jul 19:30	25.7	8-Jul	28-Jun	27-Sep
59A130	18.0	17.5	26.1	13 Jul 16:00	25.7	13-Jul	28-Jun	27-Sep

^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.

^c Date shown is middle of seven-day period.

The seasonal maximum at most stations (45 stations; 83 percent) failed to meet 1997 water quality criteria. Likewise, the 7DADM failed to meet the basic 2006 criteria at most stations (47 stations; 87 percent). High though these percentages are, they are lower than we measured last year.

The four stations with the warmest seasonal water temperatures were:

- Alkali Flat Cr nr Mouth, 35U070, 33.1 °C.
- Palouse R @ Palouse, 34A170, 29.5 °C.
- Foster Cr @ Mouth, 50B070, 29.4 °C.
- Walla Walla R nr Touchet, 32A070, 29.3 °C.

Metals monitoring

Of the 1,224 possible metals results (12 stations x 6 months x 17 analytes), 68 results were missed during the WY. One station, Columbia River at Grand Coulee, was not established as a metals station until after December's samples had been collected. One sample each was missed at the Willapa River (sampler error) and the Little Klickitat River (no access). Of the 612 dissolved metals and total mercury results reported, 6 (1.0 percent) exceeded 2006 Washington State water quality standards chronic criteria; all of those were from the Spokane River at Stateline (Table 8).

Table 8. Metals results from Water Year 2007 exceeding the 2006 water quality standards chronic criteria.

Station	Name	Date	Metal	Criterion (µg/L)	Hardness (mg/L)	Result (µg/L)	Percent Over Criterion
57A150	Spokane R @ Stateline Br	10/03/2006	Zinc, Dissolved	28.7	21	36.0	25%
57A150	Spokane R @ Stateline Br	12/05/2006	Zinc, Dissolved	28.3	21	56.9	101%
57A150	Spokane R @ Stateline Br	04/03/2007	Lead, Dissolved	0.50	23	0.98	98%
57A150	Spokane R @ Stateline Br	04/03/2007	Zinc, Dissolved	30.2	23	66.4	120%
57A150	Spokane R @ Stateline Br	06/06/2007	Lead, Dissolved	0.40	19	1.33	229%
57A150	Spokane R @ Stateline Br	06/06/2007	Zinc, Dissolved	25.9	19	66.9	158%

Quality assurance

In 2007 we collected more than 17,000 non-QC water quality results, including metals and various other characteristics collected in addition to the standard 12 listed under “Sample Collection and Analysis.”

- Forty-one results (0.2 percent) were coded “4” indicating that the data are usable, but there were questions about the quality. These were all nutrients where the result for the total fraction was less than the dissolved fraction by a sufficiently large margin to render one or both results questionable.
- Of the 55 results (0.3 percent) coded “5” or greater (indicating serious data quality questions; these data will not be routinely used), all but four were pH. The pH results were coded as having poor quality because of misbehaving equipment and, in some cases, sampler error in failing to repair it. Results coded >4 are not normally used but are provided on request. This practice gives us the opportunity to explain quality issues to prospective users.

MEL assigned a qualifier to 14 percent of results. A total of 421 results (2.5 percent) were qualified as estimates (“J”), 1,920 results (11.2 percent) as below the reporting limit (“U”), and 18 results (0.1 percent) were coded for both reasons (“UJ”). Seventy-four percent of all ammonia results were below the reporting limit, as were 11 percent of orthophosphate results (Table 9).

Table 9. Results qualified by Manchester Environmental Laboratory as being below the reporting limit.

Analyte	Reporting Limit (mg/L except NTU for turbidity)	Number of results coded U or UJ	Number of results recorded	Percent of results coded U or UJ
ammonia	0.01 (mostly)	954	1281	74.5%
fecal coliform	1	96	1285	7.5%
metals	Various	483	884	54.6%
nitrate+nitrite	0.01	84	1281	6.6%
nitrogen, total	0.025	6	1281	0.5%
organic carbon, dissolved	1	15	98	15.3%
organic carbon, total	1	32	198	16.2%
orthophosphate	0.003	140	1281	10.9%
phosphorus, total	0.001	3	1281	0.2%
solids, total non-volatile	1	2	4	50.0%
suspended sediment concentrations	1	5	9	55.6%
suspended solids	1 (mostly)	83	1302	6.4%
turbidity	0.5	35	1281	2.7%

Data verification identified 46 instances where results in EIM were different than results in our primary database. These were due to corrections to a temperature calibration that were made in the primary database and not in EIM. In addition, 34 results did not get loaded into EIM, probably because these results were awaiting verification of automated QC checks which would

have prevented them from loading with the rest of the data for the month. These data have since been loaded.

There were no instances where results in the web database differed from those in our primary database. However, in the fall of 2007 I retroactively changed the total phosphorus method in our primary database for WYs 2003 to 2006 from "TP_P" to "TP_P_ICP" to highlight the ICP-MS method used during that period. This change was not made to the web database until January 2008.

Comparison to quality control requirements

Decision Quality Objectives

Decision Quality Objectives (DQOs) are based on RMS values by concentration range (Table 10). In practice, estimates of variability are strongly influenced by extreme values, especially when the sample size is small. Also, the variability estimate is skewed downward for the lowest concentration ranges because data below the reporting limit are censored and have a variance of zero for sample pairs below this limit.

Table 10. Root mean square (RMS) of the standard deviation of sequential samples, field splits, and laboratory splits. Results exceeding QAMP DQO criteria (Hallock and Ehinger, 2003) are shown in bold.

Characteristic (units)	Range	Error (mp) ^a	Field Sequential RMS	<i>n</i>	Field Split RMS	<i>n</i>	Lab Split RMS	<i>n</i>
Specific conductance (µS/cm)	≤50	4.4	0.41	9	NA	0	No lab splits	
	>50-100	8.8	0.64	22	0.00	1		
	>100-150	13.2	0.91	6	0.71	1		
	>150	26.4	1.11	24	0.87	17		
Fecal coliform bacteria (colonies /100 mL)	1-1000	88	39	60	No field splits		6.78	191
	>1000	176	185	2		100	2	
NH ₃ -N (µg N/L) (all stations)	≤20	1.76	2.33	51	0.39	50	0.25	66
	>20-100	8.8	14.9	9	2.18	10	1.02	13
	>100	17.6	78.1	2	75.7	2	1.12	2
NH ₃ -N (µg N/L) (long-term and basin stations)	≤20	1.76	1.41	38	0.26	38	0.175	49
	>20-100	8.8	16.9	7	1.54	7	1.20	8
	>100	17.6	4.2	1	7.07	1	1.12	2
NH ₃ -N (µg N/L) (special project stations)	≤20	1.76	3.93	13	0.65	12	0.38	17
	>20-100	8.8	2.5	2	7.76	3	0.63	5
	>100	17.6	110.3	1	106.8	1	NA	0
Nitrogen, total (µg N/L)	≤100	8.8	7.87	10	4.16	9	1.65	24
	>100-200	17.6	6.71	10	3.69	11	4.26	11
	>200-500	44	10.5	19	6.50	19	4.47	29
	>500	88	145	23	63.6	23	40	22
NO ₃ NO ₂ -N (µg N/L)	≤100	8.8	1.48	19	0.86	19	0.49	31
	>100-200	17.6	2.42	14	1.71	14	0.87	18
	>200-500	44	1.83	12	1.88	12	1.33	13
	>500	88	267	17	13.1	17	13.5	24

Characteristic (units)	Range	Serror (mp) ^a	Field Sequential RMS	<i>n</i>	Field Split RMS	<i>n</i>	Lab Split RMS	<i>n</i>
Oxygen, dissolved (mg O ₂ /L)	≤ 8	0.70	0.49	4	NA	0	No lab splits	
	> 8-10	0.88	0.07	11	0.04	2		
	> 10-12	1.06	0.09	27	NA	0		
	>12	2.11	0.12	20	0.00	1		
pH	All	0.66	0.08	60	0.02	19	No lab splits	
Phosphorus, soluble reactive (µg P/L ⁻¹)	≤50	4.4	0.98	50	0.60	50	0.12	43
	>50-100	8.8	5.68	6	2.68	5	0.10	23
	>100	17.6	2.93	6	1.82	7	2.72	59
Phosphorus, total (µg P/L)	≤50	4.4	1.76	39	1.54	45	0.56	31
	>50-100	8.8	11.4	8	10.2	9	0.71	8
	>100	17.6	46.5	16	58.4	10	2.57	7
Solids, suspended (mg /L)	≤10	0.88	0.85	39	No field splits		0.47	74
	>10-20	1.76	6.23	11			1.40	30
	>20-50	4.4	26.2	4			2.47	38
	>50	8.8	562	7			30.4	27
Temperature (°C)	All	2.64	0.12	62	No field splits		No lab splits	
Turbidity (NTU)	≤10	0.88	1.64	4	No field splits		0.14	82
	>10-20	1.76	1.07	7			0.75	17
	>20-50	4.4	1.12	2			1.76	11
	>50	8.8	310	5			18.1	8

^a Maximum permissible standard deviation to meet Quality Assurance Monitoring Plan (QAMP) data quality objectives (DQO) (Hallock and Ehinger, 2003).

n = number of sample pairs.

NA = not applicable.

In general, variability of repeated measures 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 the field splits. Usually, a single field split pair with poor precision was responsible.

Variability between paired samples as measured by RMS was generally low but higher than that reported in previous years. This may be because we sampled more small high-concentration streams this year (i.e., Snake River evaluations; see Table 1, status=S4). These streams may not be as well-mixed or may carry debris than can be collected in one sample and not in a replicate or split sample. I separated the ammonia results by station type to illustrate this point: variability of field splits was much worse at special project stations, except for one extremely bad split that was entirely responsible for the high mid-range RMS at long-term/basin stations. (Table 10).

Three field split characteristic/concentration ranges (out of 24 evaluated) failed our QAMP Data Quality Objectives (DQOs) (Hallock and Ehinger, 2003), which specifies that DQOs be evaluated against field splits, where possible. One of two upper-range ammonia split pairs had a particularly high variance. Two phosphorus split pairs had high variance, one in the mid-range and one in the upper range. A single sample (from Steptoe Cr @ Mouth) was responsible for two of the three ranges that failed criteria. This station was also responsible for a disproportionate amount of the variance in sequential samples.

Thirteen field sequential characteristic categories (out of 37) failed to meet the DQO criteria, but instream variability is included in these sample pairs so their variability is not a true measure of sampling plus analytical error. Most high RMSs occurred in the upper concentration range and can be attributed to one or two pairs with poor variance. The variability in sequential samples for total suspended solids concentrations was particularly high at higher concentrations; this underscores the inherent variability in measurements of stream sediment.

The criteria in Table 10 are based on desired trend power. (We want to be able to detect a twenty percent change over a ten-year period with 90 percent confidence). Characteristics that consistently do not meet the DQO criteria are unlikely to meet our goals for trend detection. The variability in most characteristics indicates equivalent or greater trend power than the goal specified in our QAMP (Hallock and Ehinger, 2003). Our ability to detect trends in total suspended solids, however, is likely to be worse than our goal.

Measurement Quality Objectives

MQOs for accuracy are based on comparisons (usually against standards) during calibration checks (Hallock, 2007). Checks failing criteria cause an immediate corrective action, usually recalibration. Bias MQOs are evaluated at the laboratory based on spike recovery. Precision MQO evaluations are based on comparisons to average relative standard deviation (RSD) of field split pairs. Results of the precision MQO evaluations are presented in Table 11.

Table 11. Average relative standard deviation of replicate samples collected in Water Year 2007. *n* is the number of samples. Results exceeding QAMP MQO criteria (Hallock, 2007) are shown in bold.

Analyte (units)	Precision MQO (%)	Sequential Sample RSD (%)	<i>n</i>	Field Split RSD (%)	<i>n</i>
Specific conductance	10	0.4	61	0.2	19
Fecal coliform bacteria (>20 colonies /100 mL)	50% < 20 90% < 50	6 16	29	No field splits	
NH ₃ -N	10	7	62	3	62
Nitrogen, total	10	5	62	3	62
NO ₃ NO ₂ -N	10	2	62	0.7	62
Oxygen, dissolved	10	2	62	No field splits	
pH	10	1	60	No field splits	
Phosphorus, soluble reactive	10	6	62	3	62
Phosphorus, total	10	7	63	6	62
Solids, suspended	15	18	61	No field splits	
Temperature	10	1	62	No field splits	
Turbidity	15	14	61	No field splits	

No field split samples exceeded MQO criteria. For sequential samples, only total suspended solids exceeded MQO criteria and that was by only three percentage points, an amount that could easily be attributable to instream variability.

Blanks

Almost all results for analyses of blank samples were “below reporting limits,” and less than three μS (micro Siemens) for specific conductivity (Table 12). Temperature, dissolved oxygen, pH, and fecal coliform were not measured on blanks.

Table 12. Results of blind field process blank (deionized water) samples.

Analyte	Reporting Limit	Number Above Reporting Limit (concentration)	Sample Size, <i>n</i>
Metals ($\mu\text{g/L}$)	Various	3 (1 total recoverable nickel at 0.11; 2 dissolved zinc both at 3.4)	3 samples x 17 analytes
$\text{NH}_3\text{-N}$ ($\mu\text{g/L}$)	10	0	11
$\text{NO}_3/\text{NO}_2\text{-N}$ ($\mu\text{g/L}$)	10	0	11
Soluble reactive P ($\mu\text{g/L}$)	3	0	11
Specific conductivity (μS)	NA	NA (mean: 1.4; std dev: 0.9)	11
Suspended solids ($\mu\text{g/L}$)	1 and 2	0	7
Total nitrogen ($\mu\text{g/L}$)	25	0	11
Total phosphorus ($\mu\text{g/L}$)	1	1 (1 $\mu\text{g/L}$)	11
Turbidity (NTU)	0.5	0	7

Few metals blanks are normally collected because many samples are below reporting limits anyway (Table 9). Protocols specify that four dissolved metals blank samples should be submitted annually, one from each run. In WY 2007, samplers collected a total recoverable blank, as well. One run did not collect a blank. Each of the samples was analyzed for 17 different metals. Three results exceeded reporting limits: one total recoverable nickel sample (reported concentration = 0.11 $\mu\text{g/L}$, reporting limit = 0.1 $\mu\text{g/L}$), and two dissolved zinc samples (reported concentration both = 3.4 $\mu\text{g/L}$, reporting limit = 1 $\mu\text{g/L}$).

Laboratory staff assessed the remaining elements of the laboratory QA program through a manual review of laboratory QC 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 determined by laboratory staff (e.g., as an estimate, “J”).

Changes in the results of automated quality control checks over time

The ambient monitoring program has evaluated the four automated QC checks discussed in the Methods/Quality Assurance section of this report in a consistent manner for more than 15 years. The percent of results flagged by holding time, reasonableness of the result, and variability in field duplicates showed no obvious trends or patterns, except a slight decrease in variability about month 49 (October 1994; Figure 1, middle).

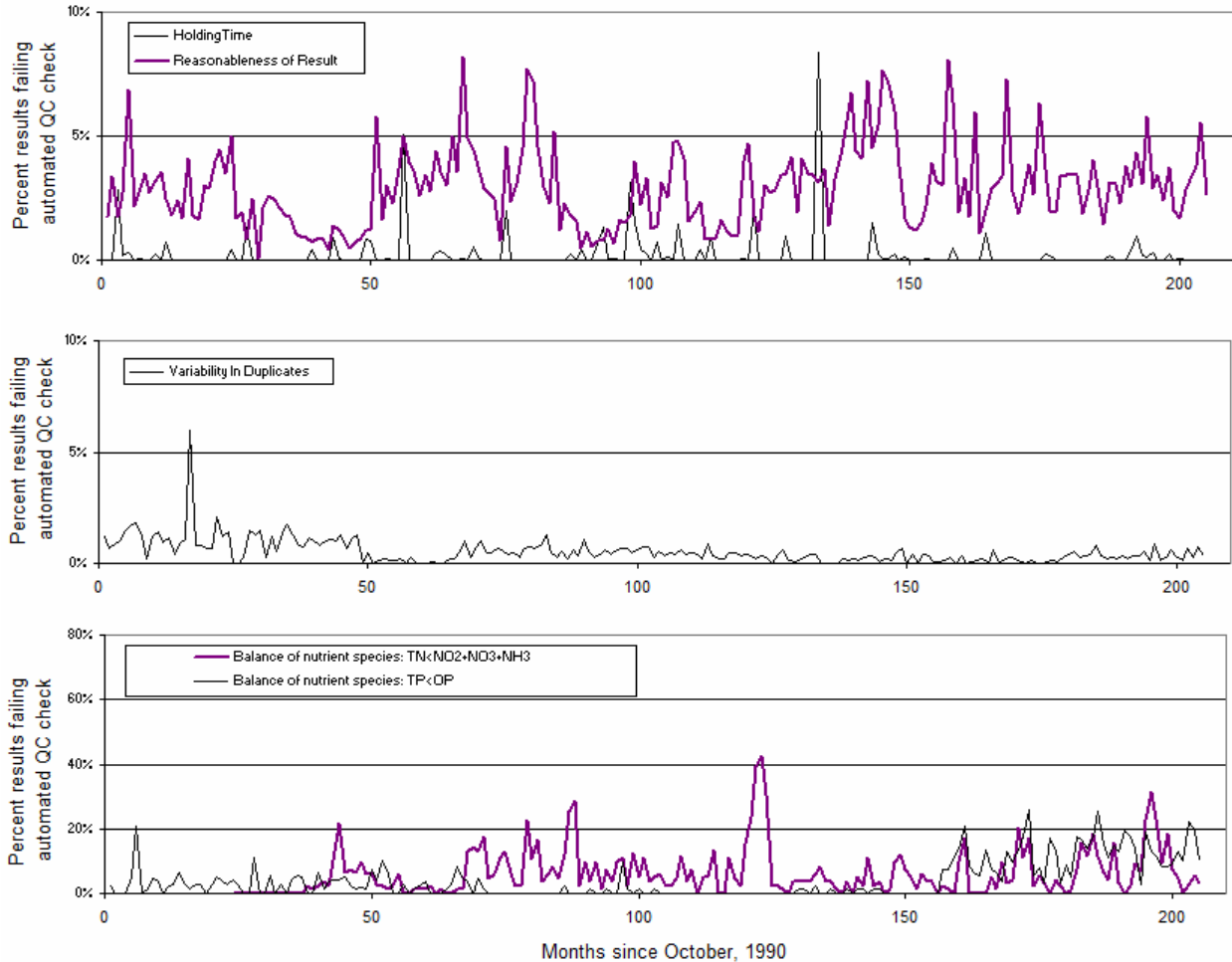


Figure 1. Percent of results each month flagged during automated quality control checks. TN = total nitrogen, NO₂+NO₃ = nitrate plus nitrite nitrogen, NH₃=ammonia nitrogen, TP = total phosphorus, OP = orthophosphorus.

We didn't begin collecting TN regularly until month 37 (October 1993). The reason for the strong peak in the percent of TN exceeding NO₂+NO₃+NH₃ from months 119 to 124 (August 2000 to January 2001; Figure 1, bottom) is unknown; however, the reporting limit increased from 0.01 to 0.025 mg/L around this time.

Changes in the rate of occurrence of total phosphorus (TP) < orthophosphorus (OP) can be explained by changes in TP methods and reporting limits (Figure 1, bottom). Prior to month 157 (October 2003), the TP reporting limit was 0.01 mg/L and OP rarely exceeded TP. After month 157, the TP reporting limit changed to 0.001 mg/L due to a change in methods. With a higher OP reporting limit (0.003 mg/L) than TP, occasional occurrences of TP < OP are expected.

Oxygen analysis modifications

In our earlier experiment (Rushing, 1990), there was no obvious effect of various holding times on oxygen concentration for samples that were acidified upon collection (Figure 2, Treatment A). For samples acidified before titration, relative to results obtained after <2 hours holding, Deschutes River water gained in concentration (an average of 0.14 mg/L over all holding times), while tap water lost concentration (an average of -0.19 mg/L over all holding times). In both cases, most of the gain or loss occurred in the first 8 hours, and all in the first 24.

I don't know why these two water types should behave differently. Unfortunately, percent saturation was not recorded, nor was water temperature. I also don't know whether the samples were analyzed randomly or whether each treatment was analyzed as a group. If the latter is the case, the differences observed could be due to titration errors.

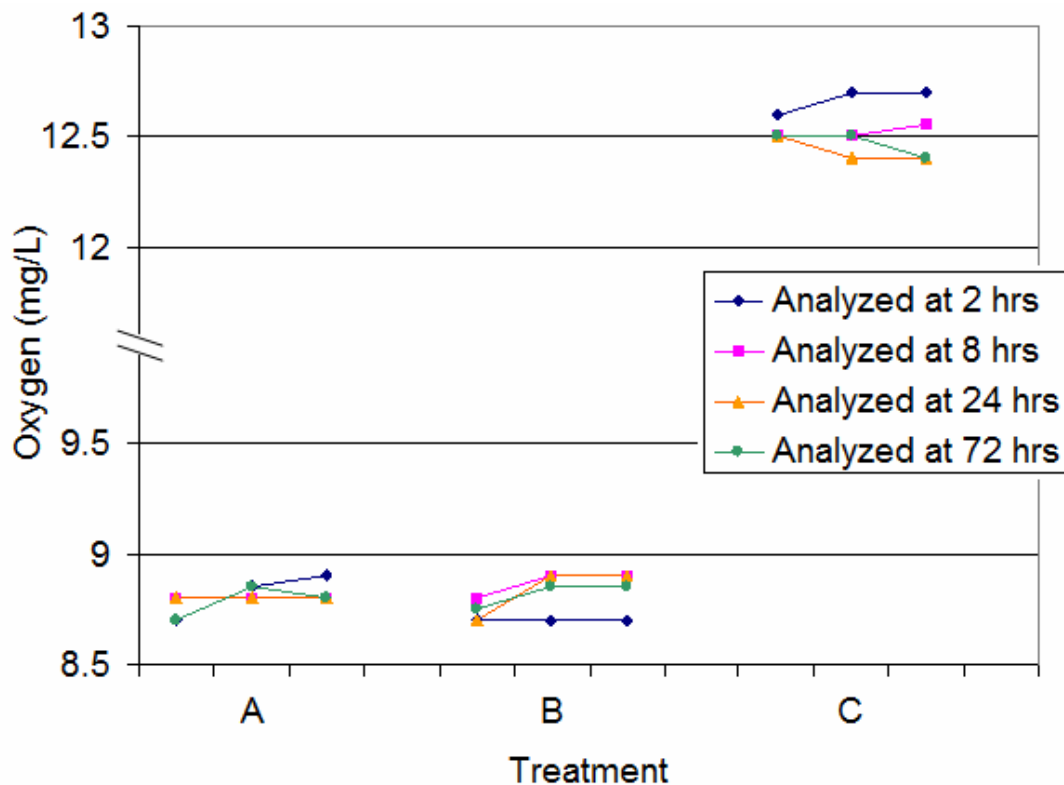


Figure 2. Oxygen concentrations from triplicate analyses after four different holding times. Treatment A=Deschutes River water, acidified at collection, B=Deschutes River water, acidified before titration, C=tap water, acidified before titration.

These unknowns are one reason we decided to re-run the experiment using two natural water sources, Woodard Creek and the Deschutes River. Woodard Creek samples were only half saturated ($56\% \pm 0.04$ standard error), and replicates were strongly affected by time of collection, with concentrations increasing towards mid-day (Figure 3). To account for time of collection, results were modeled using the linear regression:

$$\text{Oxygen} = \text{constant} + \text{time of collection} + \text{held}$$

where "held" is a dummy variable to indicate whether samples were analyzed immediately (held=0) or after three days (held=1). The "held" coefficient, then, is the amount of oxygen gained or lost by delaying the titration.

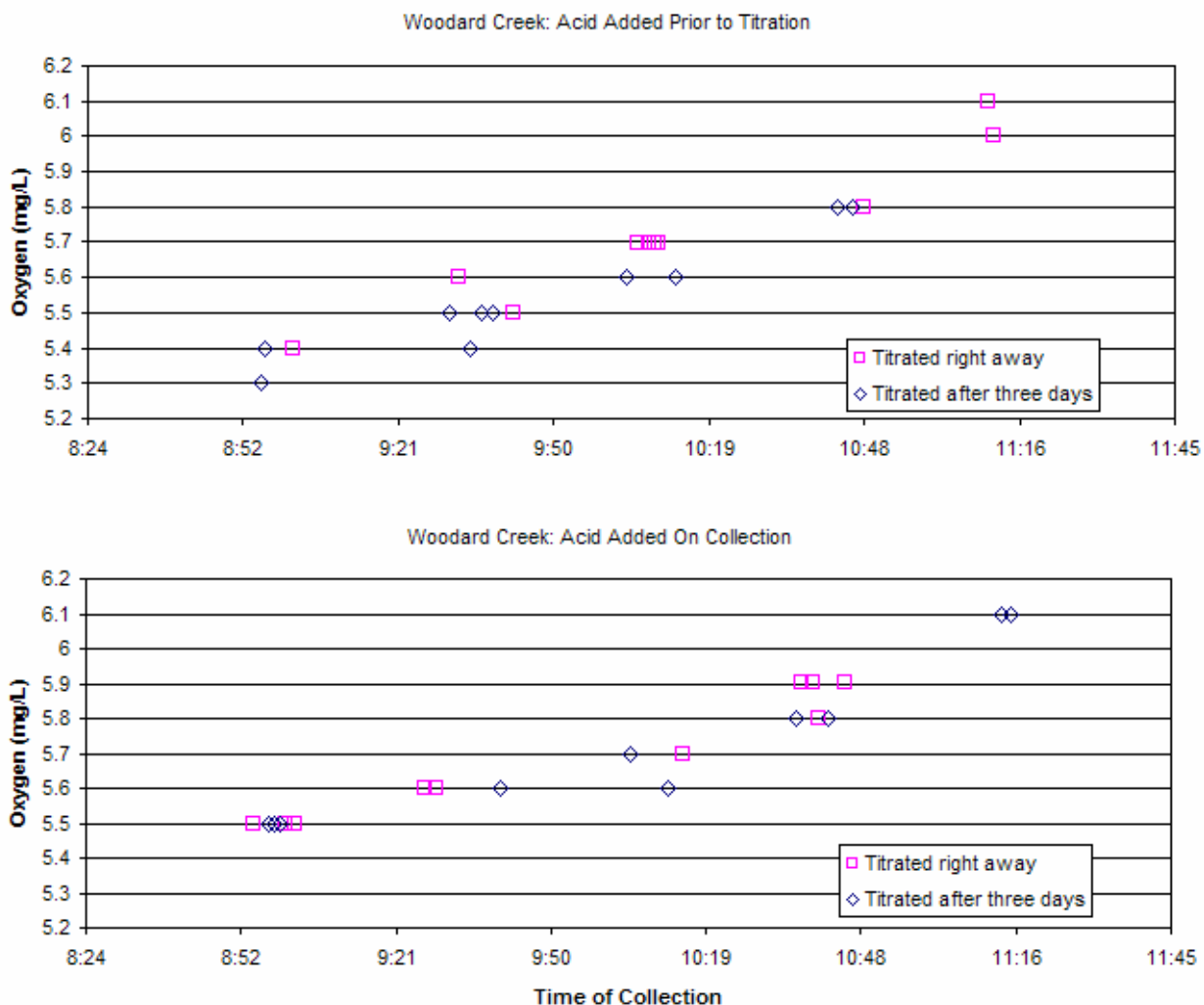


Figure 3. Oxygen concentrations in Woodard Creek when adding acid prior to titration (top) and in the field (bottom), and titrating right away (□) compared to holding samples for three days (◇).

Deschutes River samples were nearly fully saturated ($99\% \pm 0.02$ standard error), and replicates were only slightly affected by time of collection. Both within-treatment and, for the most part, between-treatment replicate results were within 0.3 mg/L (Figure 4).

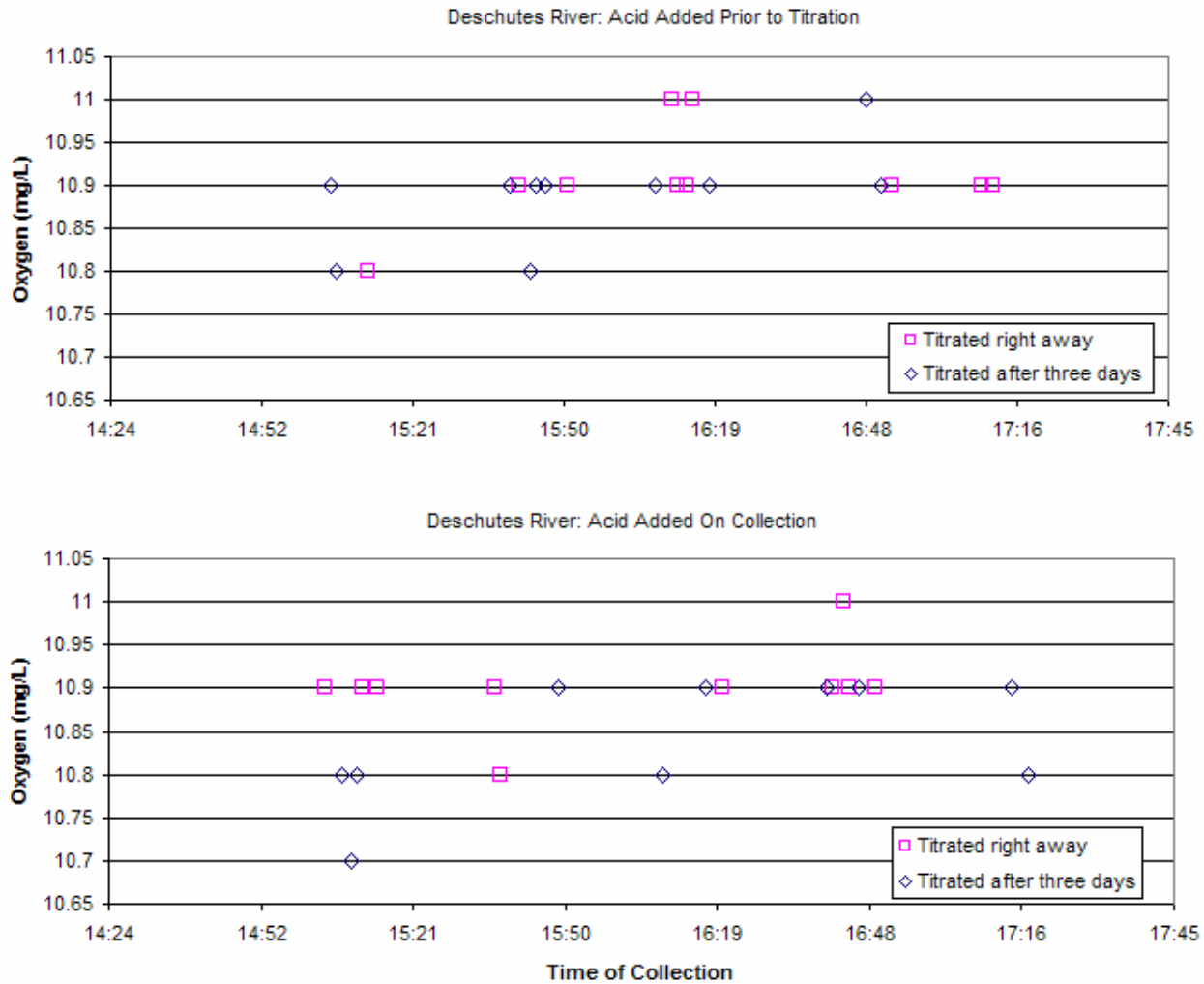


Figure 4. Oxygen concentrations in the Deschutes River when adding acid prior to titration (top) and in the field (bottom), and titrating right away (\square) compared to holding samples for three days (\diamond).

In Woodard Creek, holding the samples for three days resulted in a loss of 0.07 mg/L oxygen when acid was added prior to titration ($p=0.013$; Table 13). When acid was added in the field, the change in oxygen was not significant ($p=0.653$).

In the Deschutes River, holding the samples for three days resulted in an insignificant change in oxygen concentration when acid was added prior to titration ($p=0.83$; Table 13). When acid was added in the field, there was a loss of 0.07 mg/L oxygen ($p=0.014$).

Table 13. Regression results for the model. {oxygen concentration (mg/L) = time of collection + held}, where held=0 for samples analyzed immediately, and 1 for samples analyzed after 3 days. P(held) is the significance of the “held” variable.

Treatment	Regression	P(held)	r ²
Woodard Creek acid at titration	Oxygen = 2.957 + 6.500 (time) - 0.071 (held)	0.013	0.94
Woodard Creek acid at collection	Oxygen = 3.397 + 5.568 (time) - 0.013 (held)	0.65	0.90
Deschutes River, acid at titration	Oxygen = 10.254 + 0.966 (time) - 0.005 (held)	0.83	0.22
Deschutes River, acid at collection	Oxygen = 10.308 + 0.887 (time) - 0.066 (held)	0.014	0.38

In all cases, the effect of holding samples for three days was relatively small and within our MQO requirements of 0.2 mg/L. Furthermore, because oxygen concentration changes continually during the day, grab-sample oxygen concentrations should be considered a coarse screen, perhaps used to trigger a continuous oxygen monitoring study (a program we are currently developing).

Continuous temperature monitoring

Post-deployment calibration checks using a certified reference thermometer were within criteria for all instruments (Ward, 2005).

Most temperature loggers were deployed by late-July. Almost all of the loggers in eastern Washington recorded the seasonal seven-day average maximums. Unfortunately, nearly all of the loggers in western Washington did not record the seasonal seven-day average maximums. This was due to the cooler than usual weather between mid-July and early August, which is when seasonal maximums have typically occurred. For future deployments, this problem can be avoided by having the west-side loggers deployed by mid-July.

Conclusions

I concluded the following as a result of this study:

- Most quality control results were within the limits specified in our Quality Assurance Management Plan and were consistent with findings in previous years.
- Except where noted otherwise, data collected in 2007 by Ecology's River and Stream monitoring program can be used without qualification.
- In studies of streams smaller than those typically included in the ambient monitoring network, project managers should expect less precision in their data than root mean square values reported here.
- For the most part, automated quality control checks have been consistent over the past 15 years.
- At times, holding oxygen samples for up to three days may cause a statistically significant change in concentration; however, the magnitude of the change is well below our measurement quality objective requirements.

Recommendations

I recommend the following as a result of this study:

- In studies of streams smaller than those typically included in the ambient monitoring network, project managers should plan for poorer precision than the root mean square values reported here.
- The effect of changing total phosphorus reporting limits should be considered when conducting trend analyses.
- Discuss "missing data," especially lost pH results due to bad cables, at a future Freshwater Technical Coordination Team meeting.

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Appendices

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Appendix A. Station description and period of record

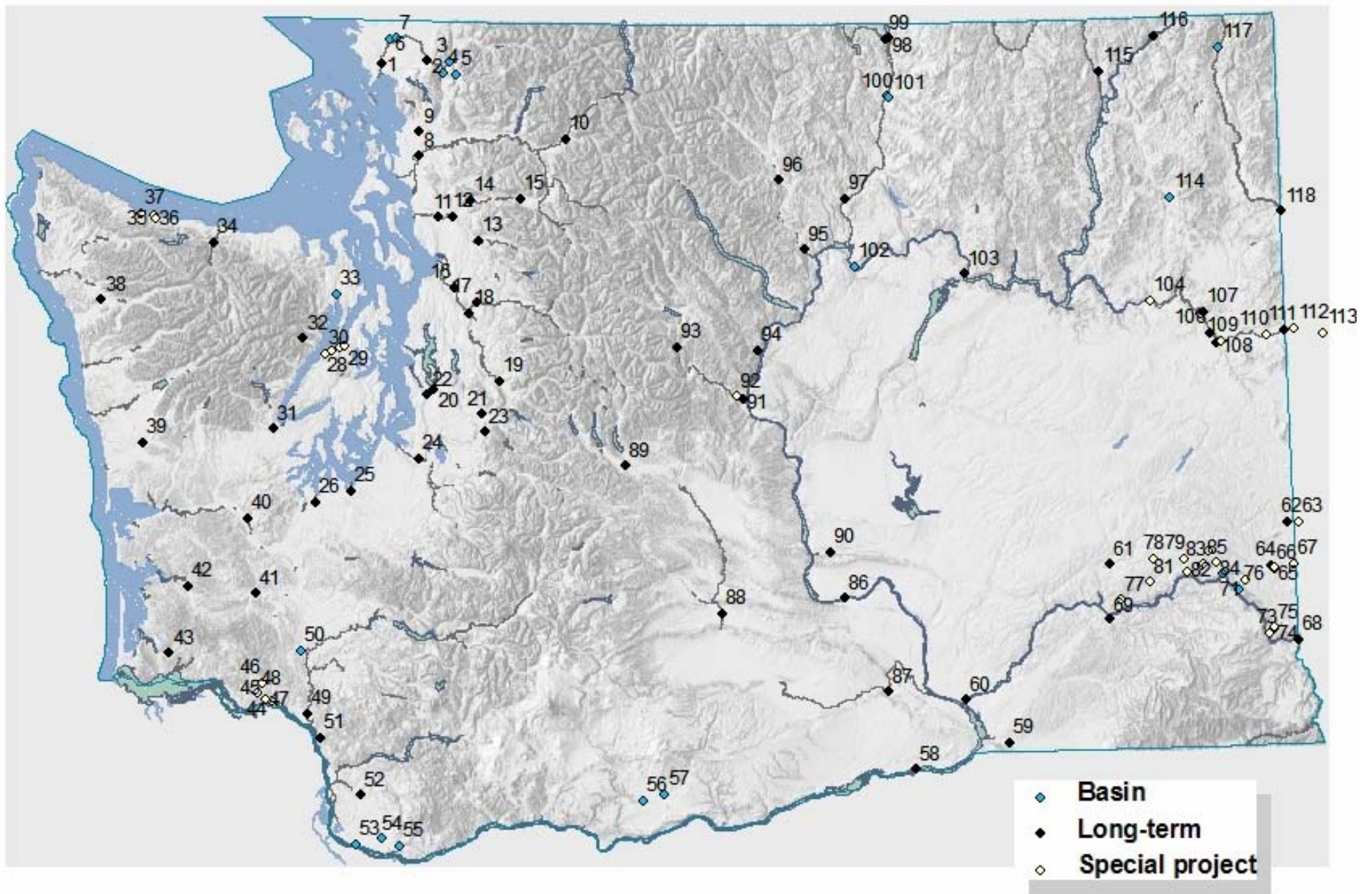


Figure A-1. Map showing stations monitored in Water Year 2007. See Table 1 for the key.

