SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Your Northwest renewables utility

May 17, 2013

VIA ELECTRONIC FILING

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission (FERC)
888 First Street NE
Washington, DC 20426

Re: Jackson Hydroelectric Project, FERC No. P-2157
Fisheries and Habitat Monitoring Plan – 2012 Annual Report
License Article 410

Dear Secretary Bose:

Enclosed is Public Utility District No. 1 of Snohomish County's Fisheries and Habitat Monitoring Plan Annual Report for 2012 pursuant to License Article 410 for the Jackson Hydroelectric Project. The draft report was provided to the Aquatic Resource Committee for a 30-day review and comment period. No comments were received; consultation documentation is included in the report's appendix.

If you have any questions on the Fisheries and Habitat Monitoring Plan Annual Report for 2012, please contact Keith Binkley, Natural Resources Manager, at (425) 783-1769 or KMBinkley@snopud.com.

Sincerely,

Kim D. Moore, P.E.
Assistant General Manager of Generation, Water, and Corporate Services
KDMoore@snopud.com
(425) 783-8606

Enclosed: Fisheries and Habitat Monitoring Plan Annual Report for 2012

cc: Keith Binkley, District

Henry M. Jackson Hydroelectric Project
(FERC No. 2157)

License Article 410: Fisheries and Habitat Monitoring Plan – 2012 Annual Report

Everett, WA

May 2013

Final – This document has been prepared for the District. It has been peer-reviewed by the District for accuracy and formatting based on information known at the time of its preparation and with that understanding is considered complete by the District. The document may be cited as:

> Public Utility District No. 1 of Snohomish County (District). 2012. Fisheries and Habitat Monitoring Plan 2012 Annual Report. License Article 410 for the Henry M. Jackson Hydroelectric Project, FERC No. 2157. May 2012.

Table of Contents

List of Figures

1. INTRODUCTION

The Public Utility District No. 1 of Snohomish County (District) received a license on September 2, 2011 (License) from the Federal Energy Regulatory Commission (FERC) for the Henry M. Jackson Hydroelectric Project (Project). License Article 410 approved the Fisheries and Habitat Monitoring Plan (FHM Plan) filed with the FERC on September 2, 2010, with modification. Per Section 4.1 of the FHM Plan, the District is to prepare a report by June 30 of each year detailing the monitoring efforts of the previous calendar year.

This FHM Plan Annual Report covers activities conducted in calendar year 2012. Appendix A shows graphical data, Appendix B shows tabular data, and Appendix C shows seven-day average of the daily maximum water temperature in tabular format. Appendix D is the Smolt Screw Trap Report for 2012. This Annual Report was provided to the Aquatic Resources Committee (ARC) [consisting of the City of Everett, City of Sultan, Snohomish County, Washington Department of Ecology, Washington Department of Fish and Wildlife (WDFW), Tulalip Tribes, U.S. Forest Service, National Marine Fisheries Service, U.S. Fish and Wildlife Service and American Whitewater] for a 30-day review and comment period. Consultation documentation is included in Appendix E.

2. MONITORING OF FISH HABITAT IN THE SULTAN RIVER

2.1. Riverine Habitat Monitoring

No formal monitoring of aquatic habitat conditions in the lower Sultan River (downstream of river mile (RM) 2.7 occurred in 2012. Informal surveys indicate that the baseline survey conducted in 2008 by Stillwater Sciences continues to accurately reflect habitat conditions in the lower Sultan River. The Stillwater Sciences survey also defines habitat conditions prior to implementation of the Side Channel Enhancement and Placement of Large Woody Debris Plan.

As articulated in the FHM Plan, the District is prepared to conduct a habitat survey after a high flow event or other major event causing changes in habitat conditions.

2.2. Water Temperature Monitoring

Water temperature was continuously monitored at 13 locations with the Project area during 2012 (Figure 1). Monitoring at 10 of these locations was conducted by the District. The remaining monitoring was conducted by the U.S. Geological Survey (USGS) through a cooperative agreement. These locations, in order from upstream to downstream, include:

- South Fork Sultan River, upstream of Culmback Dam, near river mile (RM) 18.2 (USGS Gage No. 12137290);
- Sultan River, within the bypass reach immediately downstream of Culmback Dam, at RM 15.8;
- Sultan River, within the bypass reach, near RM 14.3;
- Sultan River, within the bypass reach, near RM 12.8;
- Sultan River, within the bypass reach, near RM 11.3;

- Big Four Creek, tributary to Sultan River, near RM 11.3;
- Sultan River, within the bypass reach immediately upstream of the Diversion Dam, near RM 9.8;
- Sultan River, immediately downstream of the Diversion Dam, near RM 9.6 (USGS Gage No. 12137800);
- Sultan River, upstream of the Powerhouse, near RM 4.9;
- Sultan River, downstream of the Powerhouse, near RM 4.4,
- Sultan River, near the confluence with the Skykomish River, at RM 0.2;
- Skykomish River, upstream of the confluence with the Sultan River, at RM 14.1; and
- Skykomish River, downstream of the confluence with the Sultan River, at RM 13.2.

Water temperature monitoring at Sultan River RM 14.3, 12.8 and 11.3, are part of the Water Temperature Conditioning Plan monitoring sites; the others are requirements under the FHM Plan.

In general, water temperatures observed during 2012 were consistent with those collected during 2008 and 2009 by CH2M Hill and presented in the Water Quality Final Technical Report (CH2M Hill, 2009). No exceedences of state water temperature criteria were documented during 2012. Figures depicting water temperatures during 2012 are presented in Appendix A. A tabulation of all mean daily temperature data for 2012 is presented in Appendix B. The seven-day average of the daily maximum temperature (7-DAD Max) is presented in Appendix C. Data gaps are attributed to malfunctioning equipment or equipment lost due to vandalism.