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	XXXXXXXXXX
01A070	Nooksack R @ Ferndale	B	XXXXXXXXXX	XX X X			
01A090	Nooksack R nr Lynden	B		X X X			
01A120	Nooksack R @ No Cedarville	L	X XXXXXXXX X	XX X XX	XXXXXXXXXX	XX X XXXXX	XXXXXXXXXX
01A140	Nooksack R above the MF	B				X	X X
01B050	Silver Cr nr Brennan	B				XX	
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			
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	S.F. Nooksack @ Potter Rd	B				X	X X
01G070	M.F. Nooksack R	B				X	X X
01H070	Terrell Cr nr Jackson Rd.	B					X
01N060	Bertrand Cr. @ Rathbone Rd	B					X
01T050	Anderson Cr @ South Bay Road	B					X
01U070	Fishtrap Cr @ Flynn Rd	B					X
03A050	Skagit R @ Conway	B		X X			
03A060	Skagit R nr Mount Vernon	L	X XXXXXXXX X	X XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
03A070	Skagit R nr Sedro Woolley	B		X X X			
03A080	Skagit R abv Sedro Woolley	B					X 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	XXXXXXXXXX
03B070	Samish R nr Hoogdal	B		X			
03B080	Samish R. nr Prairie	B				X	
03C060	Friday Cr Blw Hatchery	B		X		X X	

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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	
04A060	Skagit R @ Concrete	B		x x xxx	XXXXXXXXXX	xx x		
04A100	Skagit R @ Marblemount	L	x XXXXXXXX x	x	xx	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
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	x
04C110	Sauk R @ Darrington	B	x xx					
04C120	Sauk R @ Backman Park	B						x
04E050	Finney Cr near Birdsvew	B					x	
05A050	Stillaguamish R @ Stanwood	B		x				
05A055	Hat Slough nr Stanwood	B			x			
05A070	Stillaguamish R nr Silvana	L	x XXXXXXXXX	xx x xxx	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
05A090	SF Stillaguamish @ Arlington	L		x x xx	XXXXXXXXXX	xx x xxxxx	XXXXXXXXXX	
05A110	SF Stillaguamish nr Granite Falls	L	x XXXXXXXX	x			x xxxxx	XXXXXXXXXX
05B070	NF Stillaguamish @ Cicero	L	XXXXXXXXXX	xx x xx	XXXXXXXXXX	xx x xxxxx	XXXXXXXXXX	
05B090	NF Stillaguamish R @ Oso	B		x				
05B110	NF Stillaguamish nr Darrington	L		x			x xxxxx	XXXXXXXXXX
07A090	Snohomish R @ Snohomish	L	x XXXXXXXX x	xx x xxx	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
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			
07B120	Pilchuck R @ Robe-Menzel Rd.	B						x
07B150	Pilchuck R @ Menzel Lake Rd.	B						x

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
07C070	Skykomish R @ Monroe	L		X X XXX	XXXXXXXXXX	XXXX XXXXX	XXXXXXXXXX
07C090	Skykomish R @ Sultan	B		X X			
07C120	Skykomish R nr Gold Bar	B	X XXXXXXXXXXXX	X	XX	XXXXXXXXXX	XXX X
07C170	Skykomish R nr Miller R	B			X		
07D050	Snoqualmie R nr Monroe	L			X	XX XXXXX	XXXXXXXXXX
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 XXXXXXXXXXXX	X	XXX	XXXXXXXXXX	XXX XXXXX XXXXXXXXXXXX
07D150	M F Snoqualmie R nr Ellisville	B				X	X
07E055	Sultan R @ Sultan	B	XXXXXXXXXX X	XX X		X	X
07F055	Woods Cr @ Monroe	B		X X		X X	
07G070	Tolt R nr Carnation	B	XXXXXXXXXXXX	X		X	
07M070	SF Snoqualmie R at North Bend	B				X	
07M120	SF Snoqualmie R @ 468th Ave. SE	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	Samamish R @ Bothell	B	X XXXXXXXXXXXX	XX X X XX	XXXXXXXXXX	XXXXX X	
08B110	Samamish 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 XXXXXXXX	X X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
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 XXXXXXXXXXXX
08D070	Mercer Slough nr Bellevue	B		X			
08E090	Kelsey Cr @ Monitor Site	B		X			

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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				
08J070	West Branch Thornton Cr	B		X				
08J100	Swamp Creek abv Lynnwood	B					X	
08K090	Ship Canal @ Freemont	B					X	
08K100	North Creek nr Everett	B					X	
08L070	Laughing Jacobs Cr nr Mouth	B						X
08M070	SF Thornton Cr @ 107th Ave NE	B						X
09A060	Duwamish R @ Allentown Br	B			XXXXXXXXXX	XX		
09A070	Duwamish R @ Foster	B	X	XXXXXXXXXX				
09A080	Green R @ Tukwila	L					XXXXXXXXXX	XXXXXXXXXX
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	XXXXXXXXXX
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	X
09C090	Des Moines Cr @ So 200th	B		X				
09D070	Miller Cr nr Mouth	B		X				X 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		
09F150	Newaukum Creek nr Enumclaw	B					X	

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
09H090	Black R @ Renton	B				X	
09J090	Longfellow Cr abv 24-25th St junctn	B					XX
09K070	Fauntleroy Cr. nr Mouth	B					XX
10A050	Puyallup R @ Puyallup	B	X XXXXXXXXX X	XXX XXXXX XXX			XXX
10A070	Puyallup R @ Meridian St	L		X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
10A075	Puyallup R @ East Main St.	B					X
10A080	Puyallup R. nr Sumner	B					X
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			
10C095	White River @ R Street	B					X XXXXXXX X
10C110	White R blw Buckley	B		X			
10C130	White R @ Buckley	B				X	
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				
10E070	Salmon Cr @ Sumner	B		X			
10F070	So Prairie Cr nr Crocker	B		X			
10F090	South Prairie Ck nr S. Prairie	B				X	
10H070	Lk Tapps Tailrace @ E. Valley Hwy.	B					X
10I050	Joe's Creek @ SR 509	B					X
11A070	Nisqually R @ Nisqually	L		X X XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
11A080	Nisqually R @ McKenna	B	X XXXXXXXXXX X			XX X	
11A090	Nisqually R abv Powell Cr	B		X XX	XXXXXXXXXX	X	

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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					
12B070	Leach Cr nr Steilacoom	B	XXX	X				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	XXXXXXXXXX
13A080	Deschutes R nr Olympia	B		X X X				
13A150	Deschutes R nr Rainier	B	X XXX	X X XX	XXXXXXXXXX	XX X		
14A060	Goldsborough Cr @ Shelton	B				X X		
14A070	Goldsborough Cr nr Shelton	B	XXX X	X				
15A070	Dewatto R nr Dewatto	B		XXX		X		X
15B050	Chico Cr nr Chico	B				X		X
15B070	Chico Cr nr Bremerton	B	XXXXX	X				
15C070	Clear Cr @ Silverdale	B				X		X
15D070	Tahuya R @ Tahuya River Rd	B						X
15D090	Tahuya R nr Belfair	B				X		
15E070	Union R nr Belfair	B				X	X	
15F050	Big Beef Cr @ Mouth	B						XXXX
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						XXXX
15M070	Lt Anderson Cr. @ Anderson Hill Rd	B						XXXX

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
15N070	Stavis Cr. nr Mouth	B					XXXX
16A070	Skokomish R nr Potlatch	L	XXXXXXXX X	X XXX XX X	XXXXXX	XXXXXXXXXX	XXXXXXXXXX
16B070	Hamma Hamma R nr Mouth	B	XXXXXX X	X X			
16B110	Hamma Hamma R nr Eldon	B		XX		X	
16C070	Duckabush R @ Mouth	B	XXXXXXXX X	X X			
16C090	Duckabush R nr Brinnon	L		XXX		XXXXXX	XXXXXXXXXX
16D070	Dosewallips R @ Brinnon	B	X XXXXXXXXXXX	X XXX		X	
16E070	Finch Cr @ Hoodspout	B				X X	
17A060	Big Quilcene R nr mouth	B					XX
17A070	Big Quilcene R nr Quilcene	B	X XXXXXXX	XXX		X X	
17B070	Chimacum Cr nr Irontale	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
17G060	Tarboo Cr. nr mouth	B					X
18A050	Dungeness R nr Mouth	B					XXXXXX
18A070	Dungeness R nr Sequim	B	X XXXXXXX	XXX		X X	XX
18B070	Elwha R nr Port Angeles	L	X XXXXXXX X	XXX		XXXXXX	XXXXXXXXXX
18B080	Elwha R @ McDonald Br (USGS)	B		XXXXX	XX		
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					XXXX
19D070	East Twin R. nr Mouth	B					XXXX
19E060	Deep Cr. nr mouth	B					XXXX
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	XXXXXXXXXX

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		XXXXXXXXXX	XX			
22A070	Humtulpils R nr Humtulpils	L	x XXXXXXXXXXXX	X XXX	XX XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
22B070	WF Hoquiam R nr Hoquiam	B	XXXXXX	XX			X	
22C050	Chehalis R nr Montesano	B		XX	XX XXXXXXXXXXXX	XXX		
22C070	Chehalis R nr Fuller	B		X X				
22D070	Wishkah R nr Wishkah	B	XXXXXX	XX X				
22F090	Wynoochee R nr Montesano	B	x XXXXXXXX X	X XX X				
22G070	Satsop R nr Satsop	B	XXXXXXXXXXXX	XX X XXX	XXXXXXXXXXXX	XX X		
22H070	Cloquallum Cr nr Elma	B	XXXX	X X X				
22J070	Wildcat Cr nr McCleary	B		X				
23A070	Chehalis R @ Porter	L	x XXXXXXXXXXXX	XXXX XXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
23A100	Chehalis R @ Prather Rd	B					XXX	XXXX
23A110	Chehalis R @ Galvin	B		X X X				
23A120	Chehalis R @ Centralia	B			XX XXXXXXXXXXXX	XX X		
23A130	Chehalis R @ Claquato	B					X	
23A140	Chehalis R @ Adna	B		X X X				
23A160	Chehalis R @ Dryad	L	x XXXXXXXX		XX XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
23B050	Newaukum @ Mouth	B					X	
23B070	Newaukum R nr Chehalis	B	XXXXXXXXXX	X X X			X	
23B090	SF Newaukum R @ Forest	B		X				
23C070	NF Newaukum R @ Forest	B		X				
23D055	Skookumchuck R @ Centralia	B					X X	

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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 xxxxxxx	xxx xxxxx	xxxxxxxxxxx	
24B095	Willapa R nr Menlo	B						x
24B130	Willapa R @ Lebam	B	x xx	x	xx xxxxxxxxxxx	xxx		
24B150	Willapa R @ Swiss Picnic Rd	B						x
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	xxxxxxxxxxx	
24G070	Bear Branch nr Naselle	B	x	x				
24H070	Middle Nemah R nr Nemah	B		x				
24J070	South Nemah R nr Nemah	B		x				
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				
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						xxxx
25E060	Abernathy Cr. nr mouth	B						xxxx
25E100	Abernathy Cr. @ DNR	B						xxxx
25F060	Mill Cr. nr mouth	B						xxxx

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
25F100	Mill Cr. @ DNR	B					XXXX
26B070	Cowlitz R @ Kelso	L	XXXXXXXX	XX X XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
26B100	Cowlitz R @ Castle Rock	B	XXX	X XXXX			X
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	XXXXXXXXXX	XXX	
26E070	Cispus R nr Kosmos	B		X	XXX		
26F050	Olequa Cr. at 7th Street	B					X
27A070	Columbia R @ Kalama	B		XX X XX			
27A110	Columbia River nr St. Helens	B		XX X			
27B050	Kalama R @ Kalama	B	XXXXXXXXXX	X			
27B070	Kalama R nr Kalama	L		XX XX	XXXXXXXXXX	XXX XXXXX	XXXXXXXXXX
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 XXXXXXXXXXXX	XXX XXXXX	XXXXXXXXXX
27E070	Cedar Cr nr Etna	B				X	
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 X
28A165	Columbia R @ Warrendale	B		XXXXXXX			

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
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	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			XX 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
28I120	Lacamas Creek @ Goodwin Road	B					X
28J070	Little Washougal Cr. @ Blair Road	B					X
29B070	White Salmon R nr Underwood	B	XXXXXXXXXX	X XX XXXX	XXXX	X	
29B090	White Salmon R @ Husum St	B					X
29C070	Wind R nr Carson	B		X XXXX	XXXX	X	
29D070	Rattlesnake Cr nr Mouth	B				XXX	X
29E070	Gilmer Cr nr Mouth	B				XXX	
30A070	Columbia R @ The Dalles	B	XX	XXXXXXXX		X	
30A090	Columbia R @ The Dalles Dam	B	X				
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					X
30C150	Little Klickitat R. @ Hwy 97	B					X
31A070	Columbia R @ Umatilla	L	X	XXXXX		XXXXXXXXXX	XXXXXXXXXX
31A090	Columbia R @ McNary Dam	B	X XXXXXXXXXXX				

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
31A130	Columbia R nr Yakima R Mouth	B		X				
32A070	Walla Walla R nr Touchet	L	X	XXXXXXXX	XX XXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
32A090	Walla Walla R nr Lowden	B		XX				
32A100	Walla Walla at east Detour Road Br	B					X X	
32A110	Walla Walla R @ College Pl	B		XX XX				
32B070	Touchet R @ Touchet	B		X XX XX	XXXXXXXXXXXX	XXX	X	
32B075	Touchet R. @ Cummins Rd.	B						X
32B080	Touchet at Sims Road	B					X X	
32B100	Touchet R @ Bolles	B		XX			X X	
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	
33A010	Snake R nr Mouth	B		X				
33A050	Snake R nr Pasco	L	XXXXXXXX X	X			XXXXXXXXXX	XXXXXXXXXX
33A070	Snake R blw Ice Harbor Dam	B		X	X XXXXXX	XXXXXXXXXXXX	XX	
34A070	Palouse R @ Hooper	L	X	XXXXXXXXXXXX	X XXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
34A075	Palouse River @ Hwy 26	B						X
34A080	Palouse River above Rebel Flat	B						X
34A085	Palouse R @ Shields Rd Bridge	B					X	X
34A090	Palouse R nr Diamond	B		X X				
34A109	Palouse River blw Colfax	B						X
34A110	Palouse R abv Buck Canyon	B		X XX				
34A120	Palouse R at Colfax	B						X X
34A170	Palouse R @ Palouse	L		X			XXXXXXXXXX	XXXXXXXXXX
34A200	Palouse R nr Stateline	B						X
34B070	SF Palouse R nr Colfax	B		X XX				
34B075	SF Palouse R @ Shawnee Rd	B						X

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
34B080	SF Palouse R @ Albion	B						X
34B090	SF Palouse R nr Pullman	B		X X				
34B110	SF Palouse R @ Pullman	L		X X XX	XXXXXXXXXX	XXX XXXXX	XXXXXXXXXX	
34B130	SF Palouse R blw Sunshine	B		X				XXX
34B140	SF Palouse R @ Busby	B				X		
34C060	Paradise Cr at Mouth	B				X		XXX
34C070	Paradise Cr nr Pullman	B		X				
34C100	Paradise Cr @ Border	B				X		XXX
34D070	SF Palouse Trib Whitman Fm	B		X				
34E070	Rock Creek at Revere	B				X		
34F090	Pine Cr @ Rosalia	B					X	X
34H070	Pleasant Valley Cr blw St John	B						X
34J050	Union Flat Cr nr Mouth	B						X
34J070	Union Flat Cr @ Winona Rd	B						X
34J090	Union Flat Cr @ Hwy 26	B						X
34J120	Union Flat Cr @ Almota Rd	B						X
34K050	Rebel Flat Cr @ Mouth	B						X
34K080	Rebel Flat Cr @ Repp Rd	B						X
34K120	Rebel Flat Cr @ Fairgrounds	B						X
34L050	Cow Cr @ mouth	B						X
34M070	Dry Creek @ Pullman	B						X
34N070	Missouri Flat Creek @ Pullman	B						X
35A100	Snake R blw Lwr Granite Dam	B			X			
35A150	Snake R @ Interstate Br	L	XXXXX XX				XXXXXXXXXX	XXXXXXXXXX
35A200	Snake R nr Anatone	B		XXXXXXXXXX				
35B060	Tucannon R @ Powers	L		X XX	XXXXXXXXXX	XXX XXXXX	XXXXXXXXXX	
35B090	Tucannon R @ Smith Hollow	B						X
35B100	Tucannon R @ Territorial Road	B						X
35B110	Tucannon R nr Delaney	B	X X					

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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
35F110	Pataha Cr @ Rosy Grade	B						X
35L050	Almota Cr. @ mouth	B						X
35L140	Almota Cr @ Klemgard Rd	B						X
35Q050	Little Almota Cr @ Mouth	B						X
35R050	Steptoe Cr @ Mouth	B						X
35R120	Steptoe Cr blw Stewart	B						X
35R140	Steptoe Cr abv Stewart	B						X
35S060	Wawawai Cr @ mouth	B						X
35U070	Alkali Flat Cr nr Mouth	B						X
35U090	Alkali Flat Cr abv Hay	B						X
35U140	Alkali Flat Cr @ Little Alkali Rd	B						X
35U190	Alkali Flat Cr @ Penewawa Rd	B						X
35W070	Mud Flat Cr @ Mouth	B						X
35Y070	Penewawa Cr nr Mouth	B						X
35Y110	Penewawa Cr @ Looney Br	B						X
35Y170	Penewawa Cr abv Goose cr	B						X
35Z070	Little Penewawa Cr @ Mouth	B						X
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	XXXXXXXXXX

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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	XXXXXXXXXX	
37A095	Yakima 2 mi blw Prosser	B				X		
37A100	Yakima below Prosser	B				X		
37A110	Yakima R @ Prosser	B		X XX				
37A130	Yakima R @ Mabton	B		X XX		X		
37A149	Yakima R @ Granger No Side	B		X				
37A150	Yakima R @ Granger So Side	B		X				
37A170	Yakima R nr Toppenish	B		X XX		X		
37A190	Yakima R @ Parker	B		X XXXXXXXX	XXXXXXXXXX	XXX		
37A200	Yakima R abv Ahtanum Cr (USGS)	B		XX X XX				
37A205	Yakima R @ Nob Hill	L				XXXXX	XXXXXXXXXX	
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				
37E050	Wide Hollow Cr. @ Main Street	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	Sulfur Creek @ Holaday Road	B						X
37G120	Ahtanum Cr @ 62nd Ave	B						XX
37I070	Moxee Drain @ Birchfield Rd.	B						XX
38A050	Naches R @ Yakima on US HWY 97	B	XXXXXXXX			X	XX	X X
38A070	Naches R @ Yakima	B		X X				
38A110	Naches R @ Naches	B	X X	X				
38A130	Naches R nr Naches	B	XXXX					

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
38B070	Tieton R @ Oak Creek	B	XXXX			X	
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	
38G070	Cowiche Cr. @ Powerhouse Rd.	B					XX
38G120	Cowiche Cr @ Zimmerman rd	B					XX
39A050	Yakima R @ Harrison Bridge	B				XX	XXX
39A060	Yakima R @ Ellensburg	B				XX	XX
39A070	Yakima R nr Thorp	B		X X			
39A080	Yakima R @ Cle Elum	B	X XXXXXXXXXXXX	X			
39A090	Yakima R nr Cle Elum	L		X X		XXX XXXXX	XXXXXXXXXX
39B070	Cle Elum R nr Cle Elum	B		X X			
39B090	Cle Elum R nr Roslyn	B				X	
39C070	Wilson Cr @ Highway 871	B	XXXX	X X X		X	XX
39D070	Teanaway R nr Cle Elum	B	XXXXXX			X	
41A070	Crab Cr nr Beverly	L	X XXXXXXXXXXXX	XXX XX XX	XXXXXXXXXXXX	XX XXXXXX	XXXXXXXXXX
41A075	Crab Cr nr Smyrna	B	XXX				
41A090	Crab Cr nr Othello	B		X			
41A110	Crab Cr nr Moses Lake	B	X		XXXX	X X X	
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

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
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		
44A190	Columbia River @ Hwy 2 Bridge	B						X
45A070	Wenatchee R @ Wenatchee	L	XXXXXXXXX	X X XX XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	
45A075	Wenatchee River @ Sleepy Hollow Br.	B						X
45A085	Wenatchee R nr Dryden	B		X				
45A100	Wenatchee R @ Leavenworth	B		X				
45A110	Wenatchee R nr Leavenworth	L	X XXXXXXXX		XX XXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	
45B070	Icicle Cr nr Leavenworth	B		X		X		
45C060	Chumstick Cr. nr mouth	B						XX
45C070	Chumstick Cr nr Leavenworth	B				XXX	X X	
45D070	Brender Cr nr Cashmere	B				XXX	X XX	
45D080	Brender Cr. abv Noname Cr.	B						X
45E070	Mission Cr nr Cashmere	B				XXX	X XX	
45J070	Nason Cr. nr mouth	B						X
45K050	White R. @ Road 6500 Bridge	B						X
45L050	Little Wenatchee @ 2 Rvr Grav.Pit	B						X
45Q060	Eagle Cr. nr mouth	B						XX
45R050	Noname Creek nr Cashmere	B						XX
45R070	Noname Cr. on Mill Rd.	B						X
46A070	Entiat R nr Entiat	L	X XXXXXXXX	X XX XX	XXXXXXXXXX	XX XXXXXX	XXXXXXXXXX	
47A070	Chelan R @ Chelan	B	XXXXXXXXX	X X XX XX	XXXXXXXXXX	XX X		
47B070	Columbia R @ Chelan Station	B				X X		

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->
48A070	Methow R nr Pateros	L	x xxxxxxx	x xx xx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
48A130	Methow R nr Twisp	B		x xx	xxxxxxxxxx		
48A140	Methow R @ Twisp	L				x xx x xxxxx	xxxxxxxxxx
48A150	Methow R @ Winthrop	B					x
48A170	Methow R @ Weeman Br	B		x			
48A190	Methow R blw Gate Cr	B		x xx x			
48B070	Chewuch R @ Winthrop	B		x			x
48C070	Andrews Cr nr Mazama	B		xxxxxxxxxx	xx		
49A050	Okanogan R nr Brewster	B	x xxxxxxx x	x			
49A070	Okanogan R @ Malott	L	xxx	x x xx xx	xx xxxxxx	xxxxxxxxxx	xxxxxxxxxx
49A090	Okanogan R @ Okanogan	B		x xx	xxxxxxxxxx	x	x
49A110	Okanogan R @ Omak	B					x
49A130	Okanogan R @ Riverside	B					x
49A170	Okanogan R @ Janis	B		x			
49A180	Okanogan R @ Tonasket	B				x	
49A190	Okanogan R @ Oroville	L	xxxxxxx	xx xx	xxxxxxxxxx	xx x xxxxx	xxxxxxxxxx
49B070	Similkameen R @ Oroville	L	xxxxxxx	xx xx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
49B090	Similkameen R @ Nighthawk	B				x	
49B110	Similkameen R @ Chopaka, BC	B					xx
49F070	Bonaparte Cr. @ Tonasket	B					x
49F105	Bonaparte Cr abv Tonasket	B					x
50A070	Columbia R nr Brewster	B	x				
50A090	Columbia R @ Bridgeport	B	x				
50B070	Foster Cr @ Mouth	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	

Station Number	Name	Long-term or Basin	Water Year Sampled				
			<---1960s-->	<---1970s-->	<---1980s-->	<---1990s-->	<---2000s-->
52B070	Lake Roosevelt from Keller Ferry	B				X	
53A070	Columbia R @ Grand Coulee	L		X XX XX	XXXXXXXXXX	XX X XXXXX	XXXXXXXXXX
54A050	Spokane R @ Mouth	B				XXXX	
54A070	Spokane R @ Long Lake	B	X XXXXXXX	X XXXXXXXXXXX	XX		X
54A089	Spokane R 2 mi blw Ninemile dam	B		XX			
54A090	Spokane R @ Ninemile Br	B		X X			X X
54A120	Spokane R @ Riverside State Pk	L		XXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
54A130	Spokane R @ Fort Wright Br	B		X X			
55B070	Little Spokane R nr Mouth	L		X X XXX	XXXXXXXXXX	XX XXXXXX	XXXXXXXXXX
55B075	Little Spokane @ Painted Rocks	B				X	
55B080	Little Spokane R nr Griffith Spring	B				XX	
55B082	Little Spokane R abv Dartford Creek	B				XX X	
55B085	Little Spokane nr Dartford	B	XXXXXXXX				
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					X
55C065	Deadman Cr nr Mouth	B				X	
55C070	Peone (Deadman) Creek abv L Deep Cr	B				XX	X
55C200	Deadman Cr@Holcomb Rd	B					X
55D070	Deer Cr at Hwy 2	B				X	
55E070	Dragoon Cr at Crescent Road	B				X	
56A070	Hangman Cr @ Mouth	L		X X XXX	XXXXXXXXXX	XX X XXXXX	XXXXXXXXXX
56A200	Hangman Creek @ Bradshaw Road	B				X	
57A120	Spokane R @ Spokane	B		X			
57A125	Spokane R blw Monroe St.	B					X
57A130	Spokane R @ Mission St Br	B		X X			
57A140	Spokane River @ Plante's Ferry Park	B					X
57A145	Spokane R @ Trent Br	B		X			

Station Number	Name	Long-term or Basin	Water Year Sampled					
			<---1960s--->	<---1970s--->	<---1980s--->	<---1990s--->	<---2000s--->	
57A148	Spokane R @ Barker Rd	B						X
57A150	Spokane R @ Stateline Br	L	X XXXXXX X	XX X X			XXXXXXXXXX	XXXXXXXXXX
57A190	Spokane R nr Post Falls	B		XXXXXXXX	XXXXXXXXXX	XX		
57A240	Spokane R @ Lake Coeur d'Alene	B						X
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				XXX
59A140	Colville R @ Newton Rd	B						X
59B070	Little Pend Oreille @ Hwy 395	B					X	
60A050	Kettle R @ Hedlund Bridge	B	X					
60A070	Kettle R nr Barstow	L	XXXXXXXX X	X X XX XX	XXXXXXXXXX	XX XXXXX	XXXXXXXXXX	
61A070	Columbia R @ Northport	L	X XXXXXXXXXXX	XXXXXXXXXX	XX		XXXXXXXXXX	XXXXXXXXXX
61B070	Deep Ck nr Mouth	B				X	X	
61C070	Onion Cr nr Northport	B				X		
61D070	Sheep Cr nr Northport	B				X		
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	XXXXXXXXXX	
62A150	Pend Oreille R @ Newport	L	X XXXXXX X	X XX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	

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

This appendix provides a record of changes in methods and procedures used by the Environmental Assessment Program to collect and analyze river and stream water quality data. 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 Sept 1985: Laboratory moved from Ecology's Southwest Regional Office 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 not detailed and only available from bench sheets archived by Manchester Environmental Laboratory.
- 1994: The use of Polyacrylamide (PAM) to control erosion from rill irrigation is becoming widespread in eastern Washington. Water quality effects are unknown.
- 1996: Began monitoring discharge at some stations ourselves (mostly basin stations), rather than contracting with USGS.
- 2001: Began running Central (Nov 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.
- Oct 2005 (except the NW run, which made the change several months earlier): Previously, aliquots for pH, conductivity, and turbidity were obtained from the stainless steel bucket used to collect the oxygen. However, this presented a risk of contamination from the oxygen bottles. The sampler was re-designed so that only the oxygen sample is obtained from the bucket; all other samples are collected in passengers.

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: Laboratory 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 Rinella, USGS).
- Sept 30, 1978: USGS laboratory 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 Rinella, USGS, and Earl L. Skinner, "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.
- June 1, 1980 to 1986: Nutrients analyzed by Pat Crawford at Southwest Regional Office.
- 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 Laboratory.
- June 1985: Switched from Technicon to Rapid Flow Analysis (Alpkem) auto-analyzers.
- 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?).
- Sept 17 - Oct 12, 1990: 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 sent to contract lab.
- Mar 1991: All nutrients sent 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 laundry detergents is restricted to 0.5% and dishwashing detergent to 8.7% statewide (SSB 5320; WAC 70.85L.020). Phosphorus use had been limited in Spokane County one (?) year earlier.
- Feb 1999: 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 contained a high bias (4 to 20 ppb). Trend analyses of total phosphorus data should be interpreted carefully if results collected between Feb 1999 and Sept 2003 are included. (See email from Dean Momohara to David Hallock, 31 March 2003.) Total phosphorus data analyzed using this method have been coded "4" indicating a potential quality problem, and given a different name ("TP_PInline" rather than the usual "TP_P").
- Oct 2000: Nitrate+nitrite method nomenclature changed from EPA 353.2 to SM 4500NO3I because the latter method is more specific. Actual procedures were not changed.
- Oct 2000: TP method changed from EPA 365.1 to SM 4500PI. The former method specifies a manual digestion, while the latter correctly refers to the in-line digestion used by MEL's *Lachat* instrument.
- Oct 2000 to Feb 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 to David Hallock, March 8, 2001.)
- Oct 2003: TP method changed from SM 4500PI to EPA 200.8M, an ICP/MS method with low detection limits and without the bias associated with in-line digestion. Samples are collected in a

60mL container with HCl preservative instead of the earlier 125mL container with H₂SO₄ preservative.

- Oct 1, 2007 we changed total phosphorus analytical methods from EPA 200.8M (ICP-MS) to SM 4500PH (colorimetric with manual digestion). We made this change because we discovered that at turbidities greater than 4 NTUs, the ICP method is biased low compared to the colorimetric method. (See email from Dave Hallock to Bob Cusimano, October 25, 2007.)
- Jul 2008: The phosphorus content in dishwasher detergents is restricted in Spokane County as of this date (RCW 70.95L.020). (A new law signed in March 2008 eliminated Clark County from the July 1 deadline and weakened regulations that will start in Whatcom County. Phosphorus in laundry detergents has been restricted since 1994.)
- Jul 2010: The phosphorus content in dishwasher detergents will be restricted statewide as of this date (RCW 70.95L.020).

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 changed from 250 (?) to 500 ml.
- Sept 17 - Oct 12, 1990: 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 EPA 160.2 to SM 2540D. Methods did not change; the latter reference more accurately reflects analytical procedures. See email from Karin Feddersen, 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/cm of the standard. At first, some samplers would correct the data, others would not. Now, these data are uncorrected and coded "J" (estimate).

Fecal Coliform Bacteria

- 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. However, there is an apparent drop in monthly geometric means in late 1985. This may be coincident with moving the lab to Manchester (see memo from Dave Hallock to Dick Cunningham, June 18, 1991).
- Mar 1988: Switched to new filter with slightly better recovery.
- Nov 2000: Holding time was changed from 30 hours to 24 hours (Standard Methods changed to 24 hours with the 17th edition, 1989). As a result, more data have been coded "J" since then due to exceeding holding times.
- Sept 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 Karin Feddersen, 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 1991: Changed to Orion model 250A meter with "spare water" liquid probe (uses 1M KCl, rather than 4M). Calibrated daily and checked calibration three times during the sampling day. Began using low ionic strength buffers.

Temperature

- Feb 1978: Switched from thermometer in bucket to thermistor in river. (See memo from Bill Yake, 30 Jan 1978 and Ambient Monitoring Procedure-1978(?) notebook)
- Feb 1985: Checked thermistor calibration daily (internal calibration check based on red-lining needle, not a check against a NIST thermometer) (Memorandum from John Bernhardt, Feb 7, 1985).
- Spring 1994: Switched to YSI 300 meter (accuracy +/- 0.4C).
- Jan 1, 2001: Began calibrating thermistors prior to each run rather than annually. Some thermistors were found to be as much as 1-2 °C low.
- About May 2006: Began evaluating thermistor calibration at several temperatures and calculating correction coefficients based on a linear regression correction. Corrections are applied upon data entry by the database rather than by the sampler.

Oxygen

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

- Feb 1985: Began calibrating barometer before each run based on National Weather Service report from Olympia airport (Memorandum from John Bernhardt, Feb 7, 1985).
- ___ 1995: Began calibrating barometer prior to each run using an on-site mercury barometer rather than pressure as reported by the Olympia airport.
- ___ 2003(?): Began calibrating barometer prior to each run using an on-site digital barometer rather than the mercury barometer. Calibrated digital barometer to mercury barometer annually.

Chlorophyll

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

Hardness

- Jul 1, 1991: 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.

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Appendix C. Water Year 2007: raw data

Data listed in this appendix are available in electronic format by contacting the Washington State Department of Ecology regional offices:

- 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: Craig Homan (425.649.7008; chom461@ecy.wa.gov)

Ambient monitoring data from the most recent complete Water Year are available over the Internet on Ecology's web pages (www.ecy.wa.gov). Look under the "Environmental Assessment" program, "Long-term monitoring," and "River and Stream Water Quality."

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" and "J" were used in WY 2007.

- 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

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Conventional Data Report

Nooksack R @ Brennan 01A050

Class: A Latitude: 48 49 08.5
 Rivermile: 3.4 Longitude: 122 34 47.9
 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	
10/18/2006	7:45	10.4	806	135	11.1	7.71	8	0.398	0.01 U	0.343	0.018	0.01	5.1	31 J
11/15/2006	7:50	6.8	6450	107	11.2	7.37	144	0.977	0.021	0.822	0.0853	0.014	90	43 J
Sample taken under bridge on left bank due to high wind.														
12/20/2006	8:05	5.3	4330	120	12	7.49	26	0.764	0.032	0.692	0.0385	0.0096	12	8 J
1/24/2007	8:00	4.4	7560	90	12.5	7.32	141	0.735	0.043	0.662	0.092	0.012	95	110 J
2/14/2007	8:00	5.8	3110	116	12.1	7.46	15	0.605	0.034	0.546	0.0282	0.015	11	59 J
3/21/2007	8:05	5.4	8750	89	12	7.25	140	0.565	0.034	0.467	0.0735	0.0092	80	40 J
4/18/2007	7:55	7.8	3970	108	11.6	7.52	26	0.476	0.014	0.438	0.0233	0.0091	15	27 J
5/23/2007	8:10	11.9	3970	93	10.45	7.42	24	0.288	0.012	0.242	0.0218	0.0086	10	20 J
6/20/2007	8:10	13.8	4170	82	10	7.52	28	0.16	0.01 U	0.162	0.0187	0.0077	9	19 J
7/25/2007	7:45	14.9	4040	73	9.9	7.53	162	0.18	0.01 U	0.154	0.0908	0.008	130	60 J
8/22/2007	8:00	14.9	1460	120 J	9.8	7.7	20	0.21	0.01 U	0.173	0.0261	0.015	15	240 J
9/26/2007	9:35	11.5	706	138	10.19	7.74	9	0.324	0.01 U	0.289	0.0278	0.022	5.9	22

Recalibrated pH meter after recording sample. New temp = 12.5, new pH = 7.65

Conventional Data Report

Nooksack R @ No Cedarville
01A120

Class: A Latitude: 48 50 29.9
 Rivermile: 30.8 Longitude: 122 17 36.9
 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	
10/18/2006	10:00	9.1	644	122	11.2	7.8	6	0.12	0.01 U	0.102	0.0053	0.0038	3.1	18
11/15/2006	10:05	6.8	4890	85	11.7	7.59	102	0.455	0.01 U	0.41	0.0616	0.0069	65	6
12/20/2006	10:15	5.1	3990	91	12.6	7.59	29	0.303	0.011	0.291	0.0173	0.0067	12	4
1/24/2007	10:20	3.7	4890	72	12.7	7.54	77	0.27	0.01 U	0.263	0.0396	0.012	34	5
2/14/2007	9:45	4.9	2530	88	12.5	7.67	12	0.2	0.01 U	0.186	0.0102	0.0039	10	6
3/21/2007	10:15	4.3	6270	69	12.9	7.52	118	0.2	0.015	0.192	0.0753	0.0049	55	4
4/18/2007	9:55	5.5	3000	85	12.5	7.65	15	0.15	0.01 U	0.151	0.0091	0.0038	9.3	1 U
5/23/2007	10:35	9.1	3760	75	11.75	7.68	15	0.073	0.01 U	0.059	0.0108	0.0034	9.4	4 J
6/20/2007	10:00	10.7	4410	68	11.1	7.52	37	0.058	0.01 U	0.042	0.0177	0.003 U	14	14
7/25/2007	10:15	12	3440	69	10.8	7.51	106	0.1	0.01 U	0.076	0.0675	0.0042	85	23
8/22/2007	11:15	12.6	1720	91 J	10.5	7.73	92	0.068	0.01 U	0.051	0.0783	0.0037	120	72 J
9/26/2007	11:55	10.6	841	118	11.38	8.01	4	0.086	0.01 U	0.058	0.0058	0.0043	5.4	3

Conventional Data Report

Nooksack R above the MF
01A140

Class: A Latitude: 48 50 16.9
Rivermile: 40.8 Longitude: 122 09 15.0
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
10/18/2006 11:45	8.4	357	127	11.6	7.85	4	0.15	0.01 U	0.133	0.005	0.0032	3.1	3
11/15/2006 11:30	6.9	1160	96	11.8	7.7	163	0.384	0.01 U	0.332	0.0757	0.0057	100	4
Too windy for RP.													
12/20/2006 12:15	5.1	1378	102	12.4	7.58	18	0.303	0.013	0.288	0.0147	0.0066	14	6
Too windy for RP.													
1/24/2007 11:30	4.3	1519	90	12.6	7.55	23	0.281	0.01 U	0.284	0.018	0.0037	13	4
2/14/2007 11:40	4.9	870	104	12.9	7.71	4	0.2	0.01 U	0.189	0.005	0.0031	3.7	1
3/21/2007 11:25	4.6	1751	80	13	7.56	150	0.21	0.01 U	0.199	0.0343	0.0039	36	1
4/18/2007 11:45	6.7	757	96	12.6	7.7	6	0.16	0.01 U	0.166	0.0041	0.0035	3	1
5/23/2007 12:10	9.6	1390	79	11.45	7.7	11	0.089	0.01 U	0.082	0.0079	0.003	5.7	1
6/20/2007 11:50	10.9	2238	68	11.2	7.52	57	0.06	0.01 U	0.049	0.0179	0.003 U	14	5
Three families of geese upstream of site													
7/25/2007 12:10	12.6	2265	66	10.9	7.51	138	0.083	0.01 U	0.069	0.0773	0.0036	90 J	7
8/22/2007 13:10	13.3	1453	89 J	10.7	7.82	53	0.066	0.01 U	0.051	0.0485	0.0035	60	14 J
9/26/2007 13:15	11.5	411	117	11.68	8.51 J	4	0.087	0.01 U	0.065	0.0056	0.0036	5.8	1
Flagged due to end of day standard check													

Metals Data Report

Nooksack R above the MF 01A140

Class: A Latitude: 48 50 16.9
 Rivermile: 40.8 Longitude: 122 09 15.0
 Waterbody:

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/18/2006 11:45		55.4	0.1 U	0.02 U	0.5 U	0.25 U	0.6	0.3	0.24	0.02 U	0.002 U	0.72	0.38	5 U	2.8
12/20/2006 12:15		44.5	0.1 U	0.02 U	1.3	0.25 U	1.21	0.54	0.17	0.02 U	0.0029	1.28	0.38	5 U	1.9
2/14/2007 11:40		49.3	0.1 U	0.02 U	0.89	0.25	0.71	0.44	0.1 U	0.02 U	0.002 U	1.07	0.24	5 U	2.6
4/18/2007 11:45		42.3	0.1 U	0.02 U	0.85	0.27	0.84	0.44	0.1 U	0.02 U	0.002 U	1.16	0.27	5 U	2
6/20/2007 11:50		31.1	0.1 U	0.02 U	2.5	0.31	1.81	0.45	0.27	0.027	0.0033	0.64	0.56	5 U	5.5
8/22/2007 13:10		40.1	0.1 U	0.02 U	2.1	0.25 U	3.43	0.38	0.67	0.02 U	0.0042	0.64	2.28	6.8	1 U

Conventional Data Report

S.F. Nooksack @ Potter Rd 01F070

Class: A Latitude: 48 47 20.5
 Rivermile: 19 Longitude: 122 11 57.4
 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	
10/18/2006	12:30	10.7	124	119	10.8	7.81	2	0.14	0.01 U	0.096	0.0054	0.0052	1.4	19
11/15/2006	12:00	7.1	1403	73	11.2	7.56	69 J	0.568	0.01 U	0.511	0.0315	0.0067	34	10
		Too windy for RP.												
12/20/2006	13:00	5.3	1083	77	12.1	7.51	17	0.321	0.014	0.321	0.0153	0.0062	16	6
1/24/2007	12:15	3.8	1690	59	13	7.5	77	0.27	0.01 U	0.264	0.0413	0.0049	37	1 U
2/14/2007	12:40	4.9	763	72	12.5	7.55	17	0.2	0.01 U	0.182	0.0147	0.0042	18	3
3/21/2007	11:55	4.6	1826	59	12.7	7.52	84	0.22	0.012	0.198	0.0343	0.0048	45	2
4/18/2007	12:25	5.9	815	71	12.3	7.59	14	0.14	0.01 U	0.129	0.0118	0.0043	14	1 U
5/23/2007	12:35	10.7	824	64	11.45	7.74	19	0.067	0.01 U	0.036	0.0138	0.0035	16	2
6/20/2007	12:30	13.9	666	65	10.5	7.79	13	0.051	0.01 U	0.026	0.0074	0.003 U	7.6	6
7/25/2007	12:35	16.9	448	79	9.69	7.7	16	0.15	0.01 U	0.1	0.0116	0.0045	9.6 J	32
8/22/2007	14:00	17.9	142	108 J	9.8	8.08	4	0.067	0.01 U	0.023	0.0045 J	0.0031	3.5	21
9/26/2007	14:00	14.1	45.5	124	10.19	7.91 J	1	0.095	0.01 U	0.054	0.004	0.0051	1.3	2

Flagged due to end of day standard check. After recalibration the temperature was 16.1 and the pH was 7.77

Metals Data Report

S.F. Nooksack @ Potter Rd 01F070

Class: A Latitude: 48 47 20.5
 Rivermile: 19 Longitude: 122 11 57.4
 Waterbody:

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/18/2006 12:30		60	0.1 U	0.02 U	0.5 U	0.52	0.86	0.65	0.26	0.02 U	0.0026	5.21	0.5	5 U	1 U
12/20/2006 13:00		36.9	0.1 U	0.02 U	1	0.45	1.61	0.96	0.23	0.029	0.0045	3.93	0.38	5 U	5
2/14/2007 12:40		39.4	0.1 U	0.02 U	3.37	0.5	2.39	0.92	0.33	0.024	0.0035	4.08	0.49	5 U	3.6
4/18/2007 12:25		35.4	0.1 U	0.02 U	2.8	0.55	2.08	0.9	0.24	0.023	0.0045	4.15	0.47	5 U	1 U
6/20/2007 12:30		34	0.1 U	0.02 U	3.2	0.38	1.86	0.67	0.15	0.02 U	0.0039	3.46	0.4	5 U	1.3
8/22/2007 14:00		53.5	0.1 U	0.02 U	1.5	0.61	1.06	0.67	0.1 U	0.02 U	0.002	3.52	0.48	5 U	1 U

Conventional Data Report

M.F. Nooksack R 01G070

Class: AA Latitude: 48 47 04.7
 Rivermile: 4.9 Longitude: 122 06 46.7
 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
10/18/2006 10:55	7.1		100	12.4	7.82	3	0.08	0.01 U	0.064	0.0074	0.0056	2.6	6
11/15/2006 10:50	5.5		63	12	7.66	79	0.24	0.01 U	0.208	0.0327	0.007	32 J	1 U
		Too windy for RP.											
12/20/2006 11:20	4.1		65	12.9	7.66	5	0.14	0.01 U	0.13	0.0088	0.0075	5	1 U
1/24/2007 11:05	3		50	13.6	7.58	20	0.14	0.01 U	0.128	0.0151	0.0045	8.8	1
2/14/2007 10:45	3.7		66	12.9	7.75	4	0.11	0.01 U	0.085	0.0064	0.0051	2.8	3
3/21/2007 10:45	3.4		51	13.4	7.54	10	0.12	0.01 U	0.093	0.0092	0.0048	5.6	1 U
4/18/2007 10:55	4.2		61	13.1	7.7	2	0.074	0.01 U	0.059	0.0041	0.0045	1.3	1 U
5/23/2007 11:25	7.2		53	12.36	7.8	4	0.041	0.01 U	0.019	0.0062	0.0044	3.1	1 U
6/20/2007 11:00	8.7		45	11.9	7.57	6	0.038	0.01 U	0.021	0.0083	0.0043	3.2	3
7/25/2007 11:25	9.9		59	11.5	7.5	151	0.068	0.01 U	0.049	0.0622	0.0049	70 J	8
8/22/2007 12:00	10.1		75 J	11.3	7.71	59	0.061	0.01 U	0.041	0.0283	0.0052	36	6 J
9/26/2007 12:40	8.3		99	11.48	7.75 J	8	0.07	0.01 U	0.045	0.012	0.0075	6.7	1 U
		Flagged due to end of day standard check											

Metals Data Report

M.F. Nooksack R 01G070

Class: AA Latitude: 48 47 04.7
 Rivermile: 4.9 Longitude: 122 06 46.7
 Waterbody:

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/18/2006 10:55		40.5	0.1 U	0.02 U	0.5 U	0.46	0.68	0.43	0.1 U	0.02 U	0.0025	2.57	0.35	5 U	3.7
12/20/2006 11:20		27.8	0.1 U	0.02 U	0.86	0.61	0.79	0.64	0.1 U	0.02 U	0.004	2.85	0.23	5 U	1.5
2/14/2007 10:45		31.1	0.1 U	0.02 U	1.4	0.63	0.83	0.57	0.11	0.02 U	0.002 U	2.73	0.2	5 U	1
4/18/2007 10:55		26.3	0.1 U	0.02 U	0.95	0.68	0.74	0.53	0.1 U	0.02 U	0.0026	2.95	0.16	5 U	1 U
6/20/2007 11:00		19.9	0.1 U	0.02 U	0.82	0.35	0.64	0.39	0.1 U	0.02 U	0.0029	1.69	0.14	5 U	2.7
8/22/2007 12:00		31.6	0.1 U	0.02 U	1.1	0.35	1.89	0.44	0.22	0.02 U	0.0048	1.89	0.52	5 U	1 U

Conventional Data Report

Bertrand Cr. @ Rathbone Rd
01N060

Class: A Latitude: 48 55 26.4
Rivermile: 1 Longitude: 122 31 47.6
Waterbody: WA-01-1110

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	
10/18/2006	8:40	10.3	13.6	279	9.8	7.38	2	3.82	0.01 U	3.59	0.0161	0.0055	2.5	1700 J
														Staff = 2.11. TapeDown changed 5 Feb 07 from USGS RP to Ecology RP (-1.98 ft)
11/15/2006	8:40	7.6	96	206	10.4	6.99	8	4.58	0.1	4.01	0.126	0.0732	8.4	77 J
														TapeDown changed 5 Feb 07 from USGS RP to Ecology RP (-1.98 ft)
12/20/2006	8:50	5.9	114	241	11.5	7.17	5	4.99	0.131	4.08	0.0639	0.02	6.1	22 J
														TapeDown changed 5 Feb 07 from USGS RP to Ecology RP (-1.98 ft)
1/24/2007	8:50	4.7	299	156	11.5	7.03	25	3.68	0.144	2.74	0.117	0.0486	19	130 J
2/14/2007	8:40	7.6	72.4	243	10.9	7.28	5	3.88	0.075	3.4	0.0472	0.01	8.6	36 J
3/21/2007	8:55	7.8	192	186	10.5	7.05	16	2.96	0.226	2.42	0.118	0.0332	15	140 J
4/18/2007	8:45	9	82.4	199	10.5		8	2.67	0.027	2.49	0.078	0.02	8.8	660 J
														pH not recorded.
5/23/2007	9:15	12.1	39.3	253	9.54	7.27	5	3.11	0.032	2.91	0.102	0.02	4.2	150 J
6/20/2007	8:55	13.7	19.5	278	9.1	7.34	1	3.38	0.023	3.61	0.0264	0.0071	3.4	180 J
7/25/2007	8:40	16.2	17.4	232	8.4	7.34	2	2.58	0.011	2.29	0.0499	0.011	3.8	290 J
8/22/2007	8:55	14.6	7.17	318 J	8.6	7.38	2	4.09	0.01 U	3.99	0.0114	0.0059	2.3	250 J
9/26/2007	10:30	11	9.55	305	9.4	7.31	2	4.08	0.01 U	3.83	0.0107	0.0072	4.2	180
														Bruce and Chuck from EAP flow unit working on gauge.

Conventional Data Report

Fishtrap Cr @ Flynn Rd
01U070

Class: A Latitude: 48 55 35.4
Rivermile: 1.7 Longitude: 122 29 46.6
Waterbody: WA-01-1115

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
10/18/2006	9:10	10.7	220	10	7.53	4	0.963	0.01 U	0.737	0.0181	0.0061	3.2	210 J
11/15/2006	9:25	8.1	232	10.4	7.17	22	3.23	0.081	2.89	0.0882	0.0311	36	240
12/20/2006	9:25	7.1	286	11	7.25	6	3.15	0.114	3.3	0.03	0.0089	8.8	66 J
1/24/2007	9:10	5.7	239	11.2	7.09	10	3.31	0.294	2.84	0.0867	0.022	12	1500 J
2/14/2007	9:05	8.1	289	11.5	7.45	10	3.05	0.083	2.94	0.0255	0.0053	13	92 J
3/21/2007	9:15	7.2	241	10.7	7.2	20	3.75	0.128	2.69	0.0573	0.011	14	77 J
4/18/2007	9:05	8.9	253	11.1	7.43	7	2.88	0.032	3.15	0.0204	0.0057	8.1	120 J
5/23/2007	9:35	12.1	266	10.45	7.48	6	3.93	0.03	2.66	0.026	0.0067	6.6	230 J
6/20/2007	9:20	14.2	280	9.9	7.56	6	2.58	0.017	2.91	0.0229	0.0056	5.4	170 J
7/25/2007	9:15	16.4	230	9.3	7.53	7	2.18	0.019	1.46	0.0318	0.0086	6.4	220 J
8/22/2007	9:35	15.2	260 J	9	7.66	2	1.62	0.01 U	1.27	0.0142	0.0054	4.4	600 J
9/26/2007	11:05	11.8	250	9.8	7.61	2	1.34	0.012	1.2	0.0154	0.0072	3.8	230

Lots of harvest traffic

Conventional Data Report

Skagit R nr Mount Vernon
03A060

Class: A Latitude: 48 26 42.4
Rivermile: 15.9 Longitude: 122 20 06.6
Waterbody: WA-03-1010

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	
10/17/2006	15:30	11.4	3950	75	11.3	7.56	7	0.091	0.01 U	0.057	0.005	0.0033	2.9	1
11/14/2006	15:50	7.8	36000	53	11.7	7.26	159	0.21	0.01 U	0.18	0.0594	0.0044	70	22
12/19/2006	16:00	5.1	15200	62	12.4	7.39	47	0.18	0.01 U	0.171	0.0183	0.0059	15	1 UJ
1/23/2007	15:40	4.6	20100	60	12.7	7.43	61	0.16	0.01 U	0.143	0.0156	0.0049	17	6
2/13/2007	15:20	4.8	16800	61	12.7	7.51	24	0.12	0.01 U	0.104	0.0075	0.003 U	8	1
3/20/2007	16:15	5.8	36700	48	12.4	7.35	99	0.12	0.01 U	0.101	0.0361	0.0036	40	1
4/17/2007	15:05	6.9	15200	62	12.4	7.49	33	0.11	0.01 U	0.098	0.0085	0.0041	6.5	1
5/22/2007	16:00	10.1	14700	48	11.45	7.46	25	0.091	0.01 U	0.067	0.0109	0.0039	7.3	1
6/19/2007	16:25	11.5	20800	47	11.1	7.36	44	0.072	0.01 U	0.05	0.0135	0.0037	11	1
7/24/2007	16:35	14.3	23000	40	10.6	7.46	62	0.059	0.01 U	0.036	0.0167	0.0037	17	21
8/21/2007	16:15	14.6	6540	51 J	10.1	7.46	22	0.066	0.01 U	0.04	0.0077 J	0.0046	5.4	17
pH = 7.33 after recalibration. Conductivity 54 after recalibration with new cell constant.														
9/25/2007	16:30	12.4	5150	68	10.19	7.47	9	0.091	0.01 U	0.054	0.0066	0.0052	2.9	4

Conventional Data Report

Samish R nr Burlington
03B050

Class: A Latitude: 48 32 44.8
Rivermile: 10.4 Longitude: 122 20 17.6
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
10/17/2006	14:45 10.8	32	110	10.8	7.63	4	0.615	0.046	0.445	0.0202	0.014	2.4	46
11/14/2006	15:15 7.8	901	58	11.3	7.07	76	1.14	0.014	0.952	0.0445	0.0067	38	80
12/19/2006	15:15 5.7	326	70	12.6	7.39	14	0.712	0.021	0.763	0.0177	0.0068	13	37 J
1/23/2007	15:15 5.9	546	63	12.7	7.28	63	0.856	0.022	0.839	0.0421	0.0064	60	51
2/13/2007	14:50 7.2	140	82	12.1	7.5	7	0.78	0.012	0.712	0.0144	0.0068	7	16
3/20/2007	15:45 8.3	488	61	11.9	7.32	18	0.706	0.012	0.631	0.0224	0.0056	12	18
4/17/2007	14:30 9.7	173	79	11.7	7.58	7	0.658	0.01	0.591	0.0152	0.0066	5.5	19
5/22/2007	15:30 13.1	103	86	11.25	7.77	6	0.554	0.01 U	0.458	0.0132	0.005	3.4	63
6/19/2007	16:00 14.8	63	100	10.7	7.92	2	0.642	0.01 U	0.539	0.0113	0.0057	2	39
7/24/2007	16:05 17.2	47	112	9.69	7.77	3	0.702	0.01 U	0.565	0.0153	0.0088	2.5	100
8/21/2007	15:40 15	36	113 J	10.6	8.01	4	0.647	0.01 U	0.568	0.0123	0.0093	1.9	350
9/25/2007	15:45 11.3	29	120	10.69	7.74	4	0.645	0.012	0.584	0.0123	0.0085	2.7	46

Conventional Data Report

Skagit R @ Marblemount
04A100

Class: AA Latitude: 48 31 36.4
Rivermile: 78.2 Longitude: 121 25 44.5
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
10/17/2006 13:20	9.7	2070	60	12.5	8.11	1 U	0.077	0.01 U	0.061	0.0012	0.003 U	0.5 U	14
11/14/2006 13:50	8.5	14000	54	12	7.47	18	0.11	0.01 U	0.085	0.0162	0.003 U	18	1
12/19/2006 13:50	5.8	6900	58	12.3	7.46	4	0.11	0.01 U	0.079	0.0035	0.003 U	3.3	1 UJ
1/23/2007 13:55	4.4	8510	65	12.6	7.5	3	0.08	0.01 U	0.07	0.0032	0.003 U	3.3	2
2/13/2007 13:30	4.4	8200	66	12.8	7.55	1	0.09	0.01 U	0.068	0.001	0.003 U	0.8	1
3/20/2007 14:25	4.9	11300	56	12.8	7.39	9	0.088	0.01 U	0.07	0.0034	0.003 U	3.8	1 U
4/17/2007 13:05	6	7670	65	12.7	7.6	2	0.076	0.01 U	0.071	0.0028	0.003 U	1	1 U
5/22/2007 14:15	9.8	5410	44	11.85	7.45	1 U	0.075	0.01 U	0.062	0.0014	0.003 U	0.7	1
6/19/2007 14:40	9.6	9780	49	11.8	7.53	3	0.066	0.01 U	0.049	0.0032	0.003 U	2.9	1
7/24/2007 14:10	12.1	9740	45	11.5	7.64	5	0.066	0.01 U	0.041	0.0037	0.003 U	3.7	1 U
8/21/2007 14:00	12.3	3490	47 J	11.2	7.86	1 U	0.059	0.01 U	0.04	0.001 U	0.003 U	1.1	8 J
9/25/2007 13:35	10.4	4020	58	11.48	7.88	4	0.071	0.01 U	0.048	0.0019	0.003 U	1.6	3

Conventional Data Report

Stillaguamish R nr Silvana
05A070

Class: A Latitude: 48 11 48.9
Rivermile: 11.1 Longitude: 122 12 36.5
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	
10/17/2006	10:25	10.1	953	59	10.8	7.41	13	0.396	0.01 U	0.294	0.018	0.0063	11	130
			Dark brown turbidity.											
11/14/2006	10:35	6.5	8468	41	11.9	7.18	104	0.436	0.01	0.361	0.0683	0.0055	85	10
12/19/2006	11:00	4.3	3364	58	12.6	7.32	14	0.424	0.013	0.392	0.017	0.0074	12	1 J
1/23/2007	11:10	3.9	7383	44	13	7.3	206	0.279	0.01 U	0.279	0.1	0.0071	150	14
2/13/2007	10:45	5	2997	45	12.6	7.28	26	0.23	0.01 U	0.198	0.0252	0.005	30	7
3/20/2007	10:25	5.1	12235	27	12.9	7.16	210	0.15	0.018	0.122	0.12	0.0047	140	6 J
4/17/2007	9:35	6.5	4129	47	12.1	7.28	19	0.19	0.01 U	0.178	0.0174	0.0052	17	6 J
5/22/2007	10:35	9.4	2553	46	11.45	7.35	6	0.12	0.01 U	0.08	0.0094	0.0034	5.1	33
6/19/2007	11:10	11.7	2216	45	11.1	7.36	9	0.13	0.01 U	0.066	0.0114	0.0038	6.2	13
7/24/2007	10:30	15.3	2184	46	10	7.37	28	0.2	0.01 U	0.131	0.0192	0.0064	20	140
8/21/2007	10:15	15.6	1083	83 J	9.6	7.63	9	0.13	0.01 U	0.066	0.0168	0.011	4.7	220
			Maintenance crew on northbound (upstream) bridge											
9/25/2007	9:45	12.6	379	98	9.3	7.53	7	0.18	0.012	0.09	0.0189	0.013	2.7	17 J

Conventional Data Report

SF Stillaguamish @ Arlington

05A090

Class: A Latitude: 48 12 02.6
 Rivermile: 18.2 Longitude: 122 07 08.5
 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
10/17/2006 10:55	10.1	358	47	11.2	7.42	9	0.387	0.01 U	0.298	0.0108	0.003 U	9	85
11/14/2006 11:25	6.4	1890	38	12.2	7.23	97	0.314	0.011	0.295	0.0676	0.005	85	8
12/19/2006 11:30	4.2	896	52	13.4	7.35	12	0.421	0.015	0.394	0.0165	0.0066	12	1 J
1/23/2007 11:45	3.9	2490	40	13.5	7.33	350	0.22	0.01 U	0.223	0.195	0.0061	240	9 J
2/13/2007 11:15	4.7	1060	39	12.9	7.23	39	0.19	0.01 U	0.191	0.0304	0.004	32	10
3/20/2007 11:05	4.9	3720	26	13.1	7.16	198	0.14	0.016	0.114	0.134	0.0042	120	10
4/17/2007 10:50	6.4	1210	41	12.4	7.36	20	0.18	0.01 U	0.172	0.0172	0.0044	20	9
5/22/2007 11:10	9.4	842	39	11.95	7.45	7	0.12	0.01 U	0.079	0.0077	0.003 U	6.1	29
6/19/2007 11:50	12.1	896	36	11.1	7.43	15	0.11	0.01 U	0.065	0.0127	0.003	10	11
7/24/2007 11:15	15.7	783	39	10.1	7.44	31	0.15	0.01 U	0.098	0.0234	0.0038	28	100
8/21/2007 11:00	15.7	518	70 J	10	7.8	9	0.14	0.01 U	0.088	0.0064	0.003 U	5.9	370
9/25/2007 10:30	12.1	146	81	9.9	7.62	5	0.18	0.01	0.118	0.0046	0.0034	3.8	14

Conventional Data Report

SF Stillaguamish nr Granite Falls
05A110

Class: AA Latitude: 48 06 09.9
Rivermile: 34.6 Longitude: 121 57 11.5
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	
10/17/2006	9:20	9.6	334	40	11.8	7.48	11	0.28	0.01 U	0.215	0.0116	0.0032	12	29 J
			Dark brown turbidity											
11/14/2006	9:25	5.9		32	12.7	7.32	139	0.2	0.01 U	0.163	0.109	0.0041	150	1 UJ
12/19/2006	9:45	3.7	997	43	13.7	7.52	26	0.16	0.01 U	0.156	0.0263	0.0051	27	1 J
1/23/2007	10:10	2.9	4251	32	14.5	7.36	630	0.1	0.012	0.116	0.6	0.005	500	15 J
			Installed hoist to get samples.											
2/13/2007	9:45	3.8	869	34	13.8	7.36	55	0.12	0.014	0.109	0.0339	0.0038	50	3 J
3/20/2007	9:15	4.2		23	13.7	7.23	304	0.099	0.012	0.072	0.173	0.0069	170	4 J
4/17/2007	8:25	5.6	1099	34	13.1	7.43	41	0.074	0.01 U	0.072	0.0272	0.0036	36	5 J
5/22/2007	9:25	7.8	734	32	12.26	7.54	9	0.043	0.01 U	0.032	0.0091	0.003 U	9.6	16 J
6/19/2007	10:00	9.7	779	30	11.5	7.34	16	0.069	0.01 U	0.03	0.0139	0.003 U	14	16 J
7/24/2007	9:15	14	703	31	10.5	7.43	23	0.1	0.01 U	0.055	0.0168	0.0035	19	45 J
8/21/2007	9:00	14.3	486	49 J	10.19	7.7	37	0.14	0.01 U	0.086	0.0267	0.0048	40	320 J
9/25/2007	8:35	11.1	139	66	10.59	7.79	16	0.066	0.01 U	0.019	0.0041	0.0041	5.5	100 J
			Water level very low. Pulled tidbit @ 0855											

Conventional Data Report

NF Stillaguamish @ Cicero
05B070

Class: A Latitude: 48 16 02.4
Rivermile: 9.5 Longitude: 122 00 47.0
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	
10/17/2006	11:25	10.1	438	86	11.2	7.79	3	0.273	0.01 U	0.204	0.0118	0.0083	1.7	31
11/14/2006	11:55	6.5	4060	42	12.1	7.25	59	0.406	0.01 U	0.355	0.039	0.0052	45	2
12/19/2006	11:55	4.5	2370	55	12.6	7.39	11	0.308	0.01 U	0.302	0.0146	0.0073	7.1	4 J
1/23/2007	12:05	3.3	4800	37	13.3	7.25	290	0.22	0.01 U	0.223	0.128	0.006	180	21
2/13/2007	11:45	4.6	2110	47	12.8	7.38	12	0.19	0.01 U	0.164	0.0143	0.0047	13	2
3/20/2007	11:40	4.6	5000	29	12.7	7.13	107	0.15	0.016	0.126	0.0838	0.0044	75	9
4/17/2007	11:15	6.2	2110	44	12.4	7.41	24	0.14	0.01 U	0.128	0.0214	0.0051	21	13
5/22/2007	12:15	9.8	1410	47	12.36	7.56	5	0.088	0.01 U	0.042	0.0071	0.0036	3.2	5
6/19/2007	12:30	12.3	1120	50	11.6	7.7	5	0.1	0.01 U	0.045	0.0082	0.0047	2.3	1
7/24/2007	11:45	14.6	1050	46	10.4	7.54	13	0.16	0.01 U	0.107	0.0144	0.0055	14	74
8/21/2007	11:30	14.1	520	70 J	10.6	7.85	8	0.12	0.01 U	0.053	0.0088	0.0069	5	210
9/25/2007	11:05	11.8	218	101	10.49	7.8	3	0.096	0.01 U	0.029	0.0096	0.0079	1.5	6

Conventional Data Report

NF Stillaguamish nr Darrington

05B110

Class: A Latitude: 48 16 48.1
 Rivermile: 30 Longitude: 121 42 08.7
 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
10/17/2006 12:10	9.9	59.9	86	12.4	8.17	1 U	0.09	0.01 U	0.06	0.0052	0.0057	0.5 U	14
11/14/2006 12:35	6.4	963	37	11.9	7.2	10	0.306	0.01 U	0.265	0.0091	0.0036	6.1	2
12/19/2006 12:35	4.7	603	45	12.5	7.31	2	0.25	0.01 U	0.228	0.0055	0.0049	1.3	4 J
1/23/2007 12:45	3.5	963	35	13.3	7.19	20 J	0.15	0.01 U	0.142	0.0105	0.0037	10	8
2/13/2007 12:15	4.2	494	40	12.9	7.36	2	0.13	0.01 U	0.117	0.0029	0.003 U	1.2	1
3/20/2007 12:30	3.9	1570	27	12.9	7.05	31	0.12	0.01 U	0.098	0.0128	0.003 U	15	3
4/17/2007 11:55	6.2	513	37	12.2	7.3	2	0.11	0.01 U	0.098	0.0038	0.0033	1.1	1
5/22/2007 13:00	9.7	308	36	11.65	7.37	1	0.068	0.01 U	0.052	0.0029	0.003 U	0.5 U	3
6/19/2007 13:10	12	215	36	10.8	7.31	2 U	0.074	0.01 U	0.048	0.0029	0.0031	0.5 U	1 U
7/24/2007 12:45	14.8	189	36	10.4	7.42	1	0.096	0.01 U	0.056	0.0034	0.0031	1.2	38 J
8/21/2007 12:25	14.1	115	49 J	10.6	7.75	2	0.11	0.01 U	0.07	0.0028	0.0042	1.2	85
9/25/2007 12:00	10.4	39.4	90	12.17	8.34	2	0.13	0.011	0.08	0.0079	0.0084	0.8	11

Changed battery and recalibrated pH meter after recording this sample

Conventional Data Report

Snohomish R @ Snohomish 07A090

Class: A Latitude: 47 54 38.1
 Rivermile: 12.7 Longitude: 122 05 55.7
 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	
10/16/2006	12:45	11.5	2435	71	10.3	7.4	9	0.31	0.011	0.22	0.0176	0.009	3.7	390
			Water flowing slowly upstream.											
11/13/2006	12:25	7.4	27660	36	11.4	7.11	141 J	0.429	0.01	0.367	0.0507	0.0079	60	160
12/18/2006	12:45	3.8	12432	45	12.8	6.96	23	0.465	0.016	0.426	0.0209	0.0068	6.2	6
1/22/2007	13:00	4.4	8221	51	12.8	7.11	13	0.418	0.014	0.41	0.017	0.0062	10	5
2/12/2007	14:05	6.3	8922	44	12.2	7.11	13	0.261	0.01 U	0.231	0.0111	0.0042	8.8	8
3/19/2007	12:50	6.3	24452	27	12.3	7.02	51	0.16	0.01 U	0.14	0.0212	0.0034	26	4
4/16/2007	12:45	7.7	11496	39	11.9	7.14	13	0.19	0.01 U	0.171	0.0106	0.0046	9.2	9
5/21/2007	14:40	9.2	12729	31	11.95	7.2	14	0.11	0.01 U	0.087	0.0105	0.0042	6.4	38
6/18/2007	13:50	10.2	12218	28	11.5	7.12	25	0.13	0.01 U	0.092	0.0129	0.003	12	66
7/23/2007	14:30	16.4	4327	46	9.9	7.21	5	0.21	0.01 U	0.125	0.0099	0.0045	4.2	88
8/20/2007	14:40	16.8		54 J	9.19	7.35	4	0.23	0.01 U	0.158	0.0115	0.0068	3	43
			Bank and boat fishermen upstream and downstream											
9/24/2007	14:00	12.3	1709	62	9.5	7.27	4	0.25	0.018	0.167	0.0112	0.0056	2.6	12

Conventional Data Report

Skykomish R @ Monroe
07C070

Class: A Latitude: 47 51 07.4
Rivermile: 25.6 Longitude: 121 57 33.2
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
10/16/2006 11:55	10.6	3353 J	41	10.7	7.25	11	0.308	0.01 U	0.215	0.0111	0.0035	7.4	310
12/18/2006 11:55		8611 J											
		Posted No Access due to road closure											
1/22/2007 12:15	4.3		40	13	7.09	8	0.24	0.01 U	0.228	0.0082	0.0037	6.9	6
		This site will be isolated from main flow in summer due to new gravel bar. The sample location must be changed.											
2/12/2007 13:30	5.7	6681 J	34	12.9	7.19	12	0.14	0.01 U	0.125	0.0083	0.0031	9.3	4
3/19/2007 12:00	5.6		25	12.8	7.06	34	0.12	0.01 U	0.099	0.0152	0.003 U	18	1
4/16/2007 11:55	6.5	8667 J	30	12.6	7.18	8	0.099	0.01 U	0.092	0.0063	0.003 U	7.2	1 U
5/21/2007 13:50	8.3	9392 J	25	12.26	7.28	11	0.061	0.01 U	0.046	0.0092	0.003 U	6.6	12
6/18/2007 12:45	9.1	8303 J	24	11.7	7.11	9	0.073	0.01 U	0.044	0.0073	0.003 U	7.2	16
		Bank and boat fishermen upstream of sampling site. Bank fishermen approximately 100 ft upstream, same bank.											
7/23/2007 13:45	15.1	8303 J	33	10.5	7.24	4	0.1	0.01 U	0.053	0.0048	0.003 U	3.7	39
8/20/2007 13:15	15.2	2089 J	38 J	10	7.44	2	0.098	0.01 U	0.061	0.0026	0.003 U	2.2	12 J
9/24/2007 13:20	12.6	1570 J	46	11.18	7.61	3	0.12	0.01 U	0.078	0.0034	0.003 U	1.3	3

Conventional Data Report

Snoqualmie R nr Monroe 07D050

Class: A Latitude: 47 48 13.7
 Rivermile: 2.7 Longitude: 122 00 10.4
 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
10/16/2006 11:05	11.3	793 J	80	10.6	7.49	3	0.366	0.016	0.282	0.0193	0.0094	3.2	500
11/13/2006 10:50	7.5	7056 J	37	11.2	7.07	80	0.485	0.014	0.422	0.0442	0.0093	55	100
		RP is + or - 2 ft.											
12/18/2006 11:05	3.7	4128 J	48	13	6.85	29	0.525	0.02	0.482	0.0443	0.0079	19	47
1/22/2007 11:25	4.4	2646 J	56	12.3	7.15	20	0.452	0.02	0.435	0.0253	0.0077	14	8
2/12/2007 12:45	6.6	10208 J	47	11.8	7.17	20	0.305	0.01 U	0.27	0.0136	0.005	9.2	17
		RP=+-1 ft.											
3/19/2007 11:15	6.8	11768 J	26	12.4	7.37	63	0.18	0.01 U	0.153	0.0239	0.0033	24	9
		Windy, RP +/- 0.5 ft.											
4/16/2007 11:20	8.2	3347 J	44	11.6	7.04	12	0.24	0.01 U	0.217	0.0207	0.0052	6.9	11
5/21/2007 13:00	9.7	3718 J	32	11.25	7.22	10	0.15	0.01 U	0.12	0.0095	0.005	3.5	50
6/18/2007 12:00	10.4	3918 J	28	11.2	7.14	28	0.18	0.01 U	0.12	0.0132	0.0034	15	96
		Manure being applied upstream											
7/23/2007 12:45	17	1308 J	58	9.4	7.16	6	0.256	0.014	0.177	0.0144	0.0072	3.6	80
		Duckweed											
8/20/2007 11:50	17.3	842 J	65 J	8.9	7.36	3	0.272	0.014	0.187	0.0144	0.0097	2.5	48
		Conductivity check at 1230 off less than 1, not recalibrated											
9/24/2007 12:25	12.4	776 J	72	10.29	7.47	2	0.25	0.011	0.187	0.0122	0.0071	1.3	17

Conventional Data Report

Snoqualmie R @ Snoqualmie
07D130

Class: A Latitude: 47 31 36.9
Rivermile: 42.3 Longitude: 121 48 43.7
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	
10/16/2006	10:10	10.3	708	57	10.6	7.32	5	0.21	0.01 U	0.172	0.0065	0.0042	2.5	110
11/13/2006	9:25	6.7	8510	27	11.8	7.1	263	0.297	0.01 U	0.257	0.0922	0.0043	130	9 J
12/18/2006	10:00	3.5	2600	39	12.9	7.24	24	0.274	0.01 U	0.269	0.0197	0.0052	15	4
1/22/2007	10:20	4.6	1620	47	12.7	7.4	15	0.271	0.01 U	0.286	0.0153	0.0037	12	2
2/12/2007	11:20	5.1	2440	34	12.7	7.17	21	0.19	0.01 U	0.166	0.0172	0.003 U	14	6
3/19/2007	10:05	5	6340	22	12.8	7.82	28	0.14	0.01 U	0.118	0.0123	0.003 U	16	3
4/16/2007	10:20	6.5	2280	34	12.4	7.21	5	0.16	0.01 U	0.151	0.0052	0.0032	3.6	6
5/21/2007	11:15	7.7	3460	23	11.85	7.52	12	0.12	0.01 U	0.082	0.0088	0.003 U	7.8	49
6/18/2007	10:45	9.2	3850	22	11.2	7.14	14	0.13	0.01 U	0.084	0.009	0.003 U	7.3	23
7/23/2007	11:00	15	1030	43	9.8	6.96	3	0.18	0.01 U	0.126	0.0057	0.0039	1.4	53
8/20/2007	10:45	13.5	552	52 J	9.4	7.19	3	0.23	0.01 U	0.176	0.0051	0.0053	1.4	110
9/24/2007	10:45	9.9	448	60	9.9	7.46	2	0.22	0.01 U	0.193	0.0065	0.0045	1	31

Conventional Data Report

Cedar R @ Logan St/Renton
08C070

Class: A Latitude: 47 29 08.4
 Rivermile: 1 Longitude: 122 12 32.4
 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
10/16/2006	13:45 11.7	386	72	11.2	7.7	6	0.256	0.018	0.191	0.0125	0.013	1.9	74
11/13/2006	13:45 8.6	4290	42	11.4	7.24	139	0.369	0.01 U	0.321	0.0613	0.0065	75	18 J
12/18/2006	13:55 5.4	1480	52	12.8	7.23	15	0.317	0.01 U	0.299	0.0119	0.0075	5.5	21
1/22/2007	14:05 5.6	1300	53	12.9	7.4	6	0.274	0.01 U	0.275	0.0074	0.0059	1.9	6
2/12/2007	15:05 8.8	490	76	12.6	7.74	1 U	0.318	0.01 U	0.288	0.0069	0.0062	0.8	65
3/19/2007	14:05 7.2	1770	47	12.6	7.3	17	0.22	0.01 U	0.195	0.0084	0.0047	6.9	33
4/16/2007	14:05 8.7	808	64	12	7.57	5	0.23	0.01 U	0.219	0.0062	0.0061	1.6	15
5/21/2007	15:45 12.1	402	76	12.56	8.48	4	0.18	0.01 U	0.115	0.0045	0.0046	1	27
6/18/2007	14:50 12.8	410	73	12.4	8.72	5	0.16	0.01 U	0.096	0.0043	0.0031	1.9	48
7/23/2007	16:00 16.2	236	89	10.9	8.08	4	0.277	0.01 U	0.203	0.0117	0.0097	1.4	170
8/20/2007	15:50 15.1	143	88 J	11.4	8.32	4	0.21	0.01 U	0.151	0.0083	0.0092	1.4	100
9/24/2007	15:30 11.9	239	84	12.37	8.3	4	0.13	0.01 U	0.095	0.0044	0.0044	1.9	39

Conventional Data Report

Cedar R nr Landsburg 08C110

Class: AA Latitude: 47 23 28.7
 Rivermile: 25.1 Longitude: 121 55 13.9
 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	
10/16/2006	9:05	10.9	418	55	11	7.66	2	0.16	0.01 U	0.127	0.0052	0.0056	0.6	6 J
11/13/2006	9:00		2910											
			Posted no access due to flood.											
12/18/2006	9:30		1210											
			No Access due to road closure											
1/22/2007	9:20	4.6	1180	41	12.6	7.61	2	0.16	0.01 U	0.156	0.0044	0.0043	1	1 UJ
2/12/2007	8:55	8	441	62	11.6	7.71	1	0.22	0.01 U	0.205	0.0051	0.0062	0.5 U	1 UJ
3/19/2007	8:55	5.8	1580	37	12.4	7.87	4	0.16	0.01 U	0.133	0.0029	0.0037	1.1	1 UJ
4/16/2007	9:20	8	692	52	11.7	7.65	3	0.17	0.01 U	0.157	0.0048	0.006	0.7	1 U
5/21/2007	10:20	9.5	466	61	11.35	7.55	2	0.2	0.01 U	0.177	0.0049	0.0066	0.5 U	13
6/18/2007	9:50	10.8	485	60	11.1	7.58	2	0.19	0.01 U	0.159	0.0063	0.0063	1.1	20
7/23/2007	9:50	12.1	330	70	10.7	7.55	1 U	0.21	0.01 U	0.18	0.0065	0.0075	0.5 U	55
8/20/2007	9:50	11.3	300	63 J	10.6	7.67	1	0.21	0.01 U	0.181	0.0054	0.0092	0.5	52
9/24/2007	9:40	9.7	303	65	10.79	7.62	1 U	0.15	0.01 U	0.152	0.0047	0.0062	0.5 U	1

Conventional Data Report

Green R @ Tukwila 09A080

Class: A Latitude: 47 27 55.4
 Rivermile: 12.4 Longitude: 122 14 52.3
 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	
10/16/2006	14:20	11.9	311	138	9.19	7.27	4	0.514	0.041	0.382	0.0398	0.013	3.4	200
			Water flowing slowly upstream.											
11/13/2006	14:30	7.7	8440	52	11	7.22	77	0.486	0.01 U	0.407	0.0552	0.016	60	110
12/18/2006	14:20	4	2800	66	12.6	7.27	36	0.556	0.014	0.498	0.0304	0.015	11	21
1/22/2007	15:00	5.7	1680	100	11.6	7.24	13	0.673	0.021	0.653	0.0266	0.013	4.1	4
2/12/2007	15:45	7	1480	82	11.5	7.2	8	0.465	0.01 U	0.408	0.0213	0.01	4.6	4
3/19/2007	15:05	8.2	2300	71	11.1	7.28	21	0.449	0.01 U	0.382	0.0241	0.014	9.8	27 J
4/16/2007	14:50	9	1330	105	10.8	7.25	7	0.43	0.019	0.384	0.019	0.0098	3.5	9
5/21/2007	16:35	11.6	941	96	10.95	7.43	10	0.38	0.016	0.29	0.0177	0.0076	3.5	36
6/18/2007	15:35	12.9	725	104	10	7.18	12	0.42	0.041	0.301	0.0192	0.011	3.1	19
7/23/2007	16:45	17.8	332	156	8.6	7.24	5	0.592	0.06	0.417	0.0455	0.015	3.6	90
			Weathered oil sheen											
8/20/2007	16:35	16.3	303	128 J	9.19	7.39	3	0.48	0.027	0.334	0.0413	0.016	3	280
			Recalibrated conductivity, change to 141											
9/24/2007	16:15	13.4	521	98	9.9	7.47	7	0.337	0.026	0.262	0.0327	0.014	3.8	69
			RP doesn't match QC station RP well (stage was 0.26 lower) but sample was very near high tide. Flow based on this RP will likely be inaccurate.											

Conventional Data Report

Green R @ Kanaskat 09A190

Class: AA Latitude: 47 19 09.4
 Rivermile: 57.6 Longitude: 121 53 36.7
 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
10/16/2006	8:10 11.8	176	58	10.6	7.7	1	0.17	0.01 U	0.112	0.0062	0.0069	0.7	16 J
11/13/2006	8:30 6.7	5860	37	12.2	7.42	92	0.255	0.01 U	0.223	0.0409	0.0082	65	16 J
12/18/2006	9:05 3.3	1830	40	13.7	7.41	10	0.21	0.01 U	0.207	0.0117	0.01 J	3.3	1 U
1/22/2007	8:30 4.1	788	44	13.1	8.04	1	0.18	0.01 U	0.184	0.0074	0.0082	0.8	49 J
2/12/2007	8:45 4.8	972	42	12.6	7.61	2	0.11	0.01 U	0.085	0.0068	0.011	1.2	2 J
3/19/2007	8:05 6.1	1480	39	12.4	7.74	3	0.11	0.01 U	0.099	0.0084	0.0082	2.9	1 J
4/16/2007	8:30 6.6	745	42	12.3	7.9	2	0.088	0.01 U	0.058	0.0072	0.0086	1.4	2 J
5/21/2007	9:30 9	588	42	11.55	7.91	1	0.042	0.01 U	0.019	0.0047	0.0056	0.9	11 J
6/18/2007	9:00 10.8	471	46	10.5 J	7.61	1	0.093	0.01 U	0.049	0.0083	0.0068	0.6	3 J
During DO titration I turned the knob on the burette the wrong way so some thiosulfate came into the burette mid-titration. I estimated the amount that entered and added that to measured amount.													
7/23/2007	8:40 13.3	145	54	10.3	7.61	1	0.13	0.017	0.063	0.0086	0.0071 J	0.5	68
8/20/2007	8:55 13.5	149	50 J	10.3	7.52	1	0.2	0.038	0.095	0.0068	0.009	1.2	84
9/24/2007	8:50 13.3	383	57	9.9	7.76	4	0.13	0.015	0.054	0.008	0.0065	1.8	10

Conventional Data Report

Puyallup R @ Meridian St 10A070

Class: A Latitude: 47 12 09.4
 Rivermile: 8.3 Longitude: 122 17 37.4
 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
10/18/2006 12:00	10.8	1160	96	11	7.47	28	0.266	0.013	0.202	0.0478	0.0324	10	60
	Barometer reading is accurate.												
11/15/2006 10:20	7.3	5030	65	12	7.21	650	0.409	0.01 U	0.349	0.182	0.013	250 J	27
12/20/2006 10:30	3.9	3150	72	12.7		2890	0.354	0.03	0.294	1.66	0.013	600 J	14 J
1/24/2007 10:30	3.9	2400	83	12.5	7.36	450	0.411	0.038	0.346	0.0575	0.014	65	14
2/14/2007 8:55	5.1	2410	80	12.3	7.23	260	0.294	0.021	0.253	0.0249	0.017	14	15 J
3/21/2007 9:00	4.4	4510	60	12.73	7.54	191	0.284	0.01 U	0.226	0.0915	0.015	18	13 J
4/25/2007 8:30	9.4	2500	78	11.32	7.39	34	0.23	0.01 U	0.193	0.033	0.016	4	25 J
	A little black grit in bottom of sample bottles.												
5/23/2007 9:20	9.7	2680	65	11.4	7.73	34	0.15	0.01 U	0.106	0.0278	0.013	6.7	32 J
6/13/2007 8:10	12.7	3310	61	10.55	7.35	70	0.16	0.01	0.111	0.0581	0.017	19	23 J
	Lots of debris in water. "Dust" on top of FC sample--from bridge?												
7/18/2007 9:28	14.3	2710	64	9.98	7.41	201	0.21	0.017	0.136	0.18	0.024	110	140
8/22/2007 8:55	13.5	1810	81	10.3	7.51	125	0.2	0.01 U	0.159	0.1	0.027	55	69 J
	Did not record Baro. Pressure												
9/26/2007 9:20	10.2	1060	103	10.9	7.59	53	0.329	0.044	0.253	0.0901	0.0413	31	48 J
	Fisherman upstream												

Conventional Data Report

Nisqually R @ Nisqually 11A070

Class: A Latitude: 47 03 42.3
 Rivermile: 3.4 Longitude: 122 41 46.5
 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
10/18/2006 13:20	12.8	839 J	75	10.5	7.59	8	0.19	0.01 U	0.155	0.0191	0.012	12	8
	Barometer reading is accurate.												
11/15/2006 12:10	9.3	7979 J	48	11.2	7.26	431	0.287	0.01	0.192	0.338	0.0092	720 J	4
12/20/2006 11:45	5	3186 J	61	12.4		26	0.421	0.016	0.352	0.0468	0.021	40	14
1/24/2007 12:00	4.4	2953 J	63	12.6	7.46	11	0.433	0.01 U	0.401	0.0215	0.012	10	4
2/14/2007 10:15	5.4	1544 J	69	12.3	7.37	6	0.428	0.01 U	0.405	0.0177	0.013	6.8	15
3/21/2007 10:00	5.6	3488 J	62	12.53	7.45	12	0.365	0.01 U	0.297	0.0175	0.01	8.4	7
4/25/2007 9:55	9.2	1675 J	65	11.52	7.42	7	0.288	0.01 U	0.249	0.0136	0.008	5.6	1
	1 fisherman												
5/23/2007 10:15	10.1	1242 J	67	11.6	7.69	3	0.21	0.01 U	0.165	0.0083	0.0077	1.9	1 J
6/13/2007 9:05	12.7	1134 J	68	10.75	7.48	4	0.19	0.01 U	0.125	0.0089	0.0072	1.5	17 J
7/18/2007 10:43	14	1124 J	69	9.88	7.46	18	0.2	0.01 U	0.142	0.0113	0.0097	5.8	55
8/22/2007 11:02	15.4	799 J	74	10	7.56	10	0.19	0.01 U	0.136	0.0106	0.01	5.3	18
9/26/2007 10:25	13.3	732 J	78	9.8	7.61	8	0.24	0.011	0.19	0.0219	0.013	12	16
	Lots of fisherman & salmon carcasses in river												

Conventional Data Report

Deschutes R @ E St Bridge
13A060

Class: A Latitude: 47 00 42.3
Rivermile: 0.6 Longitude: 122 54 11.5
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	
10/18/2006	14:30	11	95	150	10.1	7.2	3	1.07	0.016	0.975	0.0252	0.021	1.2	31
	Barometer reading is accurate.													
11/15/2006	14:00	8.5	1050	75	10.5	7	22	0.726	0.01 U	0.619	0.032	0.02	17	86 J
12/20/2006	12:50	5.7	699	89	11.4		13	0.85	0.012	0.78	0.023	0.019	14	17 J
1/24/2007	13:00	6.6	518	103	11.3	7.28	5	1.02	0.01 U	0.993	0.024	0.017	3.9	5
2/14/2007	12:40	7.9	335	115	11.5	7.3	5	0.944	0.01 U	0.995	0.0195	0.015	2.5	17
3/21/2007	10:55	7.5	739	82	11.32	7.34	9	0.656	0.01 U	0.588	0.0201	0.015	6.4	9
4/25/2007	10:40	11.5	326	125	11.12	7.38	3	0.849	0.01 U	0.792	0.0134	0.009	1.8	15
5/23/2007	11:05	12.3	314	128	11.1	7.61	4	0.91	0.01 U	0.846	0.0116	0.01	1.7	19
6/13/2007	10:10	14	170	136	9.64	7.35	4	1.06	0.011	0.942	0.016	0.012	1.7	26 J
7/18/2007	12:22	15.4	135	142	8.77	7.38	5	1.06	0.013	0.963	0.0268	0.02	3.4	190
8/22/2007	12:33	15.3	108	145	10.8	7.52	5	0.992	0.01 U	0.899	0.0183	0.015	2.5	51
9/26/2007	11:57	11.8	76	150	9.9	7.5	4	0.932	0.016	1.05	0.0263	0.022	2.8	27
	Adult salmon in sample area													

Conventional Data Report

Llt Anderson Cr. @ Anderson Hill Rd
15M070

Class: AA Latitude: 47 39 37.3
Rivermile: 0.2 Longitude: 122 45 19.6
Waterbody: WA-15-0000

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
10/17/2006 13:54	9.4	2.56	112	11.8		1	0.346	0.01 U	0.309	0.0397	0.0381	0.5 U	11
	The stage was taken from the DOE staff gage.												
11/7/2006 13:35	10.5	5.58	92	10.5	8.12	6	1.52	0.01 U	1.39	0.027	0.022	1.6	43
	The stage value is taken from the staff gage. The stream is moderately high and clear and is not flooding.												
12/20/2006 12:55	6.3	19.7	66	12.2	6.86	2	0.839	0.01 U	0.765	0.0153	0.015	1.2	3
	The stage was taken from the DOE staff gage.												
1/17/2007 13:04	4.5	8.64	76	13	6.64	1 U	0.922	0.01 U	0.849	0.0172	0.014	0.7	2
	The stage was taken from the WDOE staff gage.												
2/13/2007 12:50	6.6	5.14	88	12.1	7.01	1 U	0.687	0.01 U	0.684	0.0239	0.021	0.5	5
	The stage was taken from the WDOE staff gage.												
3/14/2007 14:15	7.3	8.64	75	12.1		1	0.668	0.01 U	0.598	0.0173	0.016	0.8	2
	The stage was taken from the DOE staff gage.												
4/10/2007 12:45	8.7	3.65	96	12.2		1	0.57	0.01 U	0.534	0.0295	0.024	1.6	4
	The stage was taken from the WDOE staff gage.												
5/16/2007 12:45	9.9	2.43	105	11.5	7.56	2	0.475	0.01 U	0.456	0.0355	0.0318	0.8	4
	The stage was taken from the DOE staff gage. Bear tracks on the overgrown road leading down to and paralleling the stream are probably less than 48 hours old.												
6/20/2007 14:45	12	2.29	106	10.7	7.64	2	0.451	0.01 U	0.397	0.0409	0.0346	0.7	15
	Stage taken from the DOE staff gage.												
7/17/2007 13:35	12.1	2.43	112	10.8	7.25	2	0.524	0.01 U	0.464	0.0492	0.045	1.7	230 J
	Stage taken from the DOE staff gage. Rain!												
8/15/2007 12:51	11.9	2.43	110	10.75	7.68	1	0.379	0.01 U	0.354	0.0401	0.0366	0.7	19
	The stage was taken from the DOE staff gage. A stream restoration project at the sampling location was in full progress when I arrived including bulldozers and backhoes in the channel and floodplain. The stream was being temporarily diverted in several												
9/18/2007 13:55	10.8	1.3	109	11.15	7.53	1 U	0.365	0.01 U	0.327	0.0434	0.0387	1	19
	The stage was taken from the WDOE staff gage.												

Conventional Data Report

Stavis Cr. nr Mouth 15N070

Class: AA Latitude: 47 37 28.3
 Rivermile: 0.2 Longitude: 122 52 29.6
 Waterbody: WA-15-0000

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
10/17/2006 15:50	9.5	8.75	103	11.5		1	0.11	0.01 U	0.076	0.0492	0.0405	0.7	16
	The stage was taken from the DOE staff gage.												
11/7/2006 15:35	11	56.1	55	10.3	7.26	14	0.952	0.01 U	0.773	0.0295	0.017	4.4	180
	The stage was taken from the DOE staff gage. The stream is moderately high and clear.												
12/20/2006 16:05	5.9	44.5	50	12.35	6.79	9	0.251	0.01 U	0.193	0.0181	0.017	1.5	9
	The stage was taken from the DOE staff gage. The flow station was removed on December 18th 2006 at the request of the landowner.												
1/17/2007 15:05	4.7	24.3	61	12.7	6.84	3	0.23	0.01 U	0.181	0.0232	0.02	0.9	2
	The stage was taken from the WDOE staff gage which is still present even though the flow station was removed at the request of the landowner. He is selling the property.												
2/13/2007 14:50	7.7	17.1	74	11.85	7.21	1	0.19	0.01 U	0.138	0.0319	0.027	0.5 U	1 U
	The stage was taken from the DOE staff gage which is still in place at the location of the flow station which was removed in December 2006.												
3/14/2007 16:12	7.7	39.8	46	11.8		5	0.2	0.01 U	0.141	0.0169	0.014	1.3	11
	The stage was taken from the DOE staff gage that is still in the stream.												
4/10/2007 14:09	9.2	13.5	80	11.8		2	0.13	0.01 U	0.082	0.0366	0.029	0.8	4
	The stage was taken from the DOE staff gage which is still in the stream.												
5/16/2007 14:30	11.4		94	11.2	7.76	1	0.13	0.01 U	0.086	0.0464	0.0331	0.8	4
	Unable to sample at the usual location at the DOE staff gage due to heavy vegetation growth. Sampled approximately 30 meters downstream.												
6/20/2007 16:40	14		110	10.19	7.43	2	0.14	0.01	0.09	0.0526	0.0397	0.5 U	38
	No stage, the trail to the staff gage is completely overgrown.												
7/17/2007 15:30	13.2		116	10.3	7.52	4	0.21	0.01 U	0.122	0.0609	0.0347	2.1	320
	No stage--the trail to the staff gage is completely overgrown with blackberries and nettles and needs to be brushed out asap.												
8/15/2007 14:30	13.6		114	10.7	7.55	1	0.15	0.01 U	0.091	0.0505	0.034	1.3	37
	I sampled at the Stavis Bay road bridge at very low tide. A cougar warning sign had been placed on the post near the parking area alerting people to recent sightings of a female cougar and two kittens in the immediate area.												
9/18/2007 15:45	11.9		105	10.5	7.47	1 U	0.12	0.01 U	0.076	0.0574	0.0413	1.2	50
	The former staff gage is now inaccessible due to vegetation.												

Conventional Data Report

Skokomish R nr Potlatch

16A070

Class: AA Latitude: 47 18 35.3
 Rivermile: 5.3 Longitude: 123 10 37.6
 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
10/17/2006 10:45	9.8	328	76	10.4		2	0.07	0.01 U	0.047	0.0109	0.01	1	23
The stage was taken from the USGS wire weight gage on the bridge.													
11/7/2006 10:00		17400											
Unable to sample, the 101 bridge is closed from both directions due to a landslide. The river is flooding the valley and only one lane is open on the detour route due to very high water.													
12/20/2006 10:45	6.8	2120	59	11.7	6.75	8	0.096	0.02	0.07	0.012	0.0084	5.1	3
The stage was taken from the USGS staff gage.													
1/17/2007 10:17	5.8	1460	61	12.15	6.62	4	0.084	0.012	0.068	0.0111	0.0083	2.4	8
The stage was taken from the USGS wire weight gage on the bridge.													
2/13/2007 10:20	7.6	1700	57	12.05	6.77	7	0.1	0.028	0.048	0.0107	0.0049	6.7	2 J
The stage was taken from the USGS wire weight gage.													
3/14/2007 11:10	6.3	3210	52	12.3		20	0.055	0.01 U	0.047	0.0176	0.0067	16	2
The stage was taken from the USGS wire weight gage on the bridge. The pH meter checked well at this station.													
4/10/2007 10:00	6.7	1520	58	12.45		8	0.042	0.01 U	0.034	0.0179	0.0067	4.1	3 J
The stage was taken from the USGS wire weight gage.													
5/16/2007 9:25	9.5	1010	66	11.4	7.22	2	0.032	0.01 U	0.02	0.0065	0.0058	0.8	8 J
The stage was calculated from the USGS wire weight gage on the Highway 101 bridge.													
6/20/2007 11:30	11.5	725	69	11	7.26	1 U	0.043	0.01 U	0.022	0.0078	0.0062	0.6	1
Stage taken at the USGS wire weight gage.													
7/17/2007 10:30	10.7	598	75	10.3	7.15	3	0.068	0.01 U	0.033	0.013	0.01	0.6	190 J
Rain. Stage taken from the USGS wire weight gage on the bridge.													
8/15/2007 9:44	10.8	598	73	10.4	7.2	1	0.042	0.01 U	0.029	0.0077	0.0056	0.9	16
The stage was taken from the USGS wire weight gage on the bridge.													
9/18/2007 11:20	10.4	463	73	11.1	7.19	1	0.048	0.01 U	0.03	0.0101	0.0091	1.6	17
The stage was taken from the USGS wire weight gage on the bridge.													

Conventional Data Report

Duckabush R nr Brinnon 16C090

Class: AA Latitude: 47 41 02.3
 Rivermile: 4.5 Longitude: 123 00 41.6
 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
10/17/2006 9:18	7.9	58	90	12		1	0.041	0.01 U	0.014	0.0035	0.0035	0.5 U	7
	The stage was estimated, the USGS staff gage was dewatered.												
11/7/2006 9:27	8.6	1770	47	11.9	7.06	74	0.13	0.01 U	0.087	0.0504	0.0044	65	7 J
	The stage value was taken from the USGS staff gage. The river is big and gray but not flooding over the banks.												
12/20/2006 9:20	5.2	442	76	13	6.65	1	0.031	0.01 U	0.033	0.0033	0.0044	0.8	1 J
	The stage was taken from the USGS staff gage.												
1/17/2007 9:10	3.3	263	82	13.6	6.6	1 U	0.051	0.01 U	0.029	0.0023	0.0037	1	3 J
	The stage was taken from the USGS staff gage.												
2/13/2007 9:15	4.6	429	68	13	6.67	1	0.046	0.01 U	0.036	0.003	0.003 U	1.1	1 UJ
	The stage was taken at the USGS staff gage. The river was low to moderate and clear.												
3/14/2007 10:05	4.3	675	62	13.2		9	0.05	0.01 U	0.04	0.0059	0.0036	4.9	1 U
	The stage was taken from the USGS staff gage.												
4/10/2007 8:30	4.1	475	63	13.45		3	0.044	0.01 U	0.035	0.003	0.0032	2.3	1 UJ
	The stage was taken from the USGS staff gage. 2 male harlequin and 1 female harlequin ducks were at the station. A herd of 20 or so elk were 1/2 mile downstream.												
5/16/2007 8:15	6.4	584	57	12.6	7.35	5	0.033	0.01 U	0.025	0.0044	0.003 U	3.7	3 J
	The stage was taken from the USGS staff gage.												
6/20/2007 10:30	8	437	59	12.3	7.3	3	0.028	0.01 U	0.01 U	0.0041	0.003 U	1.5	1
	Stage taken from the USGS staff gage.												
7/17/2007 9:15	10.6	313	64	11.4	7.32	2	0.025 U	0.01 U	0.01 U	0.0052	0.003 U	1.7	53
	Stage taken from the USGS staff gage. Rain!												
8/15/2007 8:35	10.6	130	81	11.25	7.4	1 U	0.027	0.01 U	0.011	0.0026	0.003 U	0.6	15 J
	The stage was taken from the USGS staff gage.												
9/18/2007 10:10	10.3	72	86	11.7	7.45	1	0.043	0.01 U	0.018	0.003	0.0036	1.1	16
	The stage was taken from the USGS staff gage however this is an estimate because the staff gage was dewatered.												

Conventional Data Report

Tarboo Cr. nr mouth 17G060

Class: AA Latitude: 47 52 07.3
 Rivermile: 0.5 Longitude: 122 49 01.6
 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	
10/17/2006	8:13	9.3	2.07	74	10.1	3	0.412	0.01 U	0.148	0.043	0.028	3.8	80	
	Extraordinarily high barometric pressure may be invalid due to faulty barometer used for calibration Monday morning (October 17th 2006).													
11/7/2006	8:04	11.1	2.78	168	7.01	12	0.809	0.032	0.363	0.0457	0.021	8.8	26 J	
	The stage was taken from the DOE staff gage. Amazingly the stream is low and clear! Apparently, there was a very pronounced rain shadow effect in this area because the west side of the Olympics received staggering amounts of rain yesterday. Spawning ch													
12/20/2006	8:00	5.3	10.7	78	11.6	6.85	5	1	0.016	0.786	0.0197	0.013	7.4	12 J
	The stage was taken from the DOE staff gage. Numerous chum salmon redds are present at the sampling location.													
1/17/2007	8:10	3	8.34	95	13	6.61	4	0.71	0.015	0.509	0.0231	0.013	6.9	6 J
	The stage was taken from the DOE staff gage. I calibrated both the pH and conductivity meters just before sampling this station.													
2/13/2007	8:15	6.3	4.95	126	11.2	6.88	2	0.463	0.016	0.302	0.0338	0.019	5.2	170 J
	The stage was taken from the DOE staff gage. The pH and conductivity meters were calibrated just prior to sampling this station.													
3/14/2007	8:30	6.9	10.3	97	11.2		7	0.541	0.01 U	0.335	0.025	0.014	12	19
	The stage was taken from the DOE staff gage. The pH probe was calibrated just before sampling this station.													
4/10/2007	7:05	7.9	5.78	117	11		6	0.426	0.01 U	0.205	0.0333	0.016	7	20 J
	The stage was taken from the DOE staff gage.													
5/16/2007	7:15	12.3	2.3	151	9.8	7.41	3	0.295	0.025	0.13	0.0416	0.02	4.7	570 J
	Stage was taken from the DOE staff gage.													
6/20/2007	9:25	11.5	2.09	155	10.1	7.5	2	0.32	0.015	0.149	0.044	0.024	2	140 J
	Stage taken from the DOE staff gage.													
7/17/2007	8:00	15.3	1.75	166	8.19	7.5	3	0.401	0.019	0.156	0.0717	0.0476	2.6	2200 J
	Rain!													
8/15/2007	7:35	12.8	1.75	166	9.3	7.54	2	0.308	0.01	0.149	0.0504	0.024	2.5	150 J
	The stage was taken from the DOE staff gage.													
9/18/2007	9:15	12.6	2.09	163	9.4	7.45	2	0.286	0.01 U	0.107	0.0503	0.026	3.1	110 J
	The stage was taken from the WDOE staff gage.													

Conventional Data Report

Elwha R nr Port Angeles 18B070

Class: AA Latitude: 48 03 55.3
 Rivermile: 8.1 Longitude: 123 34 39.7
 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
10/16/2006 16:58	13.1	358	116			2	0.036	0.01 U	0.01 U	0.0032	0.003 U	1	1
	The pH probe failed between stations so no pH here and at any stations tomorrow. The cable was replaced after returning to the shop and the probe is back on line. No D.O. sample here today (forgot to preserve it).												
11/6/2006 13:15	8.9	20200	72	12.4	6.76	162	0.326	0.015	0.082	0.331	0.0514	550	69
	Very large flood. Trees moving downstream.												
12/19/2006 16:10	4.8	2200	88	13.2	6.98	22 J	0.053	0.01 U	0.048	0.0273	0.0069	26	1 J
	The Elwha was gray and turbid with moderate flow.												
1/16/2007 16:00	3.5	1540	97	13.5	7.08	11	0.069	0.01 U	0.049	0.0164	0.0054	13	1 U
2/12/2007 16:10	5.2	1610	101	12.95	6.75	16	0.077	0.018	0.028	0.0066	0.0035	2.6	1 U
3/13/2007 17:15	5.2	3830	73	13.1		102	0.054	0.01 U	0.044	0.0604	0.0056	110	2
	The Elwha river was moderately high and gray.												
4/9/2007 15:20	6.8	2300	92	12.7		7	0.058	0.01 U	0.023	0.0102	0.0041	6.5	1
	The Elwha was moderately low and green/white in color.												
5/15/2007 15:10	9.5	1850	85	11.9		7	0.027	0.01 U	0.01	0.004	0.003 U	3	1 U
6/19/2007 17:48	10.4	1770	76	11.5	6.49	4	0.025 U	0.01 U	0.01 U	0.0057	0.003 U	4.1	1 U
7/16/2007 14:30	13.5	1600	74	10.6	7.59	3	0.025 U	0.01 U	0.01 U	0.006	0.003 U	2.5	1 J
	The Elwha was low, clear, and emerald green.												
8/14/2007 14:55	15.3	700	87	10.5	7.58	2	0.025	0.01 U	0.01 U	0.0037	0.003 U	1.1	1 U
	The Elwha was low and clear.												
9/17/2007 14:10	12.3	456	101	10.4	7.14	2	0.025 U	0.01 U	0.01 U	0.0033	0.003 U	1.2	2

Conventional Data Report

West Twin R. nr mouth 19C060

Class: AA Latitude: 48 09 50.3
 Rivermile: 0.2 Longitude: 123 57 14.7
 Waterbody: N/A

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
10/16/2006 13:55	10	10.8	110	11.2	6.9	1 U	0.15	0.01 U	0.102	0.0081	0.0068	0.6	22
The stage was taken from the DOE staff gage. I sampled for water quality at the flow monitoring station upstream of the bridge.													
12/19/2006 13:35	6.4		71	12.5	6.88	9	0.453	0.01 U	0.425	0.0101	0.011	6.2	1 UJ
I sampled at the DOE flow monitoring station upstream from the bridge. The flow station has been heavily damaged by flooding and debris. The staff gage is no longer reliable. No stage was recorded.													
1/16/2007 13:50	4		75	13	6.81	4	0.355	0.01 U	0.329	0.0077	0.0069	2.9	1 U
No stage--the WDOE flow station was removed due to flood damage. I sampled upstream of the bridge at the former site of the flow station. Replacement of the flow station is scheduled for February 2007.													
2/12/2007 13:45	7	41.9	76	12.2	6.75	3	0.34	0.031	0.288	0.0084	0.0064	2.8	2
The stage was taken from the recently installed DOE staff gage at the new location approximately 30 meters upstream from the old gage location													
3/13/2007 14:20	6.7	344	61	12.35		30	0.384	0.01 U	0.349	0.0147	0.0073	17	1 U
The stage was taken from the DOE staff gage. Sampled at the DOE flow monitoring station.													
4/9/2007 13:10	7.9	84.3	69	12.2		11	0.2	0.01 U	0.18	0.0115	0.0075	7.9	11
The stage was taken from the DOE staff gage.													
5/15/2007 13:15	10.6	18.4	83	11.95		2	0.078	0.01 U	0.045	0.0038	0.003 U	0.7	1 U
The stage was taken from the DOE staff gage.													
6/19/2007 16:20	10.8	8.95	93	10.3	7.31	4	0.14	0.013	0.055	0.0093	0.0062	1.1	3
I sampled 30 meters downstream from the existing flow monitoring station.													
7/16/2007 12:45	15.7	5.87	103	9.8	7.28	1	0.084	0.01 U	0.041	0.0093	0.0078	0.7	37
The smolt traps have been removed from Deep Creek, East Twin, and West Twin river(s).													
8/14/2007 13:05	13.6	5.87	97	10.1	6.9	1 U	0.12	0.01 U	0.073	0.008	0.0066	1	13
The stage was taken from the DOE staff gage.													
9/17/2007 11:30	12.4	5.27	103	10.7	7.27	4	0.15	0.01 U	0.083	0.0094	0.0085	1.7	37 J
The stage was taken from the WDOE staff gage.													

Conventional Data Report

East Twin R. nr Mouth 19D070

Class: AA Latitude: 48 09 16.3
 Rivermile: 1.5 Longitude: 123 56 27.7
 Waterbody: N/A

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
10/16/2006 15:46	10.1	10.2	116	11.5	7.09	1 U	0.33	0.01 U	0.274	0.0112	0.0085	0.6	13
	The stage was taken from the DOE staff gage.												
12/19/2006 14:48	6	112	70	12.5	7.03	11	0.44	0.01 U	0.432	0.0114	0.0084	5.2	1 J
	The stage was taken from the DOE staff gage.												
1/16/2007 14:30	3.5	71.6	75	13.4	6.99	4	0.362	0.01 U	0.337	0.0082	0.0075	6.4	1 U
	The stage value was taken from the WDOE staff gage.												
2/12/2007 14:35	6.7	54.6	76	12.4	6.83	3	0.283	0.01 U	0.263	0.0086	0.0071	1.9	8
	The stage was taken from the DOE staff gage.												
3/13/2007 15:15	6.2	156	60	12.6		30	0.359	0.01 U	0.342	0.0136	0.0073	16	1
	The stage was taken from the DOE staff gage.												
4/9/2007 14:05	8	80	67	12.3		21	0.24	0.01 U	0.218	0.0155	0.0082	10	7
	The stage was taken from the DOE staff gage.												
5/15/2007 14:09	11.6	21.6	87	11.75		4	0.12	0.01 U	0.073	0.0048	0.0034	1.7	1 U
	The stage was taken from the DOE staff gage.												
6/19/2007 16:57	13.7	8.14	100		7.57	1 U	0.13	0.01 U	0.072	0.0079	0.003 U	0.5 U	1
	The stage was taken from the DOE staff gage. The dissolved oxygen sample was lost during the lab analysis.												
7/16/2007 13:20	15.5	5.87	112	10.5	7.53	1 U	0.14	0.01 U	0.077	0.0098	0.0082	1.1	19
	East Twin river is very low and clear.												
8/14/2007 13:49	14	5.38	108	10.6	7.52	1 U	0.17	0.01 U	0.112	0.01	0.0086	0.7	6
	The stage was taken from the DOE staff gage.												
9/17/2007 12:10	12.2	5.38	112	11.2	7.59	1	0.18	0.01 U	0.13	0.0111	0.011	0.7	7 J
	The stage was taken from the WDOE staff gage.												

Conventional Data Report

Deep Cr. nr mouth 19E060

Class: AA Latitude: 48 10 21.3
 Rivermile: 0.2 Longitude: 124 01 39.7
 Waterbody: WA-19-4500

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
10/16/2006 12:51	9.9	11.8	123	10.6	7.14	2	0.12	0.01 U	0.053	0.01	0.0061	1	39 J
The stage was taken from the DOE staff gage.													
12/19/2006 12:55	6.4	133	71	11.8	7	7	0.524	0.01 U	0.47	0.0096	0.0096	2.9	5 J
The stage was taken from the DOE staff gage.													
1/16/2007 12:55	3.8	92.5	76	13	6.9	4	0.374	0.01 U	0.33	0.0075	0.0066	2.4	4
The stage was taken from the WDOE staff gage.													
2/12/2007 12:55	6.9	91.2	74	12	6.82	6	0.331	0.01 U	0.306	0.0092	0.0051	3.9	1 U
The stage was taken from the DOE staff gage.													
3/13/2007 13:30	6.7	145	59	11.9		34	0.482	0.01 U	0.429	0.0128	0.0085	13	1 U
The stage was taken from the DOE staff gage.													
4/9/2007 12:30	8	69.1	72	11.7		20	0.18	0.01 U	0.141	0.0132	0.0064	6.5	17
The stage was taken from the DOE staff gage.													
5/15/2007 12:35	9.9	25	87	12.05		3	0.12	0.01 U	0.029	0.0043	0.003	0.6	6
The stage was taken from the DOE staff gage. This station is now expressing signs of fairly severe scour of the substrate during high flow events this winter. The turbidity probe is almost de-waterered.													
6/19/2007 15:45	13.3	9.66	102	10.4	7.32	1	0.095	0.01 U	0.047	0.0087	0.0054	0.5 U	3
The stage was taken from the DOE staff gage. 1 adult lampy observed at the station.													
7/16/2007 12:05	15.5	7.6	114	9.6	7.24	1	0.098	0.01 U	0.047	0.0106	0.0062	0.9	97 J
Deep Creek is very low and clear.													
8/14/2007 12:30	13.2	7.6	108	10	7.22	2	0.094	0.01 U	0.049	0.0094	0.0059	0.9	5
The stage was taken from the DOE staff gage at the highway bridge. Deep creek is low and clear.													
9/17/2007 11:00	12.4	7.25	117	10	7.2	1 U	0.12	0.01 U	0.042	0.0105	0.008	0.9	17 J
The stage was taken from the DOE staff gage.													

Conventional Data Report

Hoh R @ DNR Campground 20B070

Class: AA Latitude: 47 48 35.3
 Rivermile: 16.5 Longitude: 124 14 51.7
 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
10/16/2006 11:20	10	1030	84		7.34	12	0.069	0.01 U	0.039	0.0133	0.0036	12	260 J
	The Hoh river was low with some color.												
11/6/2006 10:28	10.3	49400	33	11.5	7.01	4600	0.24	0.163	0.146	0.605	0.0635	3100 J	200000 J
	Big water! Very large trees moving downstream in a river looking more like a mudflow. Boulders are audible coming down the rapid. The Queets river that I drove over an hour earlier was almost frightening. I could feel the 101 bridge shaking when I dro												
12/19/2006 11:20	6	3540	75	12.65	6.83	14	0.093	0.01 U	0.093	0.0187	0.011	22	3 J
	I inspected all of the restrooms in the campground with the DNR representative responsible for latrine maintenance (Mary Taffer). None of the restrooms showed signs of leakage during the November floods.												
1/16/2007 11:15	4.5	2080	79	12.9	6.82	10	0.1	0.01 U	0.09	0.0103	0.0046	7.5	2 J
	One fisherman at the sampling station mentioned he had caught and released a wild steelhead earlier that morning. The river was in fine shape.												
2/12/2007 11:25	6.3	3030	71	12.2	6.67	18	0.073	0.01 U	0.06	0.0162	0.0035	14	3 J
	The river was moderately high and greenish brown.												
3/13/2007 11:45	5.3	7710	64	12.6		167	0.08	0.01 U	0.074	0.0854	0.016	140	5 J
	The Hoh was moderately high and gray.												
4/9/2007 10:40	6.9	3650	76	12.25		55	0.053	0.01 U	0.044	0.0412	0.008	31	41 J
	Heavy rain showers! The Hoh was moderately high and gray.												
5/15/2007 10:55	9.2	1590	87	12		2	0.044	0.01 U	0.01 U	0.0037	0.003 U	2.1	1 UJ
	The Hoh was low and clear. I met Steve Allison, the water quality specialist for the Hoh Tribe.												
6/19/2007 11:15	10.4	1510	83	11.6	7.27	5	0.088	0.01 U	0.01 U	0.0072	0.0032	2.5	1 UJ
	The Hoh was low and clear.												
7/16/2007 10:40	10.8	2230	71	11.5	7.05	16	0.025 U	0.01 U	0.01 U	0.0208	0.003 U	21	11 J
	The Hoh was low with some color from glacial flour.												
8/14/2007 10:45	12.3	1040	83	11.3	7.23	5	0.025 U	0.01 U	0.01	0.0057	0.003 U	5.1	5 J
9/17/2007 9:20	11.9	666	84	11.1	7.3	2	0.036	0.01 U	0.01 U	0.0053	0.004	3.2	31 J
	The Hoh was low and emerald green in color.												

Conventional Data Report

Humptulips R nr Humptulips

22A070

Class: A Latitude: 47 13 47.3
 Rivermile: 23.6 Longitude: 123 57 42.6
 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	
10/16/2006	9:27	10.4	274	68	10.75	8	2	0.15	0.01 U	0.093	0.0057	0.0045	1	220 J
Stage value is taken from the USGS wire weight gage. The pH meter was calibrated before the sample. Salmon fishermen at the bridge.														
11/6/2006	8:30	10.2	19800	34	11.5	7.69	564	0.22	0.019	0.21	0.162	0.013	500	230 J
Heavy rain, very large flood, numerous large trees floating downstream. In order to sample I had to move close to the edge of the bridge because the velocities were incredibly high. The river is 10 feet higher than when I sampled in October.														
12/19/2006	9:20	6.3	1920	52	12.3	6.97	7	0.16	0.01 U	0.156	0.0097	0.0065	5.8	9 J
The stage was taken from the USGS wire weight gage. The flow was moderate and green. I calibrated both the pH and conductivity meters just before sampling at this station.														
1/16/2007	9:30	4.3	1170	53	12.9	7.07	7	0.16	0.01 U	0.141	0.006	0.0049	3.6	1 J
The stage was taken from the USGS wire weight gage. The Humptulips was the color of liquid emerald this morning.														
2/12/2007	9:15	6.8	1690	49	12.2	6.48	14	0.11	0.01 U	0.091	0.0136	0.0056	12	3 J
The pH and conductivity meters were calibrated just prior to sampling this station. The stage was taken from the USGS wire weight gage.														
3/13/2007	9:45	6.1	5110	43	12.4		80	0.11	0.01 U	1.06	0.0452	0.021	70	3 J
The stage was taken from the USGS wire weight gage. The hump was moderately high with some color. The pH meter did not calibrate well on this run--see notes on calibration sheet.														
4/9/2007	9:00	8.4	1130	52	11.2		3	0.078	0.01 U	0.063	0.0053	0.005	3	17 J
The stage was taken from the USGS wire weight gage. The stream was moderately high and green/clear.														
5/15/2007	8:55	10.6	514	58	11.4		1	0.06	0.01 U	0.017	0.0029	0.0039	0.8	5 J
The stage was taken from the USGS wire weight gage on the bridge. The flow was very low and clear. The pH value seems high (see calibration notes for today).														
6/19/2007	9:45	12.5	274	62	11	7.18	1	0.057	0.01 U	0.019	0.0035	0.005	0.5	9 J
Stage taken from the USGS wire weight gage which is suffering from neglect.														
7/16/2007	8:55	16	214	70	9.9	7.16	1 U	0.055	0.01 U	0.022	0.0045	0.0051	0.5 U	23 J
The USGS wire weight gage on the bridge has been vandalized and is inoperable. The lock was missing from the gage and the crank handle for retrieving the weight is bent. The river was very low and clear.														
8/14/2007	9:15	13.9	270	70	10.4	7.09	1	0.089	0.042	0.016	0.0038	0.0069	0.8	26 J
The stage was taken from the USGS wire weight gage on the bridge that has been repaired and serviced since the last visit. Despite cool, rainy weather the river continues to be low and clear.														
9/17/2007	7:45	13.6	199	68	10.19	7.2	1 U	0.063	0.01 U	0.014	0.0115	0.013	0.8	97 J
The stage was taken from the USGS wire weight gage. The humptulips was low and clear.														

Conventional Data Report

Chehalis R @ Porter 23A070

Class: A Latitude: 46 56 16.3
 Rivermile: 33.3 Longitude: 123 18 49.5
 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
10/18/2006 16:20	12.3	544	114	10.5	7.61	3	0.746	0.01 U	0.635	0.0352	0.023	1.7	16
	Barometer reading is accurate.												
11/15/2006 15:20	8.3	19900	68	9.9	6.77	31	0.811	0.01 U	0.698	0.0422	0.018	22	23
	2nd pH after recalibration: Temp=10.4, pH=6.91												
12/20/2006 14:45	5	7390	69	11.4		24	0.765	0.021	0.695	0.0252	0.014	10	16
1/24/2007 14:25	5.9	4670	79	11.6	7.35	11	0.782	0.022	0.746	0.0258	0.013	6.6	6
2/14/2007 14:20	7.4	2730	92	11.4	7.34	11	0.715	0.024	0.662	0.0305	0.016	6.4	13
3/21/2007 12:05	8.6	5850	76	11.02	7.18	16	0.613	0.019	0.538	0.0264	0.015	8.1	18
4/25/2007 11:50	11.8	2670	83	9.82	7.21	7	0.495	0.01 U	0.42	0.0203	0.0064	3.7	10
	4 cars w/ boat trailers at launch												
5/23/2007 12:15	14.5	1300	104	10.7	7.62	5	0.462	0.01 U	0.355	0.0166	0.0088	2.2	9
6/13/2007 11:20	16.3	860	96	9.94	7.5	6	0.548	0.017	0.388	0.0223	0.012	1.9	11 J
7/18/2007 14:15	20	528	112	8.37	7.6	2	0.682	0.012	0.531	0.0284	0.02	1.5	29 J
	Total Phosphorus sample was kept in sample bottle on ice and bottled upon return to OC approx. 2hrs. later												
8/21/2007 16:21	19	411	113	9.9	7.98	3	0.643	0.01 U	0.514	0.0219	0.016	1.4	16
	Did station at end of second day												
9/25/2007 15:53	15.4	314	115	10.9 J	8.04	2	0.667	0.013	0.567	0.0387	0.028	1.4	8
	Bubble in DO bottle, over ran titration by 7 drops												

Conventional Data Report

Chehalis R @ Dryad 23A160

Class: A Latitude: 46 37 51.4
 Rivermile: 101.7 Longitude: 123 15 00.5
 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
10/17/2006 18:05	10.5	44	85	11.3	7.5	3	0.24	0.01 U	0.144	0.0164	0.01	2.6	160
11/14/2006 17:10	8.3	2530	55	12.1	6.98	27	0.717	0.01 U	0.667	0.0237	0.01	14	57
12/19/2006 17:20	5.8	1070	59	12.4		5	0.632	0.01 U	0.614	0.0149	0.012	2.6	3 J
1/23/2007 16:30	6.6	412	61	12.5	7.37	1	0.469	0.01 U	0.467	0.0116	0.01	1.1	15
2/13/2007 16:20	7.3	206	62	12.8	7.5	1	0.297	0.01 U	0.276	0.009	0.0064	1.4	7
3/20/2007 14:50	8.2	744	57	12.23	7.51	6	0.403	0.01 U	0.378	0.0137	0.01	3.1	22
	A little debris in water												
4/24/2007 15:10	10.9	335	60	12.53	8.15	2	0.24	0.01 U	0.206	0.0084	0.0066	1.2	6
5/22/2007 14:20	11.9	131	66	11.9	8	2	0.2	0.01 U	0.117	0.0092	0.0071	1.3	15
6/12/2007 14:05	14.4	80	71	11.85	7.9	2	0.18	0.01	0.086	0.0111	0.0085	1.7	17
7/17/2007 17:43	19.8	36	81	10.09	8.24	2	0.21	0.01 U	0.07	0.0156	0.011	1.4	130
8/21/2007 15:05	17.9		82	10.5	8	3	0.13	0.01 U	0.034	0.0134	0.0099	1.9	88
9/24/2007 17:17	14.3	21	84	11.1	8.03	1	0.12	0.01 U	0.016	0.0137	0.0087	1.5	20
	Station done on day 1												

Conventional Data Report

Willapa R nr Willapa 24B090

Class: A Latitude: 46 39 00.4
 Rivermile: 17.7 Longitude: 123 39 12.6
 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
10/17/2006 16:30	13.6	27	73	10.4	7.33	5	0.369	0.016	0.273	0.0162	0.0079	2.7	370
11/14/2006 16:10	8.8	2550	53	11.6	6.83	31	1.15	0.01	1.07	0.0226	0.0088	14	43
12/19/2006 15:50	6.7	1080	56	12		11	1.02	0.01 U	1	0.0148	0.0094	4.7	12 J
1/23/2007 15:20	7.9	450	60	11.8	7.24	5	0.776	0.01 U	0.777	0.0113	0.0086	2	18
2/13/2007 14:40	8.1	351	59	12.1	7.44	3	0.599	0.01 U	0.57	0.0096	0.0054	1.9	13
3/20/2007 13:30	8.5	1160	51	11.52	7.23	11	0.644	0.01 U	0.599	0.0135	0.0077	2.6	88
	Some debris in water. Smell of cow manure.												
4/24/2007 13:40	11.5	334	58	11.52	7.3	3	0.52	0.01 U	0.49	0.0074	0.0046	1.4	5
	Sampled metals												
5/22/2007 13:10	13	142	62	11.3	7.6 J	2	0.342	0.01 U	0.269	0.0087	0.005	1.4	25
6/12/2007 12:55	15.6	91	64	10.75	7.32	2	0.334	0.016	0.165	0.0188	0.006	1.7	48
	Metals. Manure spreading u/s, l/b, but in fields well back from river												
7/17/2007 16:45	21	46	73	9.68	7.66	2	0.33	0.014	0.144	0.0208	0.0082	1.5	45
8/21/2007 14:00	18.4	44	70	9.8	7.58	4	0.21	0.01 U	0.112	0.0124	0.0065	2.1	25
9/25/2007 14:27	14.7	24	74	10.3	7.57	3	0.19	0.014	0.079	0.0124	0.0065	1.9	19

Metals Data Report

Willapa R nr Willapa 24B090

Class: A Latitude: 46 39 00.4
 Rivermile: 17.7 Longitude: 123 39 12.6
 Waterbody: WA-24-2020

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/17/2006 16:30		23	0.1 U	0.02 U	0.5 U	0.45	1.93	0.85	0.14	0.041	0.0035	0.63	0.38	5 U	1.7
2/13/2007 14:40		16.3	0.1 U	0.02 U	0.5 U	0.28	0.69	0.43	0.1 U	0.02 U	0.002 U	0.47	0.12	5 U	1.1
4/24/2007 13:40		16.6	0.1 U	0.02 U	0.5 U	0.27	0.5	0.41	0.1 U	0.02 U	0.002 U	0.49	0.17	5 U	1.6
6/12/2007 12:55		18.8	0.1 U	0.02 U	0.5 U	0.35	0.89	0.62	0.1 U	0.025	0.0028	0.53	0.28	5 U	2
8/21/2007 14:00		20.6	0.1 U	0.02 U	0.5 U	0.37	0.97	0.73	0.1 U	0.024	0.002 U	0.53	0.39	5 U	1.8

Conventional Data Report

Naselle R nr Naselle 24F070

Class: A Latitude: 46 22 22.4
 Rivermile: 17.4 Longitude: 123 44 48.5
 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
10/17/2006 14:50	11.1	46	64	10.9	7.21	5	0.516	0.023	0.41	0.0199	0.015	2.7	69
11/14/2006 14:30	8.6	1540	47	11.7	7	21	0.666	0.01 U	0.629	0.0225	0.0094	15	51
12/19/2006 14:25	6.5	545	49	12.2		3	0.61	0.01 U	0.599	0.0128	0.011	1.9	6 J
1/23/2007 13:50	7	267	52	12.4	7.09	1 U	0.477	0.01 U	0.483	0.0094	0.0095	0.9	9
2/13/2007 13:10	8	249	52	12.5	7.2	2	0.427	0.01 U	0.417	0.0073	0.0061	0.8	14
3/20/2007 12:10	7.9	698	45	12.03	7.32	5	0.398	0.01 U	0.383	0.0116	0.0083	4.6	73
	Rain overnight.												
4/24/2007 12:15	10	252	51	11.92	7.46	1	0.352	0.01 U	0.344	0.0059	0.0064	0.8	12
	Rain light but steady, water running down bridge.												
5/22/2007 11:50	10.5	122	54	12	7.94 J	1 U	0.276	0.01 U	0.239	0.0045	0.005	0.5	5
6/12/2007 11:25	11.4	73	56	11.85	7.6	1	0.23	0.01 U	0.168	0.0043	0.0059	0.5	21
	6 sturgeon and 1 flounder u/s of bridge. Is that Japanese knotweed d/s both banks (reported)?												
7/17/2007 15:20	17.3	40	61	9.98	7.76	1	0.2	0.01 U	0.126	0.0079	0.007	0.7	37
8/21/2007 12:35	15.4	83	59	11	7.57	2	0.25	0.01 U	0.192	0.0066	0.0079	0.8	110
	Checked pH probe in 7, with in spec.												
9/25/2007 13:13	11.9	23	62	11.5	7.78	1 U	0.15	0.01 U	0.096	0.0048	0.0061	0.8	22
	Salmon carcasses in sample area												

Conventional Data Report

Germany Cr. @ mouth 25D050

Class: A Latitude: 46 11 28.4
 Rivermile: 0.6 Longitude: 123 07 34.4
 Waterbody: WA-25-3500

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	
10/17/2006	10:00	9.4	17.1	77	11	7.38	2	1.04	0.01 U	0.986	0.0094	0.0073	1.5	200 J
11/14/2006	9:20	7.2	366	45	11.9	7.24	41	0.903	0.01 U	0.853	0.0269	0.0082	20	23 J
2nd pH after recalibration: Temp= 9.2, pH= 6.87														
12/19/2006	9:40	4.6	182	45	12.6		9	0.765	0.01 U	0.754	0.0105	0.009	2.4	5 J
1/23/2007	9:20	4.2	85.8	49	12.7	7.62	1	0.627	0.01 U	0.66	0.0078	0.007	4.2	2 J
2/13/2007	9:10	6.2	54.8	52	12.4	7.87	1 U	0.517	0.01 U	0.531	0.0046	0.005	0.8	34 J
3/20/2007	8:05	7.4	141	44	11.82	7.45	8	0.587	0.01 U	0.527	0.0099	0.0067	3.7	200 J
Rain overnight, light rain now. Took SSC, though not that turbid. Smolt trap operating.														
4/24/2007	8:25	9.7	54.8	51	11.42	7.34	2	0.442	0.01 U	0.428	0.0059	0.0055	1.3	9 J
Smolt trap operating.														
5/22/2007	7:50	8.9	25.5	57	11.4	7.35	1	0.36	0.01 U	0.322	0.0078	0.0075	0.9	12 J
Smolt trap operating														
6/12/2007	7:30	10	15.8	62	10.85	7.24	1	0.322	0.015	0.24	0.0076	0.0082	0.6	86
Smolt trap operating														
7/17/2007	9:44	16.7	8.24	76	8.87	7.39 J	2	0.287	0.01	0.184	0.0119	0.01	1.1	340
pH drift at following station, estimate, missed QA taken at next station														
8/21/2007	8:50	15.6	7.83	78	9.8	7.53	1	0.24	0.01 U	0.192	0.0074	0.009	0.8	110 J
9/25/2007	8:42	11.3	4.71	83	10.3	7.32	1 U	0.17	0.01 U	0.122	0.0066	0.008	0.7	57 J
Forgot to check staff														

Conventional Data Report

Abernathy Cr. nr mouth 25E060

Class: A Latitude: 46 11 42.4
 Rivermile: 0.4 Longitude: 123 10 00.4
 Waterbody: WA-25-3300

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
10/17/2006 10:50	8.5	15	53	11.4	7.2	2	0.545	0.01 U	0.508	0.0082	0.0059	1.5	88
11/14/2006 10:30	7.6		32	11.3	7.06	8	0.47	0.01 U	0.448	0.0112	0.0053	5.6	15 J
		Fish Wier Blown out											
12/19/2006 10:45	5		33	12.7		3	0.428	0.01 U	0.432	0.0054	0.0059	1.9	4 J
1/23/2007 10:00	4.2		36	13.1	7.15	2	0.367	0.01 U	0.387	0.0045	0.0058	2.2	4 J
2/13/2007 9:50	6.1	47.2	38	12.7	7.23	1 U	0.286	0.01 U	0.293	0.0031	0.0033	0.8	13 J
3/20/2007 8:50	7.5	144	34	12.03	7.16	2	0.34	0.01 U	0.305	0.0064	0.0044	1.7	29 J
		Rain overnight, light rain now. Took SSC, though not that turbid. Smolt trap operating.											
4/24/2007 9:00	9.6		39	11.82	7.26	2	0.25	0.01 U	0.229	0.0038	0.0036	2.5	9 J
		Smolt trap operating. F&W staff ("Steve") tending.											
5/22/2007 8:25	8.8	35.9	44	11.6	7.26	2	0.25	0.01 U	0.199	0.0061	0.0055	1.3	50 J
		Smolt trap operating											
6/12/2007 8:05	9.3	25.3	47	11.55	7.34	1	0.19	0.01 U	0.151	0.0047	0.0062	0.9	41
		Smolt trap operating											
7/17/2007 10:42	16.1	15.2	56	9.58	7.5	2	0.22	0.01 U	0.145	0.0098	0.0084	3.3	700 J
		pH probe drifted, checked calibration, shock treatment and recalibrated											
8/21/2007 9:20	15.1	13	58	10.19	7.41	1	0.21	0.01 U	0.162	0.0072	0.0078	1	42 J
9/25/2007 9:24	10.3		64	11.2	7.41	1 U	0.15	0.01 U	0.119	0.0068	0.008	0.7	120 J

Conventional Data Report

Abernathy Cr. @ DNR 25E100

Class: A Latitude: 46 15 52.4
 Rivermile: 1 Longitude: 123 11 03.4
 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
10/17/2006 11:20	8.6	12.5	53	11.3	7	1	0.576	0.01 U	0.535	0.0054	0.0053	0.8	16
11/14/2006 11:20	7.5	231	34	11.7	7.18	8							
12/19/2006 11:35	5.2	138	36	12.7		2							
1/23/2007 11:00	4.4		39	12.7	7.29	1 U							
2/13/2007 10:20	6.2		41	12.3	7.35	1 U							
3/20/2007 9:30	6.9	67	37	11.82	7.4	2							
	Rain overnight. Big leaf maple fell across stream just below sample location since I was last here.												
4/24/2007 9:25	8.6	35.2	40	11.82	7.42	3							
5/22/2007 8:55	8.4	19.2	44	11.5	7.34	3							
	Smolt trap operating												
6/12/2007 8:30	8.1		46	11.55	7.32	1 U							
7/17/2007 12:02	14.2	7.85	50	9.98	7.5	1							
8/21/2007 9:43	13.5	6.9	52		7.49	1 U							
9/25/2007 10:09	10.1	5.3	52	11.2	7.3	1 U							

Conventional Data Report

Mill Cr. nr mouth 25F060

Class: A Latitude: 46 11 26.2
 Rivermile: 0.5 Longitude: 123 10 42.9
 Waterbody: WA-25-3200

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	
10/17/2006	12:00	8.3	15.8	41	11.5	7.03	2 U	0.24	0.01 U	0.159	0.0076	0.0048	1.8	110
11/14/2006	12:00	8.2	499	28	12.1	6.99	4	0.376	0.01 U	0.342	0.0029	0.003 U	2.4	8
Staff Gauge 3.90														
12/19/2006	12:05	5.3	210	28	12.9		2	0.39	0.01 U	0.373	0.002	0.0035	1.2	5 J
1/23/2007	11:40	4.7	105	31	13.1	7.52	1 U	0.325	0.01 U	0.337	0.002	0.0035	1.3	16
2/13/2007	10:50	6.4	141	33	12.6	7.38	1	0.27	0.01 U	0.281	0.0018	0.003 U	1.3	10 J
3/20/2007	9:55	7.6	151	29	12.23 J	7.36	4	0.337	0.031 J	0.274	0.0028	0.003 U	2.3	27 J
Staff 3.4; RP=14.09. Rain overnight, light rain now. Took SSC, though not that turbid. Smolt trap operating u/s of bridge. Oxygen "J-ed" because I overshot the titration by about 6 drops.														
4/24/2007	9:50	9.6	60.9	32	11.92	7.26	1	0.25	0.01 U	0.233	0.0023	0.0033	1.3	17 J
Smolt trap operating.														
5/22/2007	9:20	9	32.2	36	11.6	7.34	2	0.22	0.01 U	0.181	0.0049	0.0036	1.3	39 J
Smolt trap operating. Staff 2.05; RP: 15.02														
6/12/2007	9:00	9.2	20.6	38	11.75	7.31	1 U	0.21	0.01 U	0.162	0.0032	0.0045	0.8	26
Smolt trap operating. As of May, collecting samples from bank because no guardrail on bridge. RP based on staff reading of 1.87.														
7/17/2007	12:42	15.4	13.7	43	9.78	7.38	2	0.265	0.01 U	0.186	0.0068	0.0074	1.2	130
8/21/2007	10:05	14.6		45	10.3	7.35	1	0.19	0.01 U	0.148	0.0027	0.0056	1	44 J
Staff=1.66														
9/25/2007	10:42	10.2	8.01	47	11	7.33	2	0.2	0.01 U	0.158	0.004	0.0064	1.5	20 J
Live adult salmon in sample area, IMW probe out of water														

Conventional Data Report

Mill Cr. @ DNR
25F100

Class: A Latitude: 46 13 07.4
Rivermile: 4 Longitude: 123 12 47.4
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
10/17/2006 13:00	8.5	11.6	33	11	6.8	2	0.23	0.01 U	0.154	0.0062	0.0033	2.1	120
11/14/2006 12:40	8.1	157	23	12	6.93	3							
12/19/2006 12:45	5.1	80.5	24	12.5		1							
1/23/2007 12:35	4.6	45.7	25	12.6	7.28	1 U							
2/13/2007 11:45	6.4	23.2	27	12	7.34	1 U							
3/20/2007 10:45	7.6	70.4	24	11.82	7.13	2							
4/24/2007 10:40	9.1	43.2	26	11.52	7.02								
5/22/2007 10:15	9.1	17.1	29	11.4	7.23 J	1 U							
6/12/2007 10:00	10	11.1	30	11.05	7.01	1 U							
7/17/2007 13:45	15.2	6.21	34	9.58 J	6.96	1 U							
8/21/2007 11:04	14.2	5.45	35	9.69	7.12	1 U							
9/25/2007 11:35	11.1	4.09	36		6.89	1 U							

Gravel truck running up road and returning with gravel to dump at quarry.

TSS sample lost. May have fallen out of van.

DO funnel was not used for hand dip.

No DO, bottle leaked on hike back to van.

Conventional Data Report

Cowlitz R @ Kelso 26B070

Class: A Latitude: 46 08 43.4
 Rivermile: 4.9 Longitude: 122 54 51.4
 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	
10/16/2006	13:00	11.7	4290	110	10.5	7.09	16	0.099	0.01 U	0.056	0.0101	0.007	3.5	170 J
11/13/2006	11:25	10.4	38500	54	11.2	7.01	865	0.325	0.01 U	0.267	0.307	0.009	300 J	54
12/18/2006	11:00	5.1	18100	58	12.3		847	0.314	0.01 U	0.305	0.18	0.0092	110	15 J
1/22/2007	11:50	5	11500	78	12.75	7.03	158	0.31	0.01 U	0.291	0.0526	0.0086	33	9
2/12/2007	11:30	6.4	8180	83	12.2	7.19	195	0.22	0.01 U	0.198	0.0368	0.0078	32	8
3/19/2007	9:50	8.2	11700	72	11.62	7.65	202	0.445	0.169	0.222	0.124	0.008	60	7
			Whitish, some debris. Black grit in samples											
4/23/2007	10:15	9.2	10800	75	11.52	7.43	111	0.15	0.01 U	0.14	0.0632	0.007	18	11 J
5/21/2007	10:00	10.2	6800	88	11.3	7.62	30	0.1	0.01 U	0.065	0.0217	0.0061	7	36 J
6/11/2007	10:15	12.8	5410	95	10.85	7.62	30	0.098	0.01 U	0.042	0.0222	0.0062	9.9	13
7/16/2007	11:55	17.3	3260	117	10.09	7.78	51	0.064	0.01 U	0.02	0.0216	0.0065	23	18
8/20/2007	10:38	13.8	3140	120	10.19	7.82	21	0.083	0.01 U	0.03	0.0113	0.008	8.3	52
9/24/2007	10:47	12	3040	111	10.5	7.89	13	0.077	0.01 U	0.026	0.0093	0.006	3.5	12

New pH battery & recalibrate, QA done @ Kalama

Conventional Data Report

Olequa Cr. at 7th Street
26F050

Class: A Latitude: 46 24 06.7
Rivermile: 3.6 Longitude: 122 57 57.0
Waterbody: WA-26-1092

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
10/16/2006	11:40	10.8	107	11	7.22	3	0.504	0.115	0.366	0.0864	0.0665	2.1	590
			Left a black marked V on downstream guard to indicate reference point.										
11/13/2006	10:20	8.9	47	11	6.75	11	1.13	0.012	0.955	0.0325	0.016	11	130
12/18/2006	9:45	3.2	46	12.8		6	0.833	0.015	0.812	0.0165	0.012	6.2	53 J
1/22/2007	10:45	3.9	51	12.9	6.89	2	0.673	0.013	0.617	0.0219	0.016	4.4	15
2/12/2007	10:10	6.6	58	12.7	6.78	4	0.571	0.01 U	0.471	0.03	0.016	7.9	83 J
3/19/2007	8:45	9.5	52	11.02	8.4	2 U	0.545	0.01 U	0.442	0.023	0.014	4.2	35
			whitish tinge to water										
4/23/2007	9:20	10.5	61	11.32	7.83	2	0.353	0.01 U	0.247	0.025	0.014	3.7	16 J
			Sampled metals										
5/21/2007	9:10	10.6	82	10.9	7.73	3	0.441	0.018	0.291	0.0464	0.0318	2.6	380 J
6/11/2007	9:05	13.4	92	10.05	7.8	2	0.517	0.029	0.34	0.0595	0.0376	2.8	110 J
			Lots of logging trucks going by with full loads. Sampled metals										
7/16/2007	10:10	19.6	102	9.08	7.68	3	0.336	0.031	0.151	0.0782	0.0519	2.5	220
			Forgot to take BP										
8/20/2007	9:08	15.9	105	9.1	8.03	4	0.373	0.02	0.222	0.0824	0.0626	2.9	200
9/24/2007	8:15	11.7	106	10 J	7.97	3	0.441	0.01 U	0.346	0.0932	0.0682	2.5	77 J
			Overran DO by 6 drops										

Metals Data Report

Olequa Cr. at 7th Street 26F050

Class: A Latitude: 46 24 06.7
 Rivermile: 3.6 Longitude: 122 57 57.0
 Waterbody: WA-26-1092

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/16/2006 11:40		35.3	0.1 U	0.02 U	0.5 U	0.45	0.87	0.79	0.14	0.062	0.0032	0.62	0.54	5 U	4
12/18/2006 9:45		11.2	0.1 U	0.02 U	0.5 U	0.25 U	0.99	0.76	0.14	0.048	0.0038	0.43	0.11	5 U	1.9
2/12/2007 10:10		16.4	0.1 U	0.02 U	0.56	0.33	1.37	0.91	0.5	0.093	0.0029	0.55	0.24	5 U	3.7
4/23/2007 9:20		18.8	0.1 U	0.02 U	0.5 U	0.33	0.96	0.8	0.14	0.054	0.0029	0.59	0.29	5 U	2.1
6/11/2007 9:05		29.2	0.1 U	0.02 U	0.5 U	0.42	0.99	0.84	0.1 U	0.051	0.0033	0.81	0.47	5 U	2.4
8/20/2007 9:08		33.1	0.1 U	0.02 U	0.5 U	0.61	0.91	0.8	0.1 U	0.042	0.0027	0.66	0.64	5 U	1 U

Conventional Data Report

Kalama R nr Kalama 27B070

Class: A Latitude: 46 02 50.4
 Rivermile: 2.8 Longitude: 122 50 14.4
 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
10/16/2006 13:35	10.4	195	65	10.9	7.02	6	0.448	0.027	0.35	0.0268	0.022	3.3	220 J
11/13/2006 12:00	8.2	3371	36	11.8	7.13	276	0.59	0.01 U	0.525	0.0959	0.011	85	15
12/18/2006 11:40	3.9	680	41	13.2		31	0.621	0.01 U	0.624	0.0198	0.012	12	4
1/22/2007 12:30	5.1	597	48	12.9	7.21	4	0.522	0.01 U	0.539	0.013	0.013	2.2	5
2/12/2007 12:30	6.6	716	40	12.8	7.29	9	0.26	0.01 U	0.274	0.0114	0.0087	2.7	7
3/19/2007 10:30	7.5	996	38	11.92	7.4	16 J	0.327	0.01 U	0.314	0.0125	0.0098	3.5	13
4/23/2007 10:50	9.1	550	42	12.43	7.6	3	0.25	0.01 U	0.242	0.0088	0.0091	1	4
5/21/2007 10:30	9	315	51	12	7.68	4	0.2	0.01 U	0.168	0.0096	0.0099	1.3	53
6/11/2007 10:50	11.5	206	54	11.85	7.73	3	0.19	0.012	0.112	0.0127	0.011	1.2	15
7/16/2007 13:15	17.1	149	61	10.49	8.06	3	0.14	0.01 U	0.069	0.0144	0.016	2.3	16
8/20/2007 11:14	14.3	147	64	10.4	7.73	2	0.12	0.01 U	0.06	0.0107	0.013	1.3	43
9/24/2007 11:26	11.2	137	66	11.1	7.8	2	0.13	0.01 U	0.069	0.0159	0.015	0.7	57

County inspecting bridge, but did not interfere with sampling

fishermen at boad launch

8 vehicles at fishing access

No fishermen. 1 car

Live & dead adult salmon, QA done @ Kalama

Conventional Data Report

EF Lewis R nr Dollar Corner
27D090

Class: A Latitude: 45 48 52.4
Rivermile: 10.2 Longitude: 122 35 30.4
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
10/16/2006 14:27	11.3	213	60		7.13	8	0.384	0.01 U	0.294	0.0077	0.0048	3.4	310 J
	DO sample mishandled in lab. Reading was lost.												
11/13/2006 13:10	8.8	3010	27	11.4	7.19	18	0.476	0.01 U	0.436	0.0095	0.0057	11	8
12/18/2006 12:40	3.9	1180	32	13		3	0.547	0.01 U	0.523	0.0041	0.0061	2.2	4
1/22/2007 13:20	5.7	490	38	13	7.4	1	0.452	0.01 U	0.445	0.0042	0.0049	2	1 U
2/12/2007 13:20	7	623	32	12.6	7.37	2	0.297	0.01 U	0.284	0.003	0.003	1.9	4
3/19/2007 11:25	8.6	809	30	12.03	7.67	2	0.267	0.01 U	0.245	0.0035	0.0033	1	2
4/23/2007 11:40	9.5	606	33	12.13	7.51	3	0.24	0.01 U	0.222	0.0037	0.0033	1.1	2
	A few fishermen												
5/21/2007 11:30	11	328	43	11.4	7.56	2	0.22	0.01 U	0.172	0.0037	0.0046	1.2	70
	2 vehicles at fishing access												
6/11/2007 11:45	13.7	188	42	10.65	7.48	2	0.23	0.01 U	0.158	0.0034	0.0042	1.2	28
	3 fishermen below bridge and 5 cars.												
7/16/2007 14:20	22.5	67	60	9.28	8.02	2	0.17	0.01 U	0.098	0.0051	0.005	0.9	4
8/20/2007 12:43	17.2	63	63	9.69	7.55	2	0.16	0.01 U	0.108	0.0037	0.0052	1.1	280 J
9/24/2007 12:55	13.4	39	66	11.4	8.06	1	0.13	0.01 U	0.074	0.0028	0.0044	0.8	6

Conventional Data Report

Columbia R @ Vancouver 28A100

Class: A Latitude: 45 36 39.4
 Rivermile: Longitude: 122 36 41.3
 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
10/16/2006	16:45	16.5	151	9.69	8.04	1	0.252	0.016	0.181	0.0213	0.018	1.2	12
11/13/2006	15:55	10.6	131	10.6	7.45	13	0.338	0.013	0.287	0.0387	0.02	12	20 J
12/18/2006	15:30	4.2	127	12.3		14	0.392	0.01 U	0.345	0.0355	0.02	8.2	11
1/22/2007	16:00	3.6	178	13.1	7.73	5	0.424	0.01 U	0.396	0.0249	0.017	3.6	1
2/12/2007	15:55	3.6	168	13.7	7.83	4	0.349	0.01 U	0.318	0.0152	0.0091	1.7	1
3/19/2007	14:05	6.7	167	13.03	8.19	8	0.394	0.01 U	0.321	0.0146	0.0062	3.6	2
Sampled on upstream side of jetty in flow, but hard to get to due to blackberries. Previous sampling may have been at end of jet where water eddies.													
4/23/2007	14:15	10.9	139	12.63	8.19	7	0.32	0.01 U	0.265	0.0149	0.0071	3.5	2
Sampled metals.													
5/21/2007	14:00	13.9	124	11.2	8.24	15	0.18	0.01 U	0.11	0.0166	0.0072	5.9	1
Good flow today, but water from along bank may not be representative of thalweg.													
6/11/2007	14:45	16.4	119	10.65	8.13	10	0.15	0.01 U	0.089	0.0167	0.0073	4.4	4
Geese u/s near shore. Sampled metals.													
7/16/2007	16:50	21.5	130	9.58	8.04	8	0.15	0.01 U	0.076	0.0155	0.0083	4.7	12
8/20/2007	15:35	20.8	142	10 J	8	4	0.17	0.01 U	0.1	0.016	0.012	2.7	6
DO result is estimate, end-point pasted by 15 drops.													
9/24/2007	15:09	18.5	143	9.4	8.23	2	0.21	0.011	0.128	0.0201	0.016	1.3	2

Metals Data Report

Columbia R @ Vancouver 28A100

Class: A Latitude: 45 36 39.4
 Rivermile: Longitude: 122 36 41.3
 Waterbody: WA-CR-1010

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/16/2006 16:45		66.1	0.1 U	0.02 U	0.5 U	0.44	0.9	0.8	0.1	0.02 U	0.002 U	0.47	1.24	5 U	4.5
12/18/2006 15:30		51.3	0.1 U	0.02 U	0.5 U	0.25 U	1.19	0.76	0.19	0.13	0.0068	0.68	0.8	5 U	1.7
2/12/2007 15:55		77.2	0.1 U	0.02 U	0.5 U	0.36	0.82	0.61	0.12	0.02 U	0.002 U	0.69	0.81	5 U	3.7
4/23/2007 14:15		62.4	0.1 U	0.02 U	0.5 U	0.35	0.97	0.74	0.16	0.02 U	0.0021	0.83	0.73	5 U	2.2
6/11/2007 14:45		53.2	0.1 U	0.02 U	0.5 U	0.3	1.12	0.68	0.2	0.02 U	0.0035	0.39	0.66	5 U	1 U
8/20/2007 15:35		62.8	0.1 U	0.02 U	0.5 U	0.42	2.07	0.78	0.12	0.02 U	0.002 U	0.77	0.93	7.6	2.4

Conventional Data Report

Lacamas Creek @ Goodwin Road
28I120

Class: AA Latitude: 45 38 19.3
Rivermile: 5.5 Longitude: 122 27 28.6
Waterbody: WA-28-2020

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
10/16/2006 15:30	12	29.5	122	9.9	7.24	5	1.92	0.01 U	2.42	0.0325	0.025	5	480
11/13/2006 14:25	9.6	461	63	8.1	6.56	2	1.55	0.068	1.24	0.0954	0.113	7.9	
	tree blocking gauge. Fecal sample leaked in transit (coded "9").												
12/18/2006 14:00	3.7	326	60	12.3		3	1.35	0.01 U	1.25	0.0315	0.025	5.7	3
1/22/2007 14:20	5.8	147	76	11.8	7.2	2	1.26	0.023	1.24	0.0262	0.015	6.5	23
2/12/2007 14:20	8	83.1	93	11	7.04	6	1.47	0.217	1.21	0.0686	0.0348	12	160 J
3/19/2007 12:35	10.6	92.2	81	10.22	7.18	6	1.26	0.032	1.15	0.031	0.016	6.1	74
	A little milky. Hand-made staff behind stand-pipe, probably only good to +/-0.04 feet.												
4/23/2007 12:40	11.2	93.8	82	10.82	7.05	2	1.12	0.042	1.02	0.0375	0.015	6.2	47
	Stage from woodens staff on R/B. Commercial staff on L/B piling is obscured by growth.												
5/21/2007 12:40	11.9	45.8	106	10	7.34 J	4	1.34	0.028	1.2	0.0333	0.021	5	510
	A little haze in water. Light rain. Stage is from old wooden staff and is an estimate												
6/11/2007 13:00	14.7	22.7	113	10.95	7.56	3	1.6	0.011	1.4	0.0349	0.024	5.5	77
	Stage is estimate due to corroded wooden staff. Water a little hazy.												
7/16/2007 15:10	19.2	12.5	152	10.39	7.78	5	3.06	0.01 U	2.61	0.0364	0.0324	6	110
	Forgot RP												
8/20/2007 14:03	16.2	10.2	153	9.4	7.42	5	3.51	0.01 U	2.52	0.0373	0.0367	7.5	430
	Unable to read staff gauge												
9/24/2007 13:50	13.4	7.76	149	10.3	7.6	3	2.36	0.01 U	2.64	0.0358	0.0301	4.1	180
	Staff unreadable												

Conventional Data Report

Little Washougal Cr. @ Blair Road
28J070

Class: A Latitude: 45 36 31.8
Rivermile: 0.5 Longitude: 122 21 11.1
Waterbody: WA-28

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
10/16/2006 16:00	12	29.1	55	10.7	7.45	5	0.591	0.01 U	0.47	0.0156	0.011	6.9	640 J
11/13/2006 15:00	9.8	378	32	11.1	6.84	12	0.792	0.01 U	0.73	0.0069	0.0062	5.1	8
12/18/2006 14:40	5.2	182	34	12.5		3	0.672	0.01 U	0.706	0.0049	0.007	2.7	1
1/22/2007 15:00	6.6	81.6	40	12.5	7.16	2	0.555	0.01 U	0.581	0.0064	0.0069	1.9	1
	RP=16.94												
2/12/2007 15:00	8.7	51	44	11.9	7.51	2	0.433	0.01 U	0.435	0.0088	0.0073	2.2	1
	RP=17.29												
3/19/2007 13:10	10	86.7	37	11.42	7.4	3	0.444	0.01 U	0.427	0.0065	0.0064	2.6	11
	Not raining now but puddles on road. Dairy cows in valley. Significant areas of recent riparian plantings.												
4/23/2007 13:20	11.4	76.5	38	11.62	7.41	5	0.429	0.01 U	0.422	0.0058	0.0064	2.1	1
5/21/2007 13:10	10.8	44.4	48	11.3	7.44 J	3	0.336	0.01 U	0.278	0.0098	0.011	3.6	270
	Light rain												
6/11/2007 13:45	15.1	23.5	54	10.75	7.66	2	0.295	0.012	0.211	0.0113	0.012	2.1	26
7/16/2007 15:41	21.5	10.3	66	9.58	8.33	2	0.19	0.011	0.098	0.0169	0.017	2	66
8/20/2007 14:31	16.3	12.5	69	9.9	7.63	7	0.274	0.01 U	0.163	0.0266	0.022	5.4	3300 J
9/24/2007 14:20	13.4	6.84	71	11.2	8	2	0.17	0.01 U	0.104	0.0155	0.016	1.7	15

Conventional Data Report

Little Klickitat R. @ Olson Rd.
30C090

Class: A Latitude: 45 48 35.4
Rivermile: 9.5 Longitude: 120 55 35.2
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
10/11/2006 13:15	10.2	7.65 J	152	14.02	9.07	1	0.878	0.01 U	0.78	0.165	0.148	1.1	9
	pH measured @ 11.5°C. All Olson Rd flows in WY07 are based on flows at mouth * 0.25 (derived from summer KCCD data at both stations).												
11/15/2006 13:15	6.2	18.7 J	101	12.65	8.34	1	0.325	0.01 U	0.232	0.0559	0.0486	1.8	5
	pH measured @ 8.9°C.												
12/11/2006 14:15	3.6	37 J	110	13.19	8.08	4	0.459	0.01 U	0.336	0.0621	0.0499	3.5	56
	Blank metals collect. Filtered but analyzed as "total recoverable." pH measured @ 5.1°C. Hard rain falling on fresh snow. Runoff from roads and bridges.												
1/23/2007 14:45	3.9	50 J	112	13.06	7.77	3	0.562	0.01 U	0.464	0.0503	0.0448	6.3	4
	pH measured @ 5.4°C. Ice on banks of river.												
2/7/2007 13:00	3	36 J	113	13.53	8.1	2	0.444	0.01 U	0.388	0.0458	0.0375	3.4	5
	pH measured @ 4.5°C. Ice on banks.												
3/7/2007 14:35	5.9	74 J	90	13.67	8.85	3	0.16	0.01 U	0.079	0.031	0.025	3.8	2
	pH measured @7.7°C. Overcast with light rain. pH calibration checked with both standards and sample rechecked with the same result.												
4/11/2007 12:10	6.9	42 J	81	14.38	9.31	3	0.095	0.01 U	0.033	0.0376	0.028	1.6	1
	pH measured @ 8.0°C. Overcast with light wind. pH meter calibration checked with 6.97 and 9.16 standards and found okay. New sampled checked and found to be the same as original.												
5/9/2007 12:38	14.9	25.5 J	80	11.22	8.8	5	0.18	0.01 U	0.08	0.0351	0.026	1.8	9
	pH measured @ 16.0°C.												
7/11/2007 14:07	25.6	5.65 J	171	11.53	9.17	7	0.787	0.047	0.487	0.105	0.0688	3.6	39
	pH measured @ 24.9°C. Switched to spare pH meter.												
8/14/2007 13:27	22.3	5.23 J	152	13.19	9.07	3	0.634	0.028	0.381	0.198	0.166	3.3	17
	pH measured @ 22.0°C												
9/19/2007 14:40	15.9	6.78 J	139	12.44	9.16	2	1.1	0.01 U	0.899	0.32	0.295	2.2	22
	pH measured @ 16.1°C.												

Metals Data Report

Little Klickitat R. @ Olson Rd. 30C090

Class: A Latitude: 45 48 35.4
 Rivermile: 9.5 Longitude: 120 55 35.2
 Waterbody:

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/11/2006 13:15		54.3	0.1 U	0.02 U	0.5 U	0.62	0.45	0.47	0.1 U	0.021	0.002 U	0.36	0.14	5 U	1.1
12/11/2006 14:15		40.5	0.1 U	0.02 U	0.5 U	0.28	0.78	0.68	0.1 U	0.02 U	0.0026	0.63	0.1 U	5 U	4
2/7/2007 13:00		44.6	0.1 U	0.02 U	0.5 U	0.38	0.54	0.42	0.1 U	0.02 U	0.002 U	0.47	0.1 U	5 U	1.2
4/11/2007 12:10		35.1	0.1 U	0.02 U	0.5 U	0.4	0.35	0.28	0.1 U	0.02 U	0.002 U	0.42	0.1 U	5 U	1.2
8/14/2007 13:27		58.6	0.1 U	0.02 U	0.34	0.53	0.92	0.76	0.1 U	0.02 U	0.0024	0.71	0.27	5 U	1 U

Conventional Data Report

Little Klickitat R. @ Hwy 97
30C150

Class: A Latitude: 45 50 15.4
Rivermile: Longitude: 120 48 04.2
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
10/11/2006 12:15	7.1		133	11.64	8.02	1 U	0.057	0.01 U	0.01 U	0.0167	0.013	0.6	15
	pH measured @ 9.2°C.												
11/15/2006 12:03	5.1		89	11.93	7.86	1 U	0.064	0.01 U	0.01 U	0.0181	0.017	1.1	6
	pH measured @ 6.5°C.												
12/11/2006 13:25	3.3		86	12.88	7.8	1	0.064	0.01 U	0.01 U	0.0183	0.019	2	7
	pH measured @ 5.0°C. Rain falling on fresh snow. Runoff from roads and bridges with anti-ice road treatment in use. Sampling site is just d/s of Hwy. 97 bridge.												
1/23/2007 13:17	3		83	13.06	7.6	1 U	0.12	0.01 U	0.058	0.0184	0.019	2.7	5
	pH measured @ 5.5°C. Ice on banks of river.												
2/7/2007 11:30	1.7		80	13.43	7.82	1	0.068	0.01 U	0.018	0.0148	0.014	1.7	1 U
	pH measured @ 4.2°C. Ice on river banks. Ground wet and soggy.												
3/7/2007 13:03	5.1		79	12.24	7.88	3	0.063	0.01 U	0.011	0.0202	0.018	3.4	1 U
	pH measured @ 6.9°C. Overcast, light rain, calm.												
4/11/2007 11:36	4.8		70	12.44	7.72	1 U	0.049	0.01 U	0.012	0.0142	0.013	1.1	1 U
	pH measured @ 6.9°C. Overcast, calm.												
5/9/2007 12:00	11.9		64	10.61	7.78	3	0.054	0.01 U	0.01 U	0.0136	0.012	1.4	3
	pH measured @ 13.5°C.												
7/11/2007 12:57	23.7		119	9.38	8.52	2	0.13	0.01	0.018	0.0276	0.022	1.2	39
	pH measured @ 24.8°C. High thin overcast, quite hot.												
8/14/2007 12:42	19.1		167	9.48	8.14	1 U	0.1	0.01 U	0.018	0.0203	0.02	0.8	18
	pH measured @ 18.8°C												
9/19/2007 13:51	13.2		172	10.4	8.2	1 U	0.093	0.01 U	0.01 U	0.0225	0.018	1.1	26
	pH measured @ 14.5°C.												

Conventional Data Report

Columbia R @ Umatilla 31A070

Class: A Latitude: 45 56 01.5
 Rivermile: 290.5 Longitude: 119 19 35.1
 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
10/10/2006 14:25	16.5	214300	156	9.38	8.1	2	0.23	0.01 U	0.161	0.0166	0.012	1.2	1
	pH measured @ 17.6°C.												
11/13/2006 14:05	11.1	271500	184	10.2	8.07	5	0.39	0.016	0.293	0.0426	0.027	9.6	28
	pH measured @ 11.9°C. DO bottle filled by submerging directly in river.												
12/12/2006 14:15	6.6	255700	153	12.06	8.04	2	0.273	0.01 U	0.232	0.0149	0.012	1.2	6
	pH measured @ 8.6°C. Fresh rain from previous night.												
1/9/2007 14:53	4.4	295300	186	12.75	8.15	5	0.408	0.01 U	0.351	0.0231	0.015	4.4	10 J
	pH measured @ 6.3°C. Barometric pressure was calculated using automated broadcasts from Pasco Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/6/2007 14:35	2.1	242600	173	12.82	8.1	2	0.284	0.01 U	0.293	0.0095	0.0068	1.1	3
	pH measured @ 4.9°C												
3/6/2007 13:10	3.7	284200	173	13.87 J	8.23	2	0.345	0.01 U	0.288	0.0078	0.0033	2.2	1
	pH measured @ 7.3°C. Clear, dry, calm. DO bottle filled by submerging sample bottle. Fishing boat operating u/s of sampling site.												
4/10/2007 13:50	8.1	428100	153	13.46	8.12	4	0.347	0.01 U	0.303	0.0098	0.0056	2.9	1
	pH measured @ 11.3°C. Very windy with high wave action. Sunny with scattered clouds.												
5/7/2007 15:10	10.7	532300	142	12.65	8.13	4	0.2	0.01 U	0.121	0.0071	0.003 U	2.4	2
	pH measured @ 16.3°C.												
6/11/2007 14:55	15.4	500600	116	11.42	8.02	5	0.16	0.01 U	0.084	0.0087	0.004	3.5	1
	pH measured @ 14.6°C. Tug and barge u/s of sampling site. Strong wind blowing downstream (unusual). All spillway gates open on McNary Dam. Barometric pressure estimated.												
7/10/2007 14:52	20.5	418300	131	10.3	8.06	3	0.12	0.01 U	0.052	0.0062	0.003 U	2	2
	pH measured @ 11.9°C. Sunny, clear, hot.												
8/13/2007 13:40	21.2	366800	142	10.3	8.06	3	0.13	0.01 U	0.07	0.0075 J	0.0052	2.3	1
	pH measured @ 20.5°C. Foam.												
9/12/2007 16:39	21.4	160400	157	8.67	8.29	2	0.22	0.01 U	0.117	0.0123	0.0097	2.1	1
	pH measured @ 22.5°C.												

Conventional Data Report

Walla Walla R nr Touchet 32A070

Class: B Latitude: 46 02 15.5
 Rivermile: 15.3 Longitude: 118 45 59.0
 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
10/10/2006 12:10	11.9	13	417	13.4	8.64	1 U	1.03	0.01 U	0.827	0.0439	0.0325	1	3
	pH measured @ 13.3°C.												
11/13/2006 11:42	7.5	448	121	11.22	7.77	17	0.746	0.01 U	0.593	0.102	0.0783	16	76
	pH measured @ 10.4°C. J stage due to high winds.												
12/12/2006 11:30	5.8	766	110	12.26	7.95	57	0.625	0.01 U	0.538	0.101	0.0738		150
	pH measured @ 7.2°C. Fresh rain from previous night.												
1/9/2007 12:11	5.9	1120	117	12.04	7.74	98	1.15	0.01	1.03	0.105	0.0709	23	56
	pH measured @ 7.6°C. Barometric pressure was estimated using automated broadcasts from Walla Walla and Pasco Airports (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/6/2007 13:53	3.7	538	172	12.82	7.94	30	1.31	0.014	1.32	0.108	0.0856	39	92
	pH measured @ 5.8°C. Water quite turbid.												
3/6/2007 10:35	6.4	1180	123	12.04 J	7.81	114	0.828	0.01 U	0.728	0.0858	0.0481	26	180
	pH measured @8.4°C. Cloudy with light fog. Swift water -- bouncing sampler my compromise DO sample; "J" DO sample.												
4/10/2007 11:10	9.7	942	127	10.91	7.86	61	0.812	0.01 U	0.711	0.0742	0.056	18	100
	pH measured @ 11.0°C. Sunny, clear, very windy. "J" stage due to windy conditions.												
5/7/2007 11:32	15.8	408	160	10.61	8.42	14	0.579	0.013	0.421	0.0601	0.0458	3.7	110
	pH measured @ 16.8°C.												
6/11/2007 12:14	18.7	157	278	9.38	8.14	20	0.804	0.025	0.551	0.0957	0.0649	8.2	520
	pH measured @ 18.5°C.												
7/10/2007 11:40	26.2	15	525	10.81	8.6	3	1.29	0.019	1	0.0745	0.0548	2	23
	pH measured @ 25.4°C. Low water, RP almost dry. Sunny, clear , hot.												
8/13/2007 11:10	22.3	16	480	13.4	8.76	3	0.635	0.01 U	0.369	0.0205	0.0089	2	55
	pH measured @ 20.0°C												
9/12/2007 15:03	21.8	19	444	17.65	9.2	2	0.591	0.01 U	0.306	0.0311	0.017	1.5	3
	pH measured @ 2.2°C.												

Conventional Data Report

Snake R nr Pasco 33A050

Class: A Latitude: 46 12 59.5
 Rivermile: 2.2 Longitude: 119 01 27.0
 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
10/10/2006 13:01	16.1	23800	210	8.65	8.02	2	0.383	0.01 U	0.26	0.0432	0.0376	1.6	1 U
	pH measured @ 17.3°C.												
11/13/2006 12:45	11.3	56200	312	10.1	8.14	4	0.699	0.01 U	0.555	0.0654	0.0575	2.4	
	pH measured @ 11.7°C. FC sample lost at this site.												
12/12/2006 12:27		25800	183	11.64	7.93	2	0.558	0.012	0.437	0.0376	0.032	1.7	2
	pH measured @ 6.8°C. Ground wet, rain previous night. Very windy. No temperature taken -- high winds prevented thermister probe from reaching water surface.												
1/9/2007 13:32	4	95300	279	13.26	8.17	8	0.924	0.01 U	0.818	0.0485	0.0379	5.6	2 J
	pH measured @ 7.0°C. Barometric pressure was calculated using automated broadcasts from Pasco Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/6/2007 11:52	2.4	39200	291	12.62	8.14	2	1.02	0.011	0.946	0.0387	0.0335	2.5	1
	pH measured @ 4.8°C. Tug boats and barges u/s.												
3/6/2007 11:47	4.2	54600	268	12.95	8.1	3	1.26	0.047	1.11	0.0433	0.036	5.5	1
	pH measured @7.6°C. Clear, dry, calm.												
4/10/2007 12:11	9.5	109700	170	12.95	8.02	6	0.502	0.01 U	0.418	0.0287	0.023	5.3	1 U
	pH measured @ 12.0°C. Broken clouds, windy, tug and barges upstream on river.												
5/7/2007 12:42	12	169100	133	12.34	8.1	6	0.261	0.01 U	0.169	0.018	0.011	4.2	1 U
	pH measured @ 17.7°C.												
6/11/2007 13:25	16.3	81700	113	11.53	8.25	8	0.19	0.01 U	0.081	0.0145	0.0074	4.5	1
	pH measured @ 16.7°C. Strong wind blowing upstream. Blowing grit and dirt at site on bridge.												
7/10/2007 13:20	23.3	73100	135	10	8.01	5	0.18	0.015	0.067	0.0152	0.0093	4.1	3
	pH measured @ 11.9°C. Sunny, clear, hot.												
8/13/2007 12:10	22.5	48900	185	9.38	7.95	3	0.296	0.011	0.165	0.0313	0.025	2.2	1
	pH measured @ 20.7°C. Scum along right bank (not oil)												
9/12/2007 12:38	20.8	41200	210	7.65	7.81	2	0.349	0.01 U	0.215	0.0387	0.0348	2	5
	pH measured @ 24.1°C.												

Metals Data Report

Palouse R @ Hooper 34A070

Class: B Latitude: 46 45 31.5
 Rivermile: 19.5 Longitude: 118 08 52.9
 Waterbody: WA-34-1010

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/10/2006 8:08		136	0.1 U	0.02 U	0.5 U	0.6	1.52	1.13	0.2	0.035	0.002 U	1.27	1.03	5 U	3.5
12/12/2006 7:50		94.2	0.1 U	0.02 U	0.63	0.74	1.38	1.1	0.15	0.029	0.0025	1.4	0.95	5 U	3
2/6/2007 9:30		109	0.19	0.02 U	18	0.66	19.1	1.28	10.1	0.063	0.0028	1.3	3.2	42	4.5
4/10/2007 7:40		81.4	0.1 U	0.02 U	1.2	1.1	1.84	1.04	0.4	0.059	0.0025	1.3	0.82	5 U	1.8
6/11/2007 8:08		111	0.1 U	0.02 U	0.5 U	0.83	1.67	1.16	0.3	0.04	0.0026	1.06	1.29	5 U	2
8/13/2007 8:20		118	0.1 U	0.02 U	1	1.1	1.74	1.31	0.23	0.02 U	0.0023	1.3	1.76	5 U	1.47

Conventional Data Report

Palouse R @ Palouse 34A170

Class: A Latitude: 46 54 32.6
 Rivermile: 121.2 Longitude: 117 04 36.6
 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
10/4/2006 10:05	10.8	36	80	9		5	0.17	0.01 U	0.01 U	0.0191	0.0067	2.3	35
11/15/2006 10:15	2.9	273	63	11.61	7.87	2	0.506	0.01 U	0.325	0.0518	0.028	1.5	20
12/6/2006 10:00		155											
		iced over. No Sample.											
1/10/2007 10:10	1.1	1710	88	11.71	7.64	42	3.5	0.061	2.17	0.127	0.0974	55	220
2/14/2007 10:05	1.2	1710	74	12.24	7.74	31	1.25	0.028	1.09	0.0762	0.053	37	60
3/7/2007 9:55	4.6	913	72	11.51	7.91	16	0.846	0.01 U	0.672	0.0575	0.0361	22	11
4/4/2007 9:55	5.5	896	53	11.12	7.76	8	0.29	0.01 U	0.216	0.036	0.022	11	15
5/15/2007 14:40	19.5	230	61	11.02	8.98	6	0.14	0.01 U	0.01 U	0.0324	0.012	4.3	4
6/20/2007 14:30	24.1	96	71	9.75	8.83	2	0.17	0.01 U	0.01 U	0.0338	0.017	1.3	44
7/17/2007 14:30	23.6	26	91	7.86	8.57	3	0.266	0.01 U	0.01 U	0.0418	0.021	1.7	120
8/22/2007 14:00	17.8	15	103	10.3	9.39	3	0.362	0.01 U	0.01 U	0.0266	0.0072	3.3	31
9/5/2007 13:55	19.2	15	106	8.48	8.4	3	0.367	0.01 U	0.01 U	0.0262	0.0075	3.9	64

Conventional Data Report

Palouse R nr Stateline
34A200

Class: A Latitude: 46 54 21.6
 Rivermile: 126.5 Longitude: 117 00 25.6
 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
5/15/2007	14:20												12
		FC only											
6/20/2007	14:15												20
		FC only											
7/17/2007	14:13												120
		FC only											
8/22/2007	13:40												43
		Fecal coliform only											
9/5/2007	13:35												31
		FC only											

Conventional Data Report

SF Palouse R @ Pullman
34B110

Class: A Latitude: 46 43 56.6
Rivermile: 22.2 Longitude: 117 10 51.6
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
10/4/2006 10:50	9.9	4.2	706	9		2	5.51	0.01 U	5.71	0.169	0.151	1.8	160
11/15/2006 10:55	4.7	16	441	10.7	7.8	3	2.75	0.011	2.82	0.17	0.129	9.5	40
12/6/2006 10:30	2.4	13	642	12.12	7.96	3	3.9	0.015	4.11	0.144	0.119	3.6	92
1/10/2007 10:55	0.6	168	221	12.52	7.45	62	7.69	0.051	6.89	0.231	0.156	150	130
2/14/2007 10:45	3.9	89	261	11.73	7.54	22	6.15	0.022	7.15	0.157	0.116	55	34
3/7/2007 10:45	6.8	56	296	11.11	7.8	10	6.61	0.01 U	5.38	0.114	0.0807	25	29
4/4/2007 10:55	7.1	38	300	11.83	8.05	4	3.65	0.01 U	3.53	0.0729	0.0425	9.5	44
5/14/2007 9:10	12.7	11	466	9.08	7.98	2	2.99	0.018	2.12	0.159	0.114	2	48
6/18/2007 8:55	13.5	6.8	551	8.05	7.93	1	3.53	0.019	3.16	0.214	0.159	1.1	44
7/16/2007 10:05	18.5	0.74	657	5.67	7.87	2	3.11	0.032	2.75	0.404	0.366	1.5	270
8/21/2007 9:15	14.7	3.5	714	5.09	7.69	3	6.1	0.019	6.42	0.587	0.529	2.1	2300 J
9/4/2007 9:20	15.2	1.8	579	5.85	7.81	1	3.28	0.014	2.7	0.304	0.27	0.9	150

Conventional Data Report

SF Palouse R blw Sunshine
34B130

Class: A Latitude: 46 43 04.6
Rivermile: 23.75 Longitude: 117 09 51.6
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
10/4/2006 11:20	9.2		445	8.9		1 U	0.29	0.01 U	0.022	0.0334	0.028	0.7	51
11/15/2006 11:30	3.7		308	10.3	7.79	2	2.63	0.01 U	1.27	0.137	0.101	5.6	14
12/6/2006 11:00	0.3		356	12.42	7.85	1	3.14	0.01 U	3.36	0.0708	0.0594	1.9	2
1/10/2007 11:55	0.5		192	12.22	7.67	89	7.71	0.053	6.39	0.206	0.144	160	120
2/14/2007 11:05	3.2		205	11.63	7.64	21	5.78	0.018	6.2	0.154	0.112	60	39
3/7/2007 11:15	6.9		230	10.9	8	13	6.04	0.01 U	5.03	0.111	0.0804	30	12
4/4/2007 11:20	6.8		201	11.53	8.07	7	2.73	0.01 U	3.32	0.0713	0.0458	13	6

Conventional Data Report

Paradise Cr at Mouth
34C060

Class: A Latitude: 46 43 13.6
Rivermile: 0.1 Longitude: 117 09 50.6
Waterbody: WA-34-1025

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
10/4/2006 11:50	10.4		787	9.19		2	7.5	0.01 U	8.52	0.182	0.166	1.7	51
11/15/2006 11:55	5.7		562	10.8	7.98	2	4.08	0.01 U	4.29	0.186	0.15	8.8	40
12/6/2006 11:15	3.6		740	12.32	8.13	2	4.63	0.01 U	5.58	0.182	0.15	2.7	4
1/10/2007 12:15	0.9		248	12.52	7.52	56	7.86	0.049	7.01	0.26	0.187	120	71 J
2/14/2007 11:35	4.5		355	11.63	7.7	14	7.68	0.031	8.75	0.175	0.124	60	11
3/7/2007 11:35	7.8		421	10.9	8.1	8	7.19	0.01 U	6.06	0.119	0.087	19	4
4/4/2007 11:35	8.4		460	12.55	8.56	4	4.03	0.01 U	3.64	0.0793	0.0404	4.7	100

Conventional Data Report

Paradise Cr @ Border
34C100

Class: A Latitude: 46 43 56.6
 Rivermile: 6.5 Longitude: 117 02 38.6
 Waterbody: WA-34-1025

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
10/4/2006 12:20	15.2		799	6.4		2 U	9	0.01 U	8.51	0.143	0.115	0.9	280
11/15/2006 12:20	10.2		602	8.48	7.72	3	5.02	0.031	5.5	0.139	0.1	7.1	20
12/6/2006 11:50	8.6		1320	7.97	7.64	5	5.17	0.179	4.97	0.188	0.132	2.9	720 J
			actual conductivity 1320										
1/10/2007 12:55	2.6		319	11.11	7.51	23	7.1	0.041	6.36	0.264	0.196	80	96
2/14/2007 12:05	5.8		382	10.51	7.68	9	7.39	0.034	8.13	0.141	0.0991	45	31
3/7/2007 12:05	9.7		432	10.1	7.91	12	6.32	0.02	5.33	0.103	0.0703	19	19
4/4/2007 12:05	10.7		521	12.34	8.26	4	5.02	0.01 U	4.84	0.0886	0.0514	5.1	20

Conventional Data Report

Snake R @ Interstate Br
35A150

Class: A Latitude: 46 25 14.6
Rivermile: 139.6 Longitude: 117 02 08.6
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
10/4/2006 14:10	17.1	15100	348	9		4	0.753	0.01 U	0.57	0.0767	0.0664	1.8	35
11/15/2006 14:10	8.3	17800	288	11.21	8.29	6	0.764	0.229	0.561	0.0577	0.0436	3.6	14
12/6/2006 13:00	4.6	14200	353	12.42	8.35	3	0.89	0.01 U	0.76	0.0488	0.0429	1.3	20
1/10/2007 13:55	4.4	17400	400	12.52	8.39	4	1.26	0.043	1.04	0.0467	0.0376	3.2	4
2/14/2007 13:15	3.7	18200	339	12.95	8.29	8	1.18	0.011	1.05	0.055	0.042	8.9	4
3/7/2007 13:35	5.1	17700	365	12.62	8.55	5	0.937	0.01 U	0.946	0.0452	0.0313	3.1	1
4/4/2007 13:30	8.6	22100	226	11.02	8.5	11	0.519	0.014	0.399	0.0347	0.021	5.4	2
5/14/2007 11:50	13.3	58800	135	10.51	8.45	24	0.278	0.01 U	0.168	0.0227	0.011	8.8	27
6/18/2007 11:30	17.5	25000	168	9.05	8.35	9	0.28	0.01 U	0.148	0.0172	0.0096	3	9
7/16/2007 12:45	22.8	18300	289	7.46	8.31	4	0.553	0.016	0.352	0.0425	0.0325	1.8	8
8/21/2007 11:45	20.7	12800	332	7.9	8.32	2	0.607	0.015	0.412	0.0735	0.0604	1.5	14 J
9/4/2007 11:25	22.6	15500	354	8.08	8.47	4	0.693	0.012	0.467	0.0772	0.0674	1.4	9

Conventional Data Report

Almota Cr. @ mouth
35L050

Class: A Latitude: 46 42 11.6
Rivermile: 0.1 Longitude: 117 28 05.7
Waterbody: WA-35-3200

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
10/9/2006 12:25	11.2	1.72	293		7.96	13	0.502	0.01 U	0.425	0.0803	0.0835	3.1	100
11/6/2006 12:35	13.7	1.72	299	8.58	7.87	8	0.589	0.01 U	0.418	0.111	0.0978	4.3	69
12/11/2006 13:40	6.9	2.86	293	11.06	8.02	16	1.3	0.01 U	1.2	0.097	0.0993	2.8	28
1/22/2007 13:40	7.2	1.43	290	11.41	8.27	8	3.96	0.015	3.38	0.143	0.123	11	330 J
2/20/2007 12:45	7.9	4.96	302	11.05	8.2	27	6.41	0.01 U	5.28	0.147	0.133	18	370
3/12/2007 13:20	12.3	3.47	289	10.65	8.36	19	3.9	0.01 U	4.06	0.125	0.108	11	310
4/9/2007 12:40	12.5	3.43	287	10.05	8.32	59	3.25	0.015	3.09	0.175	0.122	32	1000
5/14/2007 14:30	17.9	1.16	290	8.67	8.29	41	1.28	0.01 U	1.09	0.131	0.106	28	92
6/18/2007 14:35	18.3	1.08	285	8.35	8.1	21	0.513	0.01 U	0.375	0.101	0.0874	14	270
7/16/2007 15:50	22.7	0.43	286	7.46	8.16	20	0.45	0.01 U	0.306	0.0848	0.0915	6.3	310
8/21/2007 14:20	18.3	0.62	293	8.5	8.04	10	0.387	0.01 U	0.26	0.0863	0.0862	3.8	280
9/4/2007 14:05	18.2	0.61	290	8.48	8.11	6	0.338	0.01 U	0.229	0.0765	0.0783	9.3	140

Conventional Data Report

Almota Cr @ Klemgard Rd
35L140

Class: A Latitude: 46 40 33.6
Rivermile: 6 Longitude: 117 20 17.6
Waterbody: WA-35-3200

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												
10/9/2006	11:40	6.4		309		8.15	796	4.65	0.014	5.3	0.376	0.165	220	31
11/6/2006	11:35	11.4		333	8.28	8	84	4.13	0.01 U	3.85	0.404	0.318	12	25
12/11/2006	12:55	3.9		317	11.47	8.17	20	4.07	0.011	3.59	0.329	0.247	11	16
2/20/2007	11:55	4.6		367	11.45	8.18	17	10.3	0.01 U	9.46	0.206	0.183	12	5
3/12/2007	12:30	9		350	10.55	8.03	26	7.44	0.01 U	6.9	0.202	0.154	14	3
4/9/2007	11:55	8.9		333	10.87	8.38	17	4.26	0.01 U	4.72	0.262	0.194	13	9
5/14/2007	13:40	14.3		328	9.59	8.37	31	4.57	0.013	3.45	0.225	0.174	14	51
6/18/2007	13:40	13.4		317	8.85	8.13	30	4.57	0.013	3.99	0.229	0.182	7.6	56
7/16/2007	15:00	18.9		305	6.26	7.88	210	6.46	0.113	3.44	0.38	0.282	130	1500 J

Conventional Data Report

Little Almota Cr @ Mouth
35Q050

Class: A Latitude: 46 42 09.6
Rivermile: 0.1 Longitude: 117 28 04.7
Waterbody: WA-35-1015

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
10/9/2006 12:40	10.8		316		8.45	12	1.14	0.02 U	1.07	0.0798	0.0798	2.6	55
11/6/2006 13:05	14.6		335	9.09	8.1	16	1.94	0.016	1.39	0.104	0.0892	2.4	200
12/11/2006 13:55	6.8		315	11.57	8.29	3	2.86	0.01 U	2.65	0.119	0.122	1.5	47
1/22/2007 13:55	6.7		322	12.12	8.4	18	6.39	0.039	4.47	0.212	0.167	17	2900 J
2/20/2007 13:00	8.2		310	11.15	8.37	97	6.5	0.013	5.71	0.2	0.137	80	1000
3/12/2007 13:40	13.2		302	9.94	8.41	65	4.67	0.014	4.63	0.179	0.137	60	4400
4/9/2007 12:55	14.2		302	9.84	8.67	110	5.26	0.01 U	4.21	0.247	0.178	100	1500
5/14/2007 14:50	19.3		314	8.57	8.5	67	3.16	0.063	3.24	0.263	0.199	50	3200
6/18/2007 14:52	19.4		303	8.25	8.4	21	1.4	0.01 U	1.3	0.129	0.102	13	530
7/16/2007 16:10	25.9		297	7.16	8.39	14	0.58	0.01 U	0.434	0.11	0.113	5.3	570
8/21/2007 14:40	20.7		307	8.1	8.4	10	0.525	0.01 U	0.412	0.0935	0.0906	4.9	160
9/4/2007 14:20	20.6		304	8.18	8.45	10	0.467	0.01 U	0.328	0.081	0.0791	3.9	200

Conventional Data Report

Steptoe Cr @ Mouth
35R050

Class: A Latitude: 46 27 08.6
Rivermile: 0.15 Longitude: 117 12 16.6
Waterbody: WA-35-3000

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
11/6/2006 10:15	12.7		439	7.07	7.66	165	0.449	0.01 U	0.248	0.22	0.154	85 J	23
12/11/2006 11:40	6.4		401	11.16	8.2	88	0.969	0.037	0.741	0.19	0.172	27	800 J
1/22/2007 11:45	4.6		398	12.02	8.19	3	2.62	0.01 U	1.6	0.225	0.151	65	110
2/20/2007 10:40	7.5		389	10.05	8.26	137	2.19	0.01 U	2.36	0.167	0.144	29	510
3/12/2007 11:00	11.1		388	9.54	8.22	17	2.25	0.01 U	1.21	0.137	0.118	2.7	1600 J
4/9/2007 10:35	11.9		374	9.64	8.4	520	0.732	0.01 U	0.536	0.145	0.109	32	1800
5/14/2007 10:55	13.5		396	9.38	8.33	16	0.33	0.01 U	0.187	0.117	0.0983	7.1	470
6/18/2007 10:50	16.3		408	8.35	8.23	69	0.266	0.01 U	0.105	0.133	0.102	19	670
7/16/2007 12:05	21.4		462	0.99	8.01	199	0.488	0.084	0.15	0.129	0.0822	19	830

This was the QC dup but was a "cleaner" sample than the original, so was swapped.

Conventional Data Report

Steptoe Cr blw Stewart
35R120

Class: A Latitude: 46 28 12.6
Rivermile: 2.1 Longitude: 117 10 33.6
Waterbody: WA-35-3000

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
10/9/2006	9:55	9.8	376		8.3	4	0.096	0.02 U	0.01 U	0.0556	0.0592	0.5 U	11
11/6/2006	9:55	12.5	382	9.09	8.14	5	0.523	0.01 U	0.357	0.124	0.115	1.1	16
12/11/2006	11:15	6.3	360	11.57	8.37	3	1.07	0.044	0.839	0.144	0.139	0.6	280 J
1/22/2007	11:10	4.6	360	12.82 J	8.57 J	32 J	2.29	0.01 U	1.73	0.139	0.121	7.5	66
Broke ice, DO estimated, starch indicator flaky, pH estimated, following QC out of spec													
2/20/2007	10:20	7.6	373	11.45	8.41	8	2.16	0.01 U	2.61	0.126	0.118	5	15
3/12/2007	10:40	11.7	366	10.35	8.38	11	1.92	0.01 U	1.92	0.107	0.0954	2.5	1400 J
4/9/2007	10:05	12.2	354	10.76	8.62	10	0.921	0.01 U	0.82	0.114	0.0851	3.5	500
5/14/2007	10:30	15.4	377	9.59	8.55	42	3.02	0.013	0.124	0.159	0.109	13	3300
6/18/2007	10:25	17.7	350	9.85	8.82	1	0.12	0.01 U	0.01 U	0.0542	0.0465	0.7	120
7/16/2007	11:25	24.6	365	8.35	8.66	20	0.14	0.01 U	0.01 U	0.0551	0.0537	2.5	200
8/21/2007	10:45	19.6	383	9	8.37	2	0.15	0.016	0.01 U	0.0651	0.065	1.2	130 J
9/4/2007	10:35	18.9	400	8.58	8.41	5	0.447	0.01 U	0.205	0.203	0.187	5.3	31

Conventional Data Report

Steptoe Cr abv Stewart
35R140

Class: A Latitude: 46 28 29.6
Rivermile: 2.4 Longitude: 117 10 34.6
Waterbody: WA-35-3000

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
10/9/2006	9:10	4.4	414		8.23	5	0.682	0.02 U	0.754	0.131	0.103	5.5	31
11/6/2006	9:20	9	518	9.59	8.06	3	0.311	0.01 U	0.01 U	0.159	0.133	1.9	80
12/11/2006	10:30	6.4	343	11.67	8.07	8	0.696	0.01 U	0.62	0.128	0.125	1.2	5
1/22/2007	10:55	4.9	359	12.02 J	8.13	3	3.1	0.012	2.12	0.139	0.126	1.5	42
			cattle just exited streambed. DO estimated, starch indicator flakey										
2/20/2007	10:00	7	379	11.25	8.08	14	2.94	0.016	2.39	0.135	0.124	7	500
3/12/2007	10:20	10.9	369	10.15	8.09	6	2.76	0.011	2.02	0.126	0.113	2.2	14
4/9/2007	9:48	11.5	355	10.56	8.26	7	1	0.01 U	0.949	0.128	0.098	3.3	360 J
5/14/2007	10:10	14.3	365	9.48	8.38	6	1.31	0.013	0.159	0.0972	0.0823	3.1	1480 J
6/18/2007	10:05	16.9	348		8.1	2220	0.21	0.04	0.027	0.214	0.0767	320 J	1000
			high amount of sediment stirred up due to shallow depth of stream										
7/16/2007	11:00	21.1	366	7.66	8	6	0.15	0.01 U	0.032	0.0508	0.0543	1	220
8/21/2007	10:30	19.5	376	8	8.21	10	0.18	0.013	0.026	0.0796	0.0795	4.9	160 J
9/4/2007	10:15	18.3	393	8.08	8.18	15	0.353	0.01 U	0.105	0.234	0.213	5.1	520

Conventional Data Report

Wawawai Cr @ mouth
35S060

Class: A Latitude: 46 38 08.6
Rivermile: 0.2 Longitude: 117 22 33.6
Waterbody: WA-35-3100

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
10/9/2006 10:50	9.7		296	10.8	8.3	3	1.42	0.01 U	1.31	0.0661	0.0696	3	56
11/6/2006 11:00	14.5		315	9.19	8.08	23	1.15	0.01 U	0.972	0.0487	0.0435	2	40
12/11/2006 12:20	6.9		309	11.57	8.31	2	2.86	0.01 U	2.8	0.0844	0.087	0.6	41
1/22/2007 12:30	7.5		324	11.71	8.42	20	3.9	0.01 U	3.89	0.105	0.092	6.5	43
2/20/2007 11:20	8.8		322	11.15	8.38	24	4.88	0.01 U	4.15	0.0924	0.0869	11	53
3/12/2007 11:40	12.4		307	10.25	8.42	21	3.21	0.01 U	3.78	0.0876	0.0635	7.5	78
4/9/2007 11:20	11.4		308	10.76	8.49	39	3.47	0.01 U	3.31	0.108	0.0861	8.2	490
5/14/2007 13:05	14.5		301	9.69	8.43	92	2.57	0.024	2.34	0.134	0.105	45 J	3000
6/18/2007 12:50	15.4		290	9.45	8.37	72	1.77	0.01 U	1.68	0.115	0.0877	18	320
7/16/2007 14:10	20.5		277	7.66	8.4	313	1.58	0.01 U	1.56	0.131	0.0937	95	2000
8/21/2007 13:15	17.4		286	8.3	8.35	311	1.39	0.01 U	1.25	0.0998	0.079	230 J	2800 J
9/4/2007 12:55	17.6		279	8.68	8.43	61	1.24	0.01 U	1.1	0.0823	0.0765	26	150

Conventional Data Report

Alkali Flat Cr nr Mouth
35U070

Class: A Latitude: 46 36 40.5
Rivermile: 2.5 Longitude: 118 05 10.8
Waterbody: WA-35-3400

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
10/10/2006	11:40	8.6	474	13.33	8.58	2	0.17	0.02 U	0.05	0.0137	0.014	1.4	64
11/7/2006	12:10	16	477	10.8	8.46	6	0.929	0.022	0.61	0.0884	0.0704	1.9	560
12/12/2006	12:15	6.4	471	13.6	8.66	5	1.37	0.013	1.2	0.0721	0.0666	1.4	43
1/23/2007	11:50	5.8	517	12.62	8.48	29	2.89	0.058	1.72	0.119	0.0904	13	4100 J
			broke ice before sampling										
2/21/2007	12:20	5.7	540	12.66	8.42	33	3.57	0.022	3	0.148	0.115	29	280
3/13/2007	13:20	12	495	13.86	8.79	14	1.33	0.01 U	1.1	0.0554	0.0397	8.9	100
4/10/2007	12:00	11.6	479	14.05	8.96	13	0.607	0.01 U	0.429	0.0266	0.011	6.8	300
5/15/2007	12:15	21.8	437	14.59	9.23	9	0.265	0.01 U	0.021	0.0411	0.023	5.3	54
6/20/2007	12:00	25	418	12.13	9.05	10	0.263	0.01 U	0.01 U	0.046	0.029	5	360
7/17/2007	11:45	25.2	410	12.93	8.96	7	0.28	0.01 U	0.01 U	0.0291	0.023	1.6	1400
8/22/2007	12:00	23	453	12.2	8.77	2	0.23	0.014	0.01 U	0.0196	0.015	0.9	110
9/5/2007	11:15	20.1	453	12.82	8.64	2	0.18	0.01 U	0.01 U	0.0137	0.014	1.3	200

Conventional Data Report

Alkali Flat Cr abv Hay 35U090

Class: A Latitude: 46 46 37.6
 Rivermile: 12.5 Longitude: 117 53 01.8
 Waterbody: WA-35-3400

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
10/10/2006	10:35	4.5	744		8.17	376 J	2.74	0.025	3.12	0.198	0.028	55	540
			very shallow No DO sample taken										
11/7/2006	11:05	14.6	757	5.25	7.93	66	3.39	0.108	1.84	0.324	0.176	40	22000 J
12/12/2006	11:20	6.3	561	10.96	8.2	125	4.12	0.134	4.08	0.217	0.112	57	5800 J
1/23/2007	11:00	6.6	574	11.51	8.31	111	5.22	0.104	5.3	0.391	0.232	36	28000 J
			broke ice before sampling										
2/21/2007	11:20	6	671	11.05	8.15	43	4.72	0.052	4.7	0.223	0.176	28	370
3/13/2007	12:25	11.7	545	13.36	8.79	70	5.64	0.037	4.59	0.179	0.077	36	2600 J
4/10/2007	11:10	12	529	13.12	8.77	10	5.49	0.013	4.88	0.101	0.0426	8.8	2100
5/15/2007	11:20	23.9	682	10.3	8.53	24	4.09	0.109	2.03	0.121	0.0638	14	8900
6/20/2007	11:00	25.8	657	9.05	8.33	22	0.755	0.057	0.037	0.0889	0.0371	4.5	9300
7/17/2007	10:50	21.9	706	3.08	7.69	144	0.648	0.057	0.01 U	0.0686	0.0508	4.4	2400
8/22/2007	11:00	22.2	706	7.4	8	246	0.321	0.017	0.01 U	0.0717	0.026	80	1800
			Very little flow visible. Water shallow										
9/5/2007	10:15	18.3	709	8.28	8.15	40	0.29	0.01 U	0.01 U	0.0352	0.023	27	4200

Conventional Data Report

Alkali Flat Cr @ Little Alkali Rd
35U140

Class: A Latitude: 46 46 24.6
Rivermile: 26 Longitude: 117 42 07.7
Waterbody: WA-35-3400

Date/Time	Temp	Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C	CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
			umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/10/2006	9:50	4.3	627	11.61	8.39	485	0.312	0.01 U	0.012	0.192	0.063	110	330
11/7/2006	10:20	14.4	824	5.75	8.15	180	3.73	0.13	1.79	0.969	0.637	250	2200
12/12/2006	10:30	0.3	719	11.47	8.56	69	4.02	0.252	3.35	0.803	0.73	160	1400
2/21/2007	10:25	3.4	888	12.56	8.48	121	4.11	0.027	4.01	0.406	0.306	65	60
3/13/2007	10:25	8.2	826	12.26	8.56	51	3.66	0.01 U	2.86	0.335	0.215	34	440
4/10/2007	10:35	7.3	750	15.58	8.79	10	3.54	0.012 J	3.74	0.158	0.0906	7.9	180
5/15/2007	10:45	19.3	647	11.22	8.58	312	1.97	0.194	1.29	0.272	0.0906	160	1300
6/20/2007	10:20	21.8	592	8.85	8.4	28	0.481	0.01 U	0.01 U	0.112	0.0552	6.3	150
7/17/2007	10:15	21.7	661	4.97	7.99	48	1.12	0.254	0.014	0.387	0.206	75	9300 J

Conventional Data Report

Alkali Flat Cr @ Penewawa Rd
35U190

Class: A Latitude: 46 47 59.6
 Rivermile: 34 Longitude: 117 33 31.7
 Waterbody: WA-35-3400

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												
11/7/2006	8:30	13.3		652	5.55	8	22	3.06	0.102	2.75	0.384	0.248	15	1100
12/12/2006	8:35	4		657	11.37	8.39	18	4.59	0.024	4.73	0.23	0.174	17	300
1/23/2007	9:00	3.2		797	11.01	8.06	28	3.46	0.022	3.99	0.344	0.195	20	51
2/21/2007	8:30	1.4		757	11.35	8.05	48	4.49	0.01 U	3.96	0.269	0.228	25	21
3/13/2007	8:45	6.2		767	9.24	8.07	72	4.7	0.01 U	3.8	0.359	0.238	70	31
4/10/2007	8:35	4.8		758	11.48	8.16	40	4.41	0.01 U	3.59	0.31	0.187	18	48
5/15/2007	8:30	12.4		623	10.91	8.24	8	2.89	0.01 U	3.21	0.0533	0.0338	5.4	880 J
6/20/2007	8:26	16.5		657	7.16	8.03	332	0.409	0.01 U	0.1	0.0729	0.0436	4.4	530

Conventional Data Report

Mud Flat Cr @ Mouth
35W070

Class: A Latitude: 46 40 53.5
Rivermile: 0.2 Longitude: 117 54 36.8
Waterbody: WA-35-3600

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
10/10/2006	10:55	6	537	11.21	8.05	8	4.57	0.01 U	5.25	0.0214	0.022	1.5	5
11/7/2006	11:30	14	563	7.27	7.88	45	4.57	0.048	4.83	0.123	0.0969	1.7	8
12/12/2006	11:40	5.9	533	11.26	8.12	3	5.23	0.01 U	5.66	0.126	0.11	1.3	4
1/23/2007	11:15	6.8	543	11.41	8.21	6	5.04	0.03	5.71	0.098	0.0821	5.6	45
		broke ice before sampling											
2/21/2007	11:40	4.9	529	11.95	8.24	22	6.57	0.019	6.34	0.0925	0.0813	16	16
3/13/2007	12:45	10.5	528	11.55	8.41	14	5.62	0.01 U	5.29	0.0586	0.0499	8.3	96
4/10/2007	11:30	8.7	519	11.89	8.55	6	4.68	0.01 U	5.55	0.0413	0.027	2.8	120
5/15/2007	11:45	15.7	515	9.08	8.32	34	5.26	0.016	5.3	0.0819	0.0666	8.1	170
6/20/2007	11:25	17.5	511	8.25	8.23	25	3.76	0.01 U	4.31	0.0662	0.044	2.6	1300
7/17/2007	11:05	18.3	510	7.66	8.13	70	3.19	0.01 U	2.81	0.0534	0.0395	33	230
8/22/2007	11:20	14.6	517	8.5	8.13	55	4.47	0.01 U	3.35	0.0666	0.0437	85 J	80
9/5/2007	10:40	14.6	514	8.68	8.23	182	3.6	0.01 U	3.41	0.043	0.0348	54	88

Conventional Data Report

Penewawa Cr nr Mouth
35Y070

Class: A Latitude: 46 42 51.6
Rivermile: 1 Longitude: 117 41 00.7
Waterbody: WA-35-3300

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
10/10/2006	9:10	7.8	406	11.11	8.27	20	1.45	0.01 U	1.34	0.0754	0.0673	2.4	80
11/7/2006	9:40	14.4	428	8.58	8.18	13	1.64	0.01 U	1.3	0.158	0.134	4.8	96
12/12/2006	9:55	7.3	424	11.16	8.4	33	2.81	0.012	2.67	0.158	0.134	22	75
1/23/2007	10:10	6.3	440	12.02	8.56	41	4.29	0.024	4.02	0.153	0.113	23	24
2/21/2007	9:40	4	434	12.56	8.42	92	4.24	0.01 U	5.3	0.173	0.127	60	67
3/13/2007	9:55	9.7	433	11.15	8.56	49	3.63	0.01 U	3.54	0.14	0.0993	30	390
4/10/2007	9:55	8.2	412	12	8.75	20 J	3.46	0.01 U	3.02	0.0824	0.0554	11	110
5/15/2007	10:00	15.3	404	10	8.56	52	3.13	0.021	2.11	0.131	0.0994	23	200
6/20/2007	9:43	17.5	389	8.95	8.49	20	1.83	0.01 U	1.37	0.102	0.0798	6.4	620
7/17/2007	9:40	19.4	377	8.25	8.35	32	0.958	0.01 U	0.797	0.0978	0.0902	11	650
recent fire (7/13?) burned 5000 acres on E side of creek.													
8/22/2007	9:45	16	387	8.8	8.3	13	0.905	0.01 U	0.812	0.0849	0.0831	5.1	46
9/5/2007	9:20	16.2	382	8.68	8.42	20	0.853	0.01 U	0.708	0.0727	0.0678	4.8	37

Conventional Data Report

Penewawa Cr @ Looney Br
35Y110

Class: A Latitude: 46 44 31.6
Rivermile: 4.7 Longitude: 117 35 35.7
Waterbody: WA-35-3300

Date/Time	Temp	Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C	CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
			umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/10/2006	8:35 5.5		441	11.61	8.36	8	2.83	0.02 U	3.73	0.0934	0.0899	6.2	92
11/7/2006	9:15 13		456	8.48	8.17	4	2.6	0.01 U	2.3	0.224	0.182	1.4	20
12/12/2006	9:35 6.5		436	11.67	8.44	36	4.15	0.022	3.86	0.221	0.168	55	39
1/23/2007	9:40 4.8		463	12.72	8.57	20	4.87	0.01 U	4.97	0.159	0.137	18	36
2/21/2007	9:15 2.4		457	12.96	8.45	100	5.48	0.01 U	5.8	0.199	0.146	60	100
3/13/2007	9:25 8.3		450	11.35	8.55	74	6	0.01 U	4.96	0.18	0.125	55	1200 J
4/10/2007	9:20 7		426	12.2	8.6	24	5.18	0.01 U	4.83	0.162	0.106	20	300
5/15/2007	9:30 13.6		428	10.3	8.54	48	3.31	0.016	3.77	0.155	0.117	34	380 J
6/20/2007	9:10 15.8		413	9.85	8.53	11	2.88	0.01 U	2.87	0.127	0.0981	7.1	640
7/17/2007	8:55 17.9		412	8.95	8.41	2	1.76	0.01 U	1.59	0.092	0.0908	2.1	360
8/22/2007	9:15 14.3		423	9	8.26	1 U	1.66	0.01 U	1.74	0.104	0.0945	0.9	570
9/5/2007	8:55 14.7		421	8.28	8.29	1 U	1.58	0.01 U	1.6	0.0839	0.0756	0.7	1100

Conventional Data Report

Penewawa Cr abv Goose cr
35Y170

Class: A Latitude: 46 44 59.6
Rivermile: 9 Longitude: 117 30 23.7
Waterbody: WA-35-3300

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
10/9/2006	13:25	9.9	463		8.05	29	5.17	0.01 U	5.87	0.142	0.131	5.6	200
11/6/2006	13:45	13.7	465	7.47	7.98	85	5.15	0.01 U	4.61	0.252	0.209	4.9	15
12/11/2006	14:30	5.7	461	10.86	8.2	53	6.03	0.016	5.88	0.233	0.204	50	16
1/22/2007	14:25	6.5	465	11.51	8.35	27	6.79	0.027	7.14	0.229	0.181	17	46
2/20/2007	13:30	6.8	455	10.95	8.31	414	8.36	0.043	7.02	0.325	0.189	140	70
3/12/2007	14:10	12.7	435	9.64	8.26	520	7.03	0.025	8.56	0.345	0.169	260	250
4/9/2007	13:25	12.4	420	9.53	8.37	1310	7.69	0.024	8.2	0.525	0.164	700	710
5/14/2007	15:30	21.7	419	7.55	8.33	80	5.19	0.052	5.76	0.193	0.135	34	1030
6/18/2007	15:22	21	415	7.36	8.22	14	4.27	0.01 U	5.1	0.138	0.104	5.7	410
7/16/2007	16:40	23.3	453	6.16	8.04	4	3.04	0.01 U	2.79	0.0997	0.0973	2.2	460
8/21/2007	15:00	20.9	470	5.6	7.88	52	2.28	0.025	2.55	0.148	0.12	3.1	970
9/4/2007	14:50	21.5	450	6.36	7.97	17	1.93	0.01 U	1.56	0.0958	0.0701	4.5	170

Conventional Data Report

Little Penewawa Cr @ Mouth
35Z070

Class: A Latitude: 46 44 58.6
Rivermile: 0.2 Longitude: 117 35 23.7
Waterbody: WA-35-3500

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
10/10/2006	8:10	7	440	11.21	8.28	7	3.21	0.02 U	2.89	0.0819	0.0775	2	200
11/7/2006	8:55	13.3	468	8.88	8.22	18	2.9	0.01 U	2.17	0.148	0.112	9.9 J	26
12/12/2006	9:15	6.7	481	11.26	8.43	20	3.13	0.013	3	0.133	0.105	16	8
1/23/2007	9:25	5.8	488	12.12	8.57	79	3.26	0.01 U	3.75	0.126	0.0904	28	4
2/21/2007	9:00	3.4	495	12.56	8.47	51	3.73	0.01 U	3.56	0.117	0.0969	40	9
3/13/2007	9:10	8.2	486	11.35	8.56	25	3.77	0.01 U	3.74	0.0834	0.0636	9.7	5
4/10/2007	9:00	6.7	471	11.79	8.6	15	3.3	0.01 U	2.84	0.0911	0.0608	4.3 J	47
5/15/2007	9:10	12.2	452	10.2	8.46	72	2.41	0.01 U	2.75	0.106	0.0796	15	80 J
6/20/2007	8:50	14.7	430	9.05	8.42	73	2.62	0.012	2.6	0.11	0.0765	27	1200 J
7/17/2007	8:37	17	412	8.65	8.33	25	2.08	0.01 U	1.95	0.105	0.098	8.8	900
8/22/2007	8:55	14.2	420	9.1	8.27	37	2.05	0.012	2.01	0.101	0.09	45	420
9/5/2007	8:25	14.2	420	9.09	8.34	19	2.11	0.01 U	2.19	0.095	0.0861	6.2	830

Conventional Data Report

Columbia R nr Vernita 36A070

Class: A Latitude: 46 38 29.5
 Rivermile: 405 Longitude: 119 43 54.1
 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
10/9/2006 15:11	17	39400	137	10.92	8.45	1 U	0.19	0.01 U	0.132	0.0088	0.0069	5.2	1
	pH measured @ 17.6°C. Pressure estimated from pressure at site # 41A070, Crab Creek nr Beverly.												
11/14/2006 15:15	11	164000	111	10.61	8.03	2	0.18	0.01 U	0.119	0.0141	0.0069	2.6	1
	pH measured @ 11.6°C.												
12/13/2006 15:30		72100											
	No sample. High winds and waves prevented sampling.												
1/8/2007 14:55	5.1	94700	153	12.65	8.16	1	0.19	0.01 U	0.155	0.0062	0.0044	0.9	1 U
	pH measured @ 7.1°C. Barometric pressure was calculated using automated broadcasts from Pasco Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/5/2007 14:57	2.4	99700	153	13.73	8.27	1 U	0.21	0.01 U	0.177	0.0038	0.003 U	0.8	1 U
	pH measured @ 5.3°C												
3/5/2007 14:52	3.2	80500	149	14.08	8.14	1	0.18	0.01 U	0.138	0.0026	0.003 U	0.9	1 U
	pH measured @5.4°C. Sunny, dry, calm.												
4/9/2007 14:05	7	156000	144	13.16	8.25	3	0.284	0.01 U	0.238	0.0051	0.003 U	1.8	2
	pH measured @ 9.7°C. High water, sampled high on bank out of current amid trees and grasses. Very windy, sunny, scattered clouds, no precipitation.												
5/8/2007 14:50		233000											
	No sample taken. High water in the Columbia prevented access to sampling site.												
6/12/2007 15:10	14.4 J	183000	120 J	11.73 J	8.05 J	4	0.12	0.01 U	0.065	0.0037 J	0.003 U	2.6	3
	pH measured @ 15.9°C. Water level above ordinary high water mark. Sampled by wading in slower water moving through trees and grasses well up the bank from the usual location.												
7/9/2007 13:55		150000											
	Not sampled. Locked gate prevented access to the site.												
8/15/2007 17:54	20.7		131	10.72	8.22	2	0.089	0.01 U	0.041	0.0027 J	0.003 U	1.2	11
	pH measured @ 21.4°C.												
9/11/2007 15:20	21	109000	136	9.38	8.24	2	0.12	0.01 U	0.05	0.0048	0.003 U	0.9	10
	pH measured @ 20.6°C. Conductivity meter inop. Conductivity done by lab.												

Conventional Data Report

Yakima R @ Kiona 37A090

Class: A Latitude: 46 15 10.5
 Rivermile: 29.8 Longitude: 119 28 31.1
 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
10/10/2006 15:25	13.7	951	291	13.29	8.68	4	1.42	0.01 U	1.22	0.136	0.12	2.1	4
	pH measured @ 14.9°C.												
11/13/2006 15:42	6.7	5400	153	11.83	8.01	42	0.685	0.024	0.561	0.0807	0.0476	26	56
	pH measured @ 8.8°C. South Yakima Conservation District sampling nearby at the same time.												
12/12/2006 15:20	5.2	2370	218	13.09	8.27	9	1.14	0.022	1.06	0.114	0.0959	5.7	9
	pH measured @ 6.7°C. Rain during pervious night.												
1/9/2007 15:55	4.3	7010	164	12.85	8.03	51	0.661	0.016	0.554	0.0974	0.0677	17	32
	pH measured @ 6.6°C. Barometric pressure was calculated using automated broadcasts from Pasco Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/6/2007 15:37	4.1	3090	208	14.64	8.58	4	0.834	0.01 U	0.793	0.0783	0.0676	3.8	6
	pH measured @ 5.0°C. Ice on river banks.												
3/6/2007 15:02	7.5	4230	189	12.95	8.21	10	0.682	0.014	0.578	0.0719	0.0559	5	1 U
	pH measured @ 10.0°C. Clear, dry, calm.												
4/10/2007 15:01	12	7780	125	11.02	7.97	86	0.336	0.01 U	0.28	0.0736	0.0382	30	53
	pH measured @ 13.9°C. Sunny with scattered clouds.												
5/9/2007 16:55	18.1	3950	149	12.34	8.92	20	0.448	0.01 U	0.297	0.0501	0.0359	5.9	20
	pH measured @ 20.5°C.												
6/11/2007 16:08	19.4	3300	173	10.2	8.25	24	0.809	0.016	0.661	0.0706	0.0459	12	30
	pH measured @ 18.8°C.												
7/9/2007 15:08	27.9	951	274	12.04	9	12	1.03	0.011	0.807	0.08	0.0506	5.5	18
	pH measured @ 24.6°C. Sunny clear and HOT. pH rechecked in second sample with the same result. Water green with algae.												
8/13/2007 14:50	23.7	1280	257	12.26	8.73	6	1.07	0.01 U	0.901	0.116	0.0879	3.3	11
	pH measured @ 22.3°C. Plant debris, prob. Potomageton, floating downriver.												

Conventional Data Report

Yakima R @ Nob Hill 37A205

Class: A Latitude: 46 34 53.5
 Rivermile: 111.3 Longitude: 120 27 42.2
 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
10/11/2006 10:05	10.4	1780	120	11.54	8.03	4	0.25	0.01 U	0.169	0.0345	0.029	2	15
	pH measured @ 11.3°C.												
11/15/2006 9:30	4.6	4520	94	12.14	7.75	11	0.21	0.01 U	0.153	0.0325	0.02	12	14
	pH measured @ 6.3°C.												
12/11/2006 10:10	3.3	2250	123	12.88	7.75	3	0.257	0.01 U	0.241	0.0266	0.023	4.6	3
	pH measured @ 4.7°C. Light rain falling on fresh snow.												
1/10/2007 11:15	2.2	5030	129	13.36	7.95	8	0.399	0.018	0.296	0.0468	0.027	7.7	24
	pH measured @ 3.5°C. Barometric pressure was calculated using automated broadcasts from Yakima Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation.												
2/7/2007 15:15	3.3	2690	122	13.93	8.31	6	0.17	0.01 U	0.105	0.0205	0.015	4	3
	pH measured @ 5.2°C. Sampled from old bridge, mid stream.												
3/7/2007 11:30	4.9	3970	129	13.16	8.18	7	0.25	0.01 U	0.143	0.0052	0.014	5.7	5
	pH measured @ 8.5°C. Sample taken from old bridge. New bridge construction just d/s of site. Overcast, dry, calm.												
4/11/2007 10:01	5.6	7400	87	12.24	7.82	17	0.093	0.01 U	0.051	0.0213	0.015	9.2	10
	pH measured @ 7.3°C. Sunny, clear, calm.												
5/9/2007 10:25	10	6410	86	11.63	8.03	29	0.11	0.01 U	0.036	0.0247	0.012	11	63
	pH measured @ 11.8°C.												
6/13/2007 10:08	13.9	3850	88	10.1	7.78	10	0.18	0.01 U	0.101	0.0241	0.018	5	52
	pH measured @ 15.3°C.												
7/11/2007 11:07	17.9	3530	78	10.2	7.83	13	0.22	0.011	0.13	0.0267	0.018	4.8	32
	pH measured @ 21.2°C. Sunny, clear, hot. Recal pH meter after battery change.												
8/14/2007 10:47	18.6	3330	88	9.58 J	7.88	8	0.18	0.01 U	0.115	0.0304	0.025	4.3	19
	pH measured @ 19.7°C. Bridge demolition 100 feet upstream. DO bucket did not completely fill during sampling, the bottle did fill.												
9/19/2007 12:10	15.5	2400	96	10.61	8.11	12	0.18	0.024	0.081	0.0314	0.024	9.7	12
	pH measured @ 16.3°C. Due to bridge deconstruction sampled from right bank approx. 300 meters u/s from bridge.												

Conventional Data Report

Wenatchee R @ Wenatchee 45A070

Class: A Latitude: 47 27 31.5
 Rivermile: 1.1 Longitude: 120 20 11.3
 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
10/9/2006 11:05	10	342	117	13.09	8.29	2	0.407	0.01 U	0.33	0.0177	0.015	0.6	15
	pH measured @ 10.9°C.												
11/14/2006 10:25	4.4	4340	50	12.55	7.6	7	0.138	0.01 U	0.094	0.0105	0.0034	5.2	15
	pH measured @ 7.0°C. Strong current moving downstream to confluence.												
12/13/2006 10:20	2.6	1610	72	13.6	7.63	2	0.256	0.032	0.208	0.0076	0.0067	1.5	5
	pH measured @ 5.4°C. Raining with slush on the ground, runoff from roads and bridges, anti-ice road treatments in use.												
1/8/2007 10:50	2.3	2860	74	13.97	7.53	6	0.15	0.01 U	0.104	0.0083	0.005	2.2	13
	pH measured @ 5.3°C. Barometric pressure was calculated using automated broadcasts from Wenatchee Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to the change in elevation.												
2/5/2007 10:44	0.5	1360	83	14.94	7.74	2	0.2	0.01 U	0.155	0.004	0.0034	0.5	38
	pH measured @ 2.3°C												
3/5/2007 10:20	4.2	1770	92	14.38	8.3	2	0.18	0.01 U	0.132	0.0035	0.003 U	0.9	5
	pH measured @ 6.1°C. No riffle was visible between the site and the confluence with the Columbia River. pH meter calibration checked and sample rechecked with no change from original.												
4/9/2007 9:25	7	6270	61	12.14	7.83	14	0.11	0.01 U	0.07	0.0062	0.0034	4.5	6
	pH measured @ 9.9°C. Sunny and clear.												
5/8/2007 10:15	8.5	7180	47	12.14	7.9	14	0.086	0.01 U	0.045	0.0042	0.003 U	3.1	25
	pH measured @ 10.8°C. Water backed up because of high water in the Columbia River.												
6/12/2007 10:35	9.9	7030	33 J	11.63	7.45	10	0.093	0.01 U	0.056	0.0027 J	0.0033	2.7	4
	pH measured @ 7.9°C. Conductivity "J"ed because it might have been measured using a 20° LF setting on meter.												
7/9/2007 9:49	15.7	4810	36	10.2	7.49	6	0.085	0.01 U	0.048	0.0043	0.003 U	1.9	7
	pH measured @ 17.5°C. Sunny, clear and warm. Obvious current moving downstream. Riffle visible downstream of site.												
8/15/2007 12:19	19.7	789	74	10.51	8.66 J	1	0.24	0.01 U	0.176	0.0053 J	0.0032	0.9	15
	pH measured @ 20.7°C												
9/11/2007 11:12	16.2	451	99.2	11.42	8.46	2	0.396	0.01 U	0.301	0.0052	0.0049	0.9	32
	pH measured @ 16.8°C. Good flow past station. Numerous fish. Conductivity meter inop. Conductivity done by lab.												

Conventional Data Report

Wenatchee R nr Leavenworth 45A110

Class: AA Latitude: 47 40 34.4
Rivermile: 35.6 Longitude: 120 44 02.3
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
10/9/2006 9:25	9	254	50	10.92	7.18	1	0.055	0.01 U	0.012	0.0029	0.004	0.5 U	2
	pH measured @ 10.1°C. No stage measurement -- dry below RP.												
11/14/2006 8:45	4.5	2800	32	11.93	7.43	6	0.104	0.01 U	0.057	0.0087	0.003 U	5.7	15
	pH measured @ 5.7°C. Snow on ground.												
12/13/2006 8:30	2		39	12.88	7.54	1 U	0.089	0.01 U	0.058	0.0032	0.0033	0.8	1
	pH measured @ 4.6°C. Fresh snow on ground, snowing. Rain previous night. Anti-ice road treatments in use.												
1/8/2007 8:38	1.2	1700	43	13.36	6.86	2	0.12	0.01 U	0.065	0.0063	0.0037	1.4	1 U
	pH measured @ 8.6°C. Barometric pressure was calculated using automated broadcasts from Wenatchee Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation. No tape down was taken du												
2/5/2007 8:45	0.9	779	43	13.43	7.26	1 U	0.096	0.01 U	0.058	0.0028	0.003 U	0.6	1
	pH measured @ 3.1°C. No tape-down, dry below RP. Ice on river banks. Snow on ground.												
3/5/2007 8:35	2.9	974	45	12.75	7.32	1	0.093	0.01 U	0.027	0.0048	0.003 U	0.7	3 J
	pH measured @6.3°C. Snow with road grit was covering the bridge walkway. Roadway was wet from rain previous night.												
4/9/2007 7:45	5	4150	39	12.75	7.29	10	0.096	0.01 U	0.064	0.0057	0.0041	2.5	1
	pH measured @ 8.6°C. Rain previous night. Some snow still on ground along roadway and plowed areas.												
5/8/2007 8:04	6.6	4990	33	11.63	7.37	11	0.1	0.01 U	0.059	0.0031	0.003 U	2.1	12
	pH measured @ 8.7°C.												
6/12/2007 8:45	7.6	5170	29	11.63	7.46	5	0.075	0.01 U	0.042	0.0017 J	0.0031	1.9	1 U
	pH measured @ 8.9°C.												
7/9/2007 7:55	12.9	3990	27	10.4	7.6	5	0.045	0.01 U	0.018	0.0031	0.0044	1.7	2
	pH measured @ 14.5°C. Sunny and clear.												
8/15/2007 8:25	16.5	667	38	9.27	7.46	2	0.033	0.01 U	0.013	0.0024 J	0.003 U	1.3	11
	pH measured @ 16.3°C												
9/11/2007 8:56	14	382	44	9.69	7.54	1	0.053	0.01 U	0.01	0.0019	0.003 U	0.7	1 J
	pH measured @ 13.5°C. Dry under RP. No tape-down.												

Conventional Data Report

Entiat R nr Entiat 46A070

Class: A Latitude: 47 39 47.5
 Rivermile: 1.5 Longitude: 120 15 02.3
 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
10/9/2006 12:02	8.9	91	114	12.47	8.36	2	0.22	0.01 U	0.167	0.0035	0.0046	1.2	4
	pH measured @ 10.8°C.												
11/14/2006 11:45	2.3	495	57	13.46	7.7	3	0.096	0.01 U	0.069	0.0053	0.0047	1	4
	pH measured @ 4.7°C.												
12/13/2006 11:15	1.6	223	81	14.43	7.75	1	0.12	0.01 U	0.101	0.0037	0.0053	0.5 U	14
	pH measured @ 3.8°C. Raining with slush on the ground, runoff from roads and bridges.												
1/8/2007 11:45	1.9	305	91	14.38	7.95	13	0.14	0.01 U	0.107	0.0109	0.0045	6.8	4
	pH measured @ 7.2°C. Barometric pressure was calculated using automated broadcasts from Wenatchee Airport (given in pressure @ sea level) and converted to site pressure by allowing for the difference due to change in elevation. pH meter checked and foun												
2/5/2007 11:31	0.7	175	104	15.15	8.21	1	0.13	0.01 U	0.099	0.0019	0.0034	0.5 U	1 U
	pH measured @ 3.6°C. Ice on banks of river. Snow on ground.												
3/5/2007 11:14	5.3	223	119	14.08	8.97	2	0.11	0.01 U	0.061	0.0029	0.003 U	0.6	1 U
	pH measured @7.3°C. Dry weather, partly cloudy. Some snow still on the ground in the area. Because of the high pH reading the meter calibration was checked using both standards and the sample was rechecked.												
4/9/2007 10:15	6.5	1000	71	12.95	8.41	10	0.054	0.01 U	0.01 U	0.006	0.0036	3.2	9
	pH measured @ 9.7°C. Sunny with scattered clouds.												
5/8/2007 11:12	7.1	1470	49	12.34	7.93	57	0.06	0.01 U	0.016	0.0087	0.0031	7.4	4
	pH measured @ 10.1°C.												
6/12/2007 11:25	8.3	1460	39	11.83	7.51	12	0.055	0.01 U	0.03	0.0036 J	0.0051	2.4	2
	pH measured @ 8.7°C.												
7/9/2007 10:33	13.8	817	45	10.61	7.64	6	0.049	0.01 U	0.027	0.0041	0.0038	1.4	8
	pH measured @ 14.7°C. Sunny, clear, warm.												
8/15/2007 13:46	19.5	178	85	9.89	8.44	3	0.13	0.01 U	0.088	0.0027 J	0.0035	1	7
	pH measured @ 21.7°C												
9/11/2007 12:10	15.3	120	106	10.91	8.58	3	0.21	0.01 U	0.142	0.0033	0.0043	1.7	20 J
	pH measured @ 15.8°C. Conductivity meter inop. Conductivity done by lab.												

Conventional Data Report

Methow R nr Pateros
48A070

Class: A Latitude: 48 04 28.5
 Rivermile: 5 Longitude: 119 57 24.3
 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
10/2/2006 12:40	12.1	343	197	10.6		2	0.356	0.01 U	0.266	0.0027	0.0032	0.5 U	2
11/13/2006 12:15	4.5	1510	116	12.72	7.92	2	0.22	0.018	0.141	0.0039	0.0036	1	4
12/4/2006 12:00	-0.2	704	165	14.34	8.11	2	0.24	0.01 U	0.206	0.0024	0.004	0.5 U	2
1/8/2007 11:40	1.4	608	167	14.54	8.18	1	0.22	0.01 U	0.174	0.001 U	0.003 U	0.5	1 U
2/12/2007 11:55	4.5	564	169	12.95	8.17	2	0.23	0.01 U	0.178	0.0025	0.003 U	1.1	4
3/5/2007 12:35	5.5	569	178	12.72	8.35	2	0.24	0.01 U	0.172	0.0027	0.003 U	1	1 U
4/2/2007 11:55	5	2900	139	12.44	8.07	7	0.18	0.01 U	0.12	0.0055	0.003 U	2.3	1 U
5/7/2007 12:05	9.5	4670	105	11.31	8.2	9	0.11	0.01 U	0.043	0.0035	0.0031	1.9	7
6/5/2007 12:10	8.9	10700	56	10.59	7.64	196	0.094	0.01 U	0.046	0.0419	0.0041	70 J	110
7/9/2007 11:55	17	1980	104	9.69	8.18	4	0.13	0.01 U	0.079	0.0244	0.003 U	1.3	5
8/6/2007 13:05	20.5	626	160	8.74	8.45	3	0.18	0.01 U	0.104	0.0033	0.0032	0.7	4
9/10/2007 13:15	15.5	338	192	9.69	8.31	1	0.302	0.01 U	0.224	0.0027	0.003 U	0.5 U	1

Metals Data Report

Methow R nr Pateros 48A070

Class: A Latitude: 48 04 28.5
 Rivermile: 5 Longitude: 119 57 24.3
 Waterbody: WA-48-1010

Date/Time	Flow CFS	Hardness	Tot. Rec. Cadmium	Dissolved Cadmium	Tot. Rec. Chromium	Dissolved Chromium	Tot. Rec. Copper	Dissolved Copper	Tot. Rec. Lead	Dissolved Lead	Total Mercury	Dissolved Nickel	Tot. Rec. Arsenic	Tot. Rec. Zinc	Dissolved Zinc
		mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
10/2/2006 12:40		92.7	0.1 U	0.02 U	0.5 U	0.25 U	0.29	0.27	0.1 U	0.02 U	0.002 U	0.44	0.58	5 U	1.1
12/4/2006 12:00		69	0.1 U	0.02 U	0.5 U	0.25 U	0.28	0.3	0.1 U	0.02 U	0.002 U	0.76	0.47	5 U	1 U
2/12/2007 11:55		82.7	0.1 U	0.02 U	0.5 U	0.4	0.28	0.22	0.1 U	0.02 U	0.002 U	0.56	0.43	5 U	1.3
4/2/2007 11:55		64.5	0.1 U	0.02 U	0.5 U	0.29	0.61	0.44	0.12	0.033	0.002 U	0.32	0.52	5 U	2.9
6/5/2007 12:10		27	0.1 U	0.02 U	5.22	0.25 U	6.04	0.49	1.74	0.02 U	0.0087	0.21	2.05	12	1 U
8/6/2007 13:05		71.2	0.1 U	0.02 U	0.5 U	0.25 UJ	0.39	0.23	0.1 U	0.02 U	0.002 U	0.23	0.59	5 U	6.1

Conventional Data Report

Methow R @ Twisp 48A140

Class: A Latitude: 48 21 33.5
 Rivermile: 39.4 Longitude: 120 06 51.3
 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
10/2/2006 11:25	9.7		164	10.8		1	0.29	0.01 U	0.24	0.003	0.0031	0.5 U	6
11/13/2006 11:05	3.3	1390	102	12.12	7.96	2	0.18	0.035	0.12	0.0032	0.0035	0.7	6
	New gaging equipment												
12/4/2006 10:45	1	570	138	13.43	8.21	1 U	0.17	0.01 U	0.157	0.0011	0.0036	0.5	2
	USGS gage house door stuck. No stage height												
1/8/2007 10:25	1.5	544	140	13.73 J	8.39	1	0.18	0.01 U	0.142	0.001 U	0.003 U	0.7	110
	DO estimated problem with starch soln. No stage height gage house door froze shut												
2/12/2007 10:45	3.7		149	12.55	8.52	2	0.2	0.01 U	0.154	0.0025	0.003 U	0.9	12
3/5/2007 11:30	4.9	468	155	12.32	8.36	2	0.21	0.01 U	0.158	0.0021	0.003 U	0.7	1 U
4/2/2007 10:40	4.1	2690	123	12.24	8.12	5	0.19	0.01 U	0.144	0.005	0.003 U	1.9	1 U
5/7/2007 10:50	7.2	4300	93	11.51	8.12	10	0.14	0.01 U	0.076	0.0047	0.0033	2.6	8
6/5/2007 11:10	7.9	10100	57	10.39	7.63	85	0.095	0.01 U	0.047	0.0281	0.0035	40	35
7/9/2007 11:00	13.3		91	10.19	8.17	3	0.11	0.01 U	0.065	0.0028	0.003 U	1	8
8/6/2007 11:40	16.2	561	133	9.84	8.34	2	0.18	0.01 U	0.107	0.0031	0.0035	0.7	7
9/10/2007 11:15	12.3	282	162	10.3	8.3	1	0.309	0.01 U	0.242	0.0022	0.003 U	0.6	17

Conventional Data Report

Okanogan R @ Malott
49A070

Class: A Latitude: 48 16 49.5
Rivermile: 17 Longitude: 119 42 16.2
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
10/2/2006 10:15	14.8	749	314	9.1		2	0.16	0.01 U	0.017	0.0105	0.0042	1.1	31
11/13/2006 9:55	4	3830	147	12.12	8.28	36	0.21	0.01 U	0.06	0.0386	0.0091	24	17
12/4/2006 9:40	-0.2	2840	271	13.53	8.25	3	0.277	0.01 U	0.138	0.0173 J	0.015	0.5 U	6
1/8/2007 9:30		2170											
		ice-no sample											
2/12/2007 9:55		2210											
		ice no sample taken											
3/5/2007 10:30	3.9	1580	294	12.42	8.43	4	0.18	0.01 U	0.032	0.0084	0.003 U	1.8	1
4/2/2007 9:40	7.3	5530	187	11.22	8.45	30	0.12	0.01 U	0.018	0.0223	0.0044	12	5
5/7/2007 9:45	11.2	6530	167	10.3	8.26	22	0.14	0.01 U	0.01 U	0.0145	0.0043	7.1	19
6/5/2007 10:00	12.3	12400	72	10	7.94	140	0.087	0.01 U	0.014	0.0707	0.0054	85	310
7/9/2007 9:55	22.4	2870	146	8.69	8.32	13	0.086	0.01 U	0.014	0.012	0.0036	12	51
8/6/2007 10:35	23.4	1030	263	7.43	8.26	4	0.11	0.01 U	0.01 U	0.0089	0.0047	2.1	21
9/10/2007 10:05	17.2	609	328	8.4	8.43	4	0.18	0.01 U	0.03	0.0114	0.0062	1.5	14

Conventional Data Report

Okanogan R @ Oroville
49A190

Class: A Latitude: 48 56 20.6
Rivermile: 78 Longitude: 119 25 36.2
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	
10/2/2006	7:50	16.7	326	290	8.6	4	0.22	0.01 U	0.01 U	0.0096	0.0033	1.3	8	
11/13/2006	7:40	8	533	302	10.6	8.16	3	0.25	0.01 U	0.014	0.0096	0.0045	1.8	3
12/4/2006	7:50	1.7	254	323	12.22	8.06	3	0.259	0.01 U	0.048	0.0103	0.0042	1.8	1
1/8/2007	8:00	0.8	136	330	14.64 J	8.2	4	0.24	0.01 U	0.039	0.0081	0.003 U	1.9	1
	DO estimated: problem with starch indicator													
2/12/2007	7:50	2	332	337	14.08	7.95	3	0.24	0.01 U	0.041	0.0088	0.003 U	2	4
3/5/2007	7:30	3	682	335	14.14	8.17	3	0.24	0.01 U	0.017	0.0087	0.003 U	1.5	1 UJ
4/2/2007	7:25	7.2	787	317	12.75	8.4	13	0.2	0.01 U	0.01 U	0.0118	0.003 U	2.3	1 U
5/7/2007	7:35	11.8	941	313	10.7	8.31	4	0.2	0.01 U	0.01 U	0.0083	0.003 U	2.3	3
6/5/2007	7:55	21.3	1740	306	8.41	8.23	3	0.24	0.01 U	0.01 U	0.0087	0.003 U	2.1	30
7/9/2007	7:25	24.2	123	300	8.5	8.65	6	0.29	0.01 U	0.01 U	0.0115	0.003 U	2.7	31
8/6/2007	7:40	23.5	249	283	8.34	8.66	10	0.264	0.01 U	0.01 U	0.013	0.0033	7.8	11 J
9/10/2007	7:13	19.9	264	302	7.9	8.64	5	0.23	0.01 U	0.01 U	0.0122	0.003 U	2.6	14 J

Conventional Data Report

Similkameen R @ Oroville
49B070

Class: A Latitude: 48 56 04.6
Rivermile: 5 Longitude: 119 26 31.2
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	
10/2/2006	7:30	13.8	239	227	9.5	1	0.1	0.01 U	0.01 U	0.0048	0.0033	0.7	1	
11/13/2006	7:15	3.7	3243	135	13.33	8.23	19	0.18	0.01 U	0.057	0.0307	0.014	12	10 J
12/4/2006	7:25	-0.2	3931	189	15.05	7.53	4	0.16	0.011	0.07	0.0156	0.011	2.7	1
			ice...stage height is estimated											
1/8/2007	7:40	0.1	1467	165	15.15 J	7.32	4	0.099	0.01 U	0.03	0.0067	0.0057	3.6	2
			DO estimated, problem with starch soln.											
2/12/2007	7:15	0.3	1209	192	14.59	7.33	4	0.065	0.01 U	0.01	0.0066	0.0034	3.7	3
3/5/2007	7:05	2.9	1816	216	13.23	7.29	2	0.09	0.01 U	0.01 U	0.0053	0.0046	1.3	1 UJ
4/2/2007	7:00	5.2	4805	160	13.16	7.6	20	0.12	0.01 U	0.019	0.017	0.0063	8.1	2 J
5/7/2007	7:10	9.7	5477	136	11.81	7.66	17	0.14	0.01 U	0.01 U	0.0106	0.0055	4.7	14
6/5/2007	7:25	9.5	14005	64	11.58	7.36	273	0.091	0.01 U	0.016	0.116	0.0048	130 J	130
7/9/2007	7:00	17.6	2775	116	9.9	8.09	9	0.076	0.01 U	0.01 U	0.0086	0.0034	3.9	14 J
8/6/2007	7:05	20.9	693	208	8.24	8.1	47	0.092	0.01 U	0.02	0.035	0.0062	55	28 J
			River very silty											
9/10/2007	7:35	14.9	305	225	9.5	8.46	2	0.081	0.01 U	0.01 U	0.0035	0.0032	1.3	5 J

Conventional Data Report

Bonaparte Cr. @ Tonasket
49F070

Class: A Latitude: 48 42 04.6
Rivermile: 0.4 Longitude: 119 26 31.2
Waterbody: WA-49-9999

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	
10/2/2006	9:15	8.6	3.95	509	10.9	2	0.14	0.02 U	0.01 U	0.0911	0.0751	0.7	22	
11/13/2006	8:50	3.4	11.1	470	12.12	8.46	5	0.26	0.01 U	0.01 U	0.0655	0.0528	2.1	30
12/4/2006	8:45		45.3											
			iced over. No samples											
1/8/2007	8:50		7.41											
			snow pile created access safety issue											
2/12/2007	8:55	1	9.7	492	12.85	8.43	98	3.89	1.22	0.255	0.545	0.37	27	2200 J
			ice and foam at RP no stage height											
3/5/2007	9:25	3.1	6.47	505	12.92	8.58	9	0.335	0.01 U	0.115	0.0516	0.028	6.1	9
4/2/2007	8:35	3.4	6.81	440	12.55	8.56	12	0.23	0.01 U	0.01 U	0.0459	0.021	4	110
5/7/2007	8:35	10.1	4.92	382	10.6	8.51	18	0.262	0.01 U	0.01 U	0.0544	0.0344	7.6	130
6/5/2007	9:00	15.9	1.86	423	7.92	8.26	57	0.272	0.01 U	0.046	0.187	0.0801	95	3800 J
7/9/2007	8:35	18.7	0.15	537	10.9	8.53	5	0.23	0.01 U	0.046	0.108	0.0784	2.8	240
8/6/2007	9:00	18.5	0.15	553	9.54	8.65	31	0.19	0.01 U	0.017	0.0996	0.0829	15	400 J
9/10/2007	9:00	12.2	0.15	583	10.4	8.66	8	0.13	0.01 U	0.01 U	0.101	0.0704	4.4	190 J

Conventional Data Report

Bonaparte Cr abv Tonasket
49F105

Class: A Latitude: 48 41 40.1
Rivermile: 3 Longitude: 119 25 41.7
Waterbody: WA-49-3111

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
10/2/2006	8:50 8.5	1.39	501	10.7		116	0.15	0.02 U	0.01 U	0.0959	0.0751	6	35
11/13/2006	8:25 2.9	8	463	12.22	8.42	7	0.24	0.01 U	0.01 U	0.0557	0.0456	2.3	21
1/8/2007	8:40	7.41											
	ice-no sample												
2/12/2007	8:35 0.8	9.46	477	12.75	8.38	44	3.47	1.11	0.262	0.512	0.338	22	1900 J
3/5/2007	9:00 2.8	6.64	499	12.72	8.49	13	0.374	0.01 U	0.145	0.0578	0.033	8.1	9
4/2/2007	8:15 3.2	7.46	431	12.55	8.54	9	0.22	0.01 U	0.01 U	0.0421	0.023	3	120
5/7/2007	8:15 9.6	5.39	373	10.5	8.46	18	0.25	0.01 U	0.01 U	0.058	0.034	6.1	92
6/5/2007	8:45 15.6	2.16	460	7.82	8.32	678	0.332	0.015	0.082	0.629	0.0995	500 J	4800 J
7/9/2007	8:15 16.4	0.19	546	8.9	8.49	241	0.318	0.01 U	0.113	0.261	0.119	95	2600
8/6/2007	8:35 16.5	0.16	553	8.74	8.55	6	0.25	0.01 U	0.072	0.15	0.128	3.7	46 J
9/10/2007	8:22 11.5	0.17	584	9.8	8.57	7	0.17	0.01 U	0.031	0.151	0.119	13	200 J

Conventional Data Report

Foster Cr @ Mouth
50B070

Class: A Latitude: 47 59 65.0
Rivermile: 0.4 Longitude: 119 38 76.0
Waterbody: WA-50-1091

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												
10/2/2006	14:05	12.5		832	10.8		7	0.17	0.01 U	0.029	0.0445	0.03	12	41
11/13/2006	13:20	6.8		859	12.52	8.63	6	0.654	0.01 U	0.415	0.0877	0.0661	1.4	1
1/8/2007	12:30	3		933	13.33	8.72	14	0.477	0.01 U	0.217	0.136	0.093	4.4	9
2/12/2007	13:00	3.8		917	12.75	8.66	14	0.438	0.01 U	0.161	0.156	0.1	8.6	34
3/5/2007	13:30	7		887	12.12	8.99	8	0.313	0.01 U	0.027	0.0922	0.0579	3	7
4/2/2007	13:00	7.8		898	12.04	8.8	9	0.346	0.01 U	0.069	0.118	0.0644	3	4
5/7/2007	13:00	16.7		865	9.89	8.91	25	0.296	0.01 U	0.01 U	0.0963	0.0518	8.9	86
6/5/2007	13:30	16.8		821	9.8	8.65	28	0.405	0.01 U	0.109	0.102	0.0527	14	870 J
7/9/2007	12:50	24.6		819	9	8.59	100	0.446	0.056	0.14	0.141	0.0355	70	1200
8/6/2007	14:15	26.5		751	11.55	8.98	58	0.278	0.01 U	0.016	0.042	0.02	0.8	92

Conventional Data Report

Columbia R @ Grand Coulee
53A070

Class: A Latitude: 47 57 55.5
Rivermile: 596 Longitude: 118 58 55.1
Waterbody: WA-CR-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
10/2/2006	15:25 18.3	165400	130	8		1 U	0.1	0.01 U	0.065	0.005	0.0042	0.5 U	2
11/13/2006	14:40 13.8	201600	134	9.59	8.29	1 U	0.15	0.01 U	0.097	0.0067	0.005	0.5 U	1 U
12/4/2006	14:00 10.3	166800	144	9.89	8.12	1 U	0.17	0.01 U	0.128	0.0054	0.0054	0.6	1 U
1/8/2007	14:00 5.2	247400	170	11.91	8.44	1	0.21	0.01 U	0.149	0.004	0.0044	0.5 U	1 U
2/12/2007	14:20 2.2	284400	171	12.75	8.87	1 U	0.2	0.01 U	0.158	0.0035	0.003 U	0.7	1 U
3/5/2007	14:45 2.7	184000	162	12.92	8.81	1 U	0.23	0.01 U	0.177	0.0039	0.003 U	0.8	1 U
4/2/2007	14:20 4.8	406600	153	12.24	8.43	1	0.313	0.01 U	0.267	0.0062	0.003 U	1.3	1 U
5/7/2007	14:20 8.8	403000	140	11.71	8.37	1	0.16	0.01 U	0.086	0.0038	0.003 U	0.7	1 U
6/5/2007	15:00 11.9	293000	135	10.79	8.19	1 U	0.14	0.014	0.058	0.003	0.003 U	0.7	1 U
7/9/2007	14:05 15.2	374600	131	9.9	8.19	1 U	0.13	0.016	0.045	0.0041	0.003 U	0.7	1 U
8/6/2007	15:35 19.2	365200	133	8.54	8.15	1	0.12	0.01 U	0.05	0.0037	0.003 U	0.8	1 U
9/10/2007	15:22 19	220400	130	7.8	7.98	1 U	0.15	0.01 U	0.072	0.0043	0.003 U	0.5 U	1

Metals Data Report

Columbia R @ Grand Coulee 53A070

Class: A Latitude: 47 57 55.5
 Rivermile: 596 Longitude: 118 58 55.1
 Waterbody: WA-CR-1050

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
2/12/2007 14:20		25.2	0.1 U	0.02 U	0.5 U	0.29	0.56	0.52	0.11	0.024	0.003	0.74	0.35	5 U	5.6
4/2/2007 14:20		71.4	0.1 U	0.026	0.5 U	0.27	0.59	0.54	0.14	0.034	0.002 U	0.54	0.42	6.8	6.7
6/5/2007 15:00		60.5	0.1 U	0.02 U	0.5 U	0.32	0.81	0.67	0.14	0.02 U	0.002 U	0.41	0.37	5 U	3.3
8/6/2007 15:35		63.9	0.1 U	0.02 U	0.5 U	0.25 UJ	0.58	0.51	0.1 U	0.02 U	0.002 U	0.33	0.35	5 U	2.5

Conventional Data Report

Spokane R @ Long Lake

54A070

Class: A Latitude: 47 50 20.6
 Rivermile: 33.3 Longitude: 117 51 08.9
 Waterbody: WA-54-1010

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
5/9/2007 14:25	10.9	11460	85	11.81	7.98	4	0.345	0.014	0.26	0.0091	0.0045	1.7	1 U
6/6/2007 14:30		5710											
		no sample bridge repairs in progress											
7/11/2007 14:00	19.1	3100	152	8.5	8.14	1	0.748	0.014	0.638	0.0069	0.0048	0.6	1 U
8/8/2007 14:25	19.5	3100	221	7.53	8.05	1	1.28	0.01	1.09	0.0051	0.0039	0.5	1 U
9/12/2007 14:25	18	3100	242	6.1	7.84	2	1.28	0.01 U	1.12	0.0177	0.015	0.8	1 U

Conventional Data Report

Spokane R @ Ninemile Br
54A090

Class: AA Latitude: 47 46 29.6
 Rivermile: 56.7 Longitude: 117 32 40.8
 Waterbody: WA-54-1020

Date/Time	Temp	Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C	CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
			umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
5/9/2007 12:40	12.3	19704	77	11.11	7.88	4	0.317	0.01 U	0.244	0.0081	0.0041	1.5	4
6/6/2007 12:30	16	6104	117	9.2	8.16	3	0.526	0.01 U	0.48	0.0104	0.0055	1.3	21
7/11/2007 12:20	18.6	1895	214	8.3	8.13	3	1.6	0.01 U	1.45	0.0198	0.012	0.9	10
8/8/2007 12:15	17.1	973	289	10.15	8.67	2	2.49	0.01 U	2.18	0.0138	0.0088	0.7	12
9/12/2007 12:45	14.4	1284	314	9.9	8.33	3	2.72	0.01 U	2.72	0.0215	0.015	1.1	7

Conventional Data Report

Spokane R @ Riverside State Pk
54A120

Class: A Latitude: 47 41 47.6
Rivermile: 66 Longitude: 117 29 51.8
Waterbody: WA-54-1020

Date/Time	Temp		Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C		CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
				umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/4/2006	7:55	12.5	1230	208	9.5		2	1.09	0.01 U	0.996	0.0155	0.0076	5.3	11
11/15/2006	8:05	8.2	6500	86	11.51	8.08	2	0.355	0.01 U	0.278	0.0171	0.012	1.2	1 U
12/6/2006	7:50	6	6300	96	12.32	8.17	2	0.407	0.01 U	0.348	0.0162	0.013	0.5	2 J
1/10/2007	7:55	4.5	7330	96	12.62	8.28	5	0.98	0.015	0.877	0.0292	0.021 J	7	33 J
2/14/2007	7:50	3.9	4180	125	12.75	8.24	19	2.82	0.028	1.59	0.0474	0.029	21	180
3/7/2007	7:40	4.4	6930	106	12.72	8.15	9	2	0.01 U	0.958	0.0231	0.017	6.3	3
4/4/2007	7:35	5	19200	72	14.28	8	5	0.268	0.01 U	0.202	0.0101	0.0058	2.4	3
5/9/2007	11:55	12.2	11200	74	11.51	8.05	3	0.338	0.01 U	0.249	0.0085	0.0044	1.3	13
6/6/2007	11:45	16.2	4890	111	9.4	8.21	3	0.571	0.01 U	0.534	0.0111	0.0045	1.4	31
7/11/2007	11:35	18	1290	207	9	8.23	2	1.61	0.01 U	1.37	0.0206	0.0082	1.2	7
8/8/2007	11:35	14.3	700	292	9.54	8.37	1	3.71	0.01 U	2.08	0.0283	0.018	0.7	43
9/12/2007	12:05	13.2	974	314	9.9	8.24	3	2.78	0.01 U	2.64	0.0267	0.017	0.7	23

Conventional Data Report

Little Spokane R nr Mouth
55B070

Class: A Latitude: 47 46 58.6
Rivermile: 1.1 Longitude: 117 31 49.8
Waterbody: WA-55-1010

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													
10/4/2006	7:15	10.3	143	291	8.9		5	1.28	0.01 U	1.15	0.0113	0.0092	1	69
11/15/2006	7:20	6.8	267	278	10	7.91	5	1.26	0.01 U	1.09	0.0221	0.016	1.9	14
12/6/2006	7:05	5.5	210	289	10.3	7.9	7	1.34	0.01 U	1.26	0.0141	0.012	1.9	30 J
1/10/2007	7:20	5.7	317	270	9.69	8	8	1.31	0.01 U	1.21	0.0229	0.018 J	4.2	10 J
2/14/2007	7:00	5.9	376	265	10.2	7.76	21	1.32	0.039	1.16	0.0541	0.0344	11	19
3/7/2007	6:55	6.4	484	253	10.2	7.88	14	1.16	0.01 U	1.01	0.0276	0.021	8.6	15 J
4/4/2007	7:00	7.3	626	207	10.1	7.52	13	0.846	0.01 U	0.75	0.0268	0.015	6.3	6 J
5/9/2007	13:00	14.4	297	250	9.09	8.17	10	1.06	0.01 U	0.957	0.0205	0.014	2.4	10
6/6/2007	12:50	13	218	272	8.91	8.32	6	1.24	0.01 U	1.15	0.0199	0.011	3.1	120
7/11/2007	12:40	15.8	121	284	8.9	8.31	4	1.31	0.01 U	1.15	0.0137	0.0082	1.1	36
8/8/2007	12:45	14.1	99	291	9.14	8.45	2	1.3	0.01 U	1.15	0.0087	0.0078	0.9	55
9/12/2007	13:15	12.3	104	294	9.6	8.22	2	1.35	0.01 U	1.22	0.0086	0.0085	1	28

Conventional Data Report

Hangman Cr @ Mouth
56A070

Class: A Latitude: 47 39 16.6
Rivermile: 0.6 Longitude: 117 27 15.8
Waterbody: WA-56-1010

Date/Time	Temp		Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C		CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
				umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/4/2006	8:35	11	10	399	8.6		3	0.843	0.01 U	0.629	0.0128	0.009	1.2	60
11/15/2006	8:40	4	50	358	11.41	8.05	2	1.07	0.01 U	0.718	0.0255	0.014	1.5	5
12/6/2006	8:25	0	39	316	13.13	7.99	3	3.48	0.01 U	3.26	0.0403	0.029	7.8	22 J
1/10/2007	8:30	2.1	903	175	12.42	7.78	36	6.32	0.06	5.81	0.125	0.0934 J	60	140
2/14/2007	8:25	2.1	1040	177	12.75	7.84	91	8.46	0.091	8.61	0.152	0.0995	100	390
3/7/2007	8:10	5.3	872	207	11.11	7.76	41	9.24	0.019	7.94	0.105	0.0731	55	60
4/4/2007	8:05	6	292	189	11.22	7.77	8	2.65	0.01 U	2.52	0.0557	0.0346	13	1
5/9/2007	11:20	16.5	72	281	10.8	8.78	4	1.06	0.01 U	0.75	0.018	0.0056	1.7	9
6/6/2007	10:50	15.4	35	344	9.2	8.35	3	0.999	0.028	0.682	0.0349	0.019	1.9	52
7/11/2007	10:50	20.1	11	391	8.9	8.24	3	0.899	0.01 U	0.543	0.0162	0.0053	1.3	27
8/8/2007	10:40	18	8.2	409	7.43	8.27	5	0.9	0.012	0.603	0.015	0.0084	2.3	39
9/12/2007	11:25	14.1	10	420	9.19	8.31	3	1.08	0.014	0.79	0.0176	0.011	1.8	10 J

Conventional Data Report

Spokane R blw Monroe St.
57A125

Class: A Latitude: 47 39 37.6
 Rivermile: 73.1 Longitude: 117 25 35.8
 Waterbody: WA-57-1010

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
5/9/2007 10:25	11.6	11200	66	12.42	7.77	2	0.17	0.01 U	0.099	0.0046	0.0031	1.3	4
	Sample collected from Monroe Street bridge.												
6/6/2007 10:15	14.2	4910	96	9.4	7.92	2	0.312	0.01 U	0.248	0.007	0.0041	1.1	17 J
	Sample collected from Monroe Street bridge.												
7/11/2007 10:20	16.9	1240	185	7.7	8.05	1	0.731	0.01 U	0.634	0.0058	0.0041	0.9	26
	Sample collected from Monroe Street bridge.												
8/8/2007 10:00	13.1	708	264	8.64	8.24	1	1.02	0.01 U	0.928	0.0034	0.0037	0.6	17
	Station moved to Glover Park, 1/4 mile DS Monroe. Sample from bank.												
9/12/2007 10:50	12.7	974	263	8.4	7.98	2	1.03	0.01 U	0.923	0.0041	0.0041	0.7	28 J

Conventional Data Report

Spokane R @ Barker Rd
57A148

Class: A Latitude: 47 40 40.6
 Rivermile: 90.4 Longitude: 117 09 14.7
 Waterbody: WA-57-1010

Date/Time	Temp		Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C		CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
				umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
5/9/2007	8:45	11.4	10800	49	10.8	7.66	3	0.096	0.01 U	0.016	0.0056	0.0033	1.8	2
6/6/2007	9:05	17.6	3990	47	8.61	7.67	2	0.13	0.014	0.036	0.0078	0.0043	1.4	10
7/11/2007	9:05	23	583	33	7.7	7.67	2	0.273	0.017	0.126	0.0142	0.0099	1.1	20
8/8/2007	9:20	22.1	53	58	7.23	8.18	2	0.24	0.01 U	0.111	0.0046	0.0036	0.8	150 J
9/12/2007	9:10	18.9	625	59	8.19	7.84	3	0.31	0.01 U	0.173	0.0044	0.003 U	1.7	130 J

Conventional Data Report

Spokane R @ Stateline Br
57A150

Class: A Latitude: 47 41 54.6
Rivermile: 96.35 Longitude: 117 02 40.7
Waterbody: WA-57-1010

Date/Time	Temp		Flow	Conduc-	Oxygen	ph	Suspend.	Total	Ammonia	Nitrate+	Total	Soluble	Turbid-	Fecal
	deg. C		CFS	tivity	mg/L	std units	Solids	Pers. N.	Nitrogen	Nitrite	Phosp.	Reactive P	ity	Coliforms
				umhos/cm			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU	#/100/mL
10/3/2006	6:55	15.9	742	54	8.9		1	0.19	0.023	0.105	0.0043	0.0036	0.8	4 J
11/14/2006	6:45	8.1	6060	52	10.2	7.24	2	0.09	0.01 U	0.026	0.0066	0.0042	1.3	5 J
12/5/2006	7:15	5.9	5680	54	10.9	7.04	1 U	0.11	0.01 U	0.05	0.0053	0.0056	0.5	2
1/9/2007	7:25	4.4	6860	55	11.81	7.08	1	0.15	0.017	0.064	0.0063	0.0057	0.7	4
2/13/2007	6:55	2.4	3120	58	12.34	6.78	2	0.19	0.018	0.116	0.008	0.0054	1.3	1 J
3/6/2007	6:55	2.7	6300	59	12.32	7.04	2	0.16	0.015	0.069	0.0058	0.0042		4 J
4/3/2007	7:00	4	19500	57	13.06	7.01	2	0.13	0.01 U	0.075	0.0042	0.0031	2.1	1 U
5/9/2007	8:15	11.2	10700	49	10.8	7.64	2	0.1	0.01 U	0.016	0.0044	0.0033	1.4	5
6/6/2007	8:40	17.9	3990	47	8.71	7.63	2	0.11	0.011	0.022	0.0047	0.003 U	1	12
7/11/2007	8:15	22.8	583	51	7.6	7.51	1	0.23	0.017	0.112	0.006	0.0037	1.4	11
8/8/2007	8:40	22.7	55	58	7.13	7.85	2	0.316	0.01 U	0.199	0.0123	0.003 U	1.1	16
9/12/2007	8:35	19.5	625	59	8	7.77	3	0.27	0.01 U	0.159	0.0037	0.003 U	1.2	12 J

Metals Data Report

Spokane R @ Stateline Br 57A150

Class: A Latitude: 47 41 54.6
 Rivermile: 96.35 Longitude: 117 02 40.7
 Waterbody: WA-57-1010

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/3/2006 6:55		21.8	0.13	0.093	0.5 U	0.25 U	0.61	0.55	0.92	0.14	0.002 U	0.33	0.49	36.7	36
12/5/2006 7:15		21.4	0.18	0.17	0.5 U	0.25 U	0.56	0.56	0.68	0.13	0.002 U	0.44	0.45	51.7	56.9
2/13/2007 6:55		77	0.22	0.18	0.5 U	0.25 U	0.66	0.57	1.67	0.419	0.002 U	0.38	0.46	61.4	57.7
4/3/2007 7:00		23.1	0.26	0.21	0.5 U	0.25 U	0.71	0.59	4.24	0.98	0.002 U	0.39	0.48	64	66.4
6/6/2007 8:40		19.3	0.2	0.18	0.5 U	0.4	0.6	1.14	1.6	1.33	0.003	0.5	0.36	43	66.9
8/8/2007 8:40		21.9	0.11	0.072	0.5 U	0.25 UJ	0.68	0.53	0.8	0.14	0.002 U	0.22	0.54	27	28.7

Conventional Data Report

Spokane River Post Falls

57A190

Class: A Latitude: 47 42 09.6
 Rivermile: 100.7 Longitude: 116 58 43.7
 Waterbody: WA-57-1010

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
5/9/2007	7:45	11.2	49	11.11	7.59	3	0.13	0.01 U	0.015	0.0055	0.0035	1.8	2
6/6/2007	8:05	17.9	47	8.71	7.6	1	0.11	0.01 U	0.025	0.0046	0.0036	1.3	13
7/11/2007	7:45	23.3	49	7.7	7.45	2	0.17	0.013	0.049	0.0057	0.0032	1.2	22
8/8/2007	7:55	24	54	7.13	7.56	2	0.22	0.01 U	0.105	0.0052	0.0039	1.1	4
9/12/2007	7:55	20.1	59	8	7.72	2	0.33	0.01 U	0.199	0.0047	0.0034	1.6	14 J

Conventional Data Report

Spokane R @ Lake Coeur d'Alene

57A240

Class: A Latitude: 47 40 33.7
 Rivermile: 111.7 Longitude: 116 48 16.7
 Waterbody: WA-57-1010

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
5/9/2007	7:00	9.9	47	10.9	7.34	2	0.086	0.01 U	0.01 U	0.0033	0.0033	1.3	1 J
6/6/2007	7:15	16.4	45	9.2	7.42	1	0.069	0.01 U	0.01 U	0.0021	0.003 U	1.1	2
7/11/2007	7:00	21.6	46	8.4	7.56	2	0.076	0.01 U	0.01 U	0.0039	0.003 U	1.1	6 J
8/8/2007	7:05	22.4	47	7.53	7.31	4	0.073	0.01 U	0.01 U	0.0013	0.003 U	0.8	2 J
9/12/2007	7:15	19.3	48	8	7.58	1	0.082	0.01 U	0.01 U	0.002	0.003	1	2 J

Conventional Data Report

Colville R @ Chewelah 59A130

Class: A Latitude: 48 15 37.6
 Rivermile: 40.3 Longitude: 117 42 55.9
 Waterbody: WA-59-1010

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
10/3/2006 15:15	11.5	36.8	382	12.5		4	0.281	0.01 U	0.183	0.0203	0.014	3.1	100
11/14/2006 14:10	4.1	107	411	11.51	8.12	5	0.663	0.01	0.39	0.0399	0.023	5	14
12/5/2006 13:30	0.8	96.9	411	12.62	8.04	10	0.605	0.023	0.419	0.0259	0.017	6.8	11
1/9/2007 14:50	2.8	97.9	428	11.61	7.95	9	0.744	0.023	0.479	0.0334	0.017	6.3	49
2/13/2007 15:20	3.3	141	385	11.22	7.89	9 J	0.852	0.02	0.531	0.085	0.0484	9.8	44
3/6/2007 15:40	5.5	196	431	10.9	8.04	15	1.04	0.014	0.602	0.0519	0.022	13	9
4/3/2007 15:50	6.1	334	274	11.12	8.03	31	0.382	0.014	0.158	0.0417	0.014	23	5
5/8/2007 13:20	14.1	160	306	11.31	8.32	12	0.33	0.015	0.132	0.0276	0.014	6.9	35
Debris dam blw ref. point. Moved L 3 ft.													
6/4/2007 13:55	18.2	55.8	347	8.81	8.2	10	0.331	0.025	0.136	0.0383	0.021	11	610 J
7/10/2007 13:00	21.7	31.6	374	10.5	8.46	5	0.267	0.01 U	0.018	0.0556	0.026	5.1	190
8/7/2007 14:10	19.5	25.3	366	11.05	8.58	7	0.19	0.01 U	0.01 U	0.0269	0.016	5.6	150
very windy, stage height estimated value													
9/11/2007 13:25	14.7	25.3	376	14.6	8.68	4	0.21	0.01 U	0.052	0.0208	0.012	3.9	51

Conventional Data Report

Kettle R nr Barstow 60A070

Class: AA Latitude: 48 47 04.7
 Rivermile: 10.9 Longitude: 118 07 31.0
 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
10/3/2006 13:45	13.5	229	233	11		2	0.12	0.01 U	0.027	0.0047	0.003 U	0.8	4
11/14/2006 12:35	3.8	469	190	13.23	8.28	2	0.15	0.01 U	0.076	0.0033	0.003 U	0.6	1
12/5/2006 14:15		378											
		iced over. No sample											
1/9/2007 13:30		446											
		ice-no sample											
2/13/2007 14:10		430											
		ice---no sample taken											
3/6/2007 14:20	4.3	453	201	13.33	8.41	4	0.23	0.01 U	0.115	0.0045	0.003 U	0.8	1 U
4/3/2007 14:15	5.4	4198	104	12.75	8.18	9	0.12	0.01 U	0.022	0.0086	0.0036	2.9	3
5/8/2007 11:20	10.4	9349	70	11.31	7.96	12	0.11	0.01 U	0.01 U	0.0062	0.003 U	2.6	7
6/4/2007 12:15	13.9	10706	42	10.29	7.83	18	0.1	0.01 U	0.01	0.0087	0.003 U	5.6	12
7/10/2007 11:35	21.3	1972	102	9.1	8.29	2	0.13	0.01 U	0.039	0.0058	0.0037	0.8	4
8/7/2007 12:35	22	374	188	8.64	8.66	2	0.15	0.01 U	0.027	0.0042	0.0046	0.5	6
9/11/2007 11:25	16.7	145	239	9.19	8.47	2	0.16	0.01 U	0.021	0.0051	0.0037	1.1	5

Conventional Data Report

Columbia R @ Northport 61A070

Class: AA Latitude: 48 55 20.7
 Rivermile: 735.1 Longitude: 117 46 35.9
 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
10/3/2006 12:35	14.8	69700	134	9.69		1	0.12	0.01 U	0.055	0.0035	0.003 U	0.7	3
11/14/2006 11:40	8.1	62000	157	11.11	8.04	2	0.14	0.011	0.062	0.0052	0.003 U	1.1	1 U
12/5/2006 13:20	5.4	92300	150	12.12	8.14	1	0.15	0.01 U	0.105	0.0022 J	0.003 U	0.5 U	1 U
1/9/2007 12:40	3.2	92500	153	12.32	8.1	2	0.17	0.01 U	0.124	0.0027	0.0035	0.8	3 J
2/13/2007 13:10	2.9	92200	154	12.65	8.15	1 U	0.16	0.01 U	0.117	0.0024	0.003 U	1.5	1
3/6/2007 13:20	3.7	76800	164	12.32	8.23	2	0.16	0.01 U	0.099	0.0037	0.003 U	1.1	1 U
4/3/2007 13:10	5.7	103000	160	13.36	8.18	5	0.13	0.01 U	0.085	0.0055	0.003 U	1.9	1
5/8/2007 10:20	8.6	140000	144	12.22	8.1	6	0.13	0.01 U	0.069	0.0037	0.003 U	1.3	1 U
6/4/2007 10:50	12.9	168000	132	11.08	8.25	6	0.13	0.01 U	0.058	0.0045	0.003 U	2.7	5
7/10/2007 10:35	17.4	138000	128	9.6	8.59	4	0.12	0.01 U	0.032	0.0057	0.003 U	1.3	30
8/7/2007 11:25	18.7	123000	126	9.14	8.57	4	0.12	0.01 U	0.043	0.0035	0.003 U	0.9	31
9/11/2007 10:40		81300											
bridge repairs, no access not sampled													

Metals Data Report

Columbia R @ Northport 61A070

Class: AA Latitude: 48 55 20.7
 Rivermile: 735.1 Longitude: 117 46 35.9
 Waterbody: WA-CR-1060

Date/Time	Flow CFS	Hardness mg/L	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Tot. Rec.	Dissolved	Total	Dissolved	Tot. Rec.	Tot. Rec.	Dissolved
			Cadmium ug/L	Cadmium ug/L	Chromium ug/L	Chromium ug/L	Copper ug/L	Copper ug/L	Lead ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Arsenic ug/L	Zinc ug/L	Zinc ug/L
10/3/2006 12:35		65.4	0.1 U	0.02	0.5 U	0.25 U	0.54	0.47	0.23	0.02 U	0.002 U	0.53	0.35	5 U	1.4
12/5/2006 13:20		69.4	0.1 U	0.021	0.5 U	0.25 U	0.57	0.55	0.19	0.033	0.002 U	0.88	0.41	5 U	3.3
2/13/2007 13:10		77.7	0.1 U	0.022	0.5 U	0.25 U	0.91	0.48	0.32	0.02 U	0.002 U	0.77	0.3	6.6	3.9
4/3/2007 13:10		76.1	0.1 U	0.02 U	0.5 U	0.26	0.82	0.55	0.38	0.062	0.002 U	0.43	0.46	5 U	2.1
6/4/2007 10:50		63.2	0.1 U	0.024	0.5 U	0.49	1	1.25	0.8	0.11	0.002 U	0.66	0.36	5 U	17
8/7/2007 11:25		58.9	0.1 U	0.02 U	0.5 U	0.25 U	0.58	0.41	0.19	0.02 U	0.002 U	0.3	0.24	5 U	1.5

Conventional Data Report

Pend Oreille R @ Metaline Falls
62A090

Class: A Latitude: 48 51 53.7
Rivermile: 27 Longitude: 117 22 23.9
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	
10/3/2006	10:20	15.9	9490	164	9.3	2	0.095	0.01 U	0.01 U	0.0048	0.003 U	0.6	1 U	
11/14/2006	9:55	7.5	31800	166	10.9	8.22	2	0.081	0.01 U	0.01 U	0.0048	0.003 U	1.7	6
12/5/2006	10:35	2	21300	178	12.12	8.17	2	0.086	0.01 U	0.023	0.0027 J	0.003 U	1.2	1 U
1/9/2007	10:25		18800											
			snow pile made access unsafe-no sample											
2/13/2007	10:20	2.7	15600	180	12.85	8.17	3	0.076	0.01 U	0.019	0.0049	0.003 U	1	1 U
3/6/2007	10:10	3	15900	174	12.82	7.94	2	0.1	0.01 U	0.018	0.0043	0.006	1.2	1
4/3/2007	10:20	6	41100	152	12.65	8.16	5	0.091	0.01 U	0.035	0.0067	0.003 U	3.3	1
5/8/2007	8:50		45300											
			Bridge resurfacing, hazardous access, no sample taken											
6/4/2007	9:15	17.2	34900	137	10	8.45	5	0.1	0.01 U	0.01 U	0.0059	0.0036	3	2
			FC results should be considered an estimate. Sample container not autoclaved											
7/10/2007	8:55	21.6	19300	151	9.1	8.67	4	0.09	0.01 U	0.01 U	0.0059	0.003 U	1.9	1
8/7/2007	9:40	23.5	6980	161	7.93	8.79	1	0.099	0.01 U	0.01 U	0.0056	0.0033	1.1	5
9/11/2007	9:15	19.1	10400	168	8.5	8.78	2	0.11	0.01 U	0.01 U	0.0046	0.003 U	1	6

Conventional Data Report

Pend Oreille R @ Newport
62A150

Class: A Latitude: 48 11 06.7
Rivermile: 88.2 Longitude: 117 02 05.7
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
10/3/2006	8:30 15.7	9290	164	9.3		1	0.078	0.01 U	0.01 U	0.0038	0.003 U	0.6	1 U
11/14/2006	8:10 7.8	31900	171	10.7	7.94	5	0.089	0.022	0.012	0.007	0.003 U	4.1	6
12/5/2006	8:50 3.2	19100	169	11.61	7.89	2	0.1	0.01 U	0.038	0.0033	0.0031	1.2	1 U
1/9/2007	8:50 2.6	16800	172	12.02	7.71	2	0.12	0.01 U	0.056	0.0042	0.003 U	1.3	1
2/13/2007	8:35 3.1	14700	179	12.44	7.73	2	0.095	0.01 U	0.04	0.003	0.003 U	1.2	1 U
3/6/2007	8:30 3	15200	174	12.62	7.88	3	0.11	0.01 U	0.033	0.0039	0.003 U	1.1	1 U
4/3/2007	8:30 5.7	40200	162	11.93	7.8	4	0.091	0.01 U	0.04	0.0048	0.003 U	2.7	1 U
5/8/2007	7:25 10.7	47500	152	11.31	8.19	4	0.07	0.01 U	0.01 U	0.0045	0.003 U	2.4	1 U
6/4/2007	7:30 16.5	34600	137	9.9	8.15	4	0.091	0.01 U	0.01 U	0.0044	0.0039	3	6
7/10/2007	7:10 21.3	19000	153	9.4	8.34	3	0.086	0.01 U	0.01 U	0.0047	0.0056	1.5	21 J
8/7/2007	7:45 23.6	8170	162	7.93	8.55	1	0.11	0.01 U	0.01 U	0.0033	0.0032	0.8	5 J
9/11/2007	7:30 19.6	9890	167	8.4	8.64	1	0.099	0.01 U	0.01 U	0.0032	0.003 U	1	1 UJ

Station	Date	Remarks	Temperature	Conductivity	Oxygen	pH	Suspended Solids, total	Total Persulfate Nitrogen	Ammonia-nitrogen	Nitrate+nitrite-nitrogen	Phosphorus, total	Orthophosphate	Turbidity	Fecal Coliform Bacteria
50B070	2006/10/02	Equipment failure: pH probe cable				x								
50B070	2006/12/04	Frozen	x	x	x	x	x	x	x	x	x	x	x	x
50B070	2007/09/10	No Flow	x	x	x	x	x	x	x	x	x	x	x	x
53A070	2006/10/02	Equipment failure: pH probe cable				x								
54A120	2006/10/04	Equipment failure: pH probe cable				x								
55B070	2006/10/04	Equipment failure: pH probe cable				x								
56A070	2006/10/04	Equipment failure: pH probe cable				x								
57A150	2006/10/03	Equipment failure: pH probe cable				x								
59A130	2006/10/03	Equipment failure: pH probe cable				x								
60A070	2006/10/03	Equipment failure: pH probe cable				x								
60A070	2006/12/05	Frozen	x	x	x	x	x	x	x	x	x	x	x	x
60A070	2007/01/09	Frozen	x	x	x	x	x	x	x	x	x	x	x	x
60A070	2007/02/13	Frozen	x	x	x	x	x	x	x	x	x	x	x	x
61A070	2006/10/03	Equipment failure: pH probe cable				x								
61A070	2007/09/11	No access: bridge repairs	x	x	x	x	x	x	x	x	x	x	x	x
62A090	2006/10/03	Equipment failure: pH probe cable				x								
62A090	2007/05/08	No access: bridge resurfacing	x	x	x	x	x	x	x	x	x	x	x	x
62A090	2007/01/09	No access: unsafe due to snow	x	x	x	x	x	x	x	x	x	x	x	x
62A150	2006/10/03	Equipment failure: pH probe cable				x								

DO = Dissolved Oxygen

FC = Fecal Coliform

Appendix E. Acronyms and abbreviations

Following are acronyms and abbreviations used frequently in this report.

DQO	Data quality objective
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management system
EPA	U.S. Environmental Protection Agency
MEL	Manchester Environmental Laboratory
MQO	Measurement quality objectives
NTU	Nephelometric turbidity units
OP	Orthophosphorus
QA	Quality assurance
QAMP	Quality Assurance Monitoring Plan
QC	Quality control
RMS	Root mean square
RSD	Relative standard deviation
SM	Standard method
TMDL	Total Maximum Daily Load
TN	Total nitrogen
TP	Total phosphorus
TSS	Total suspended solids
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WY	Water Year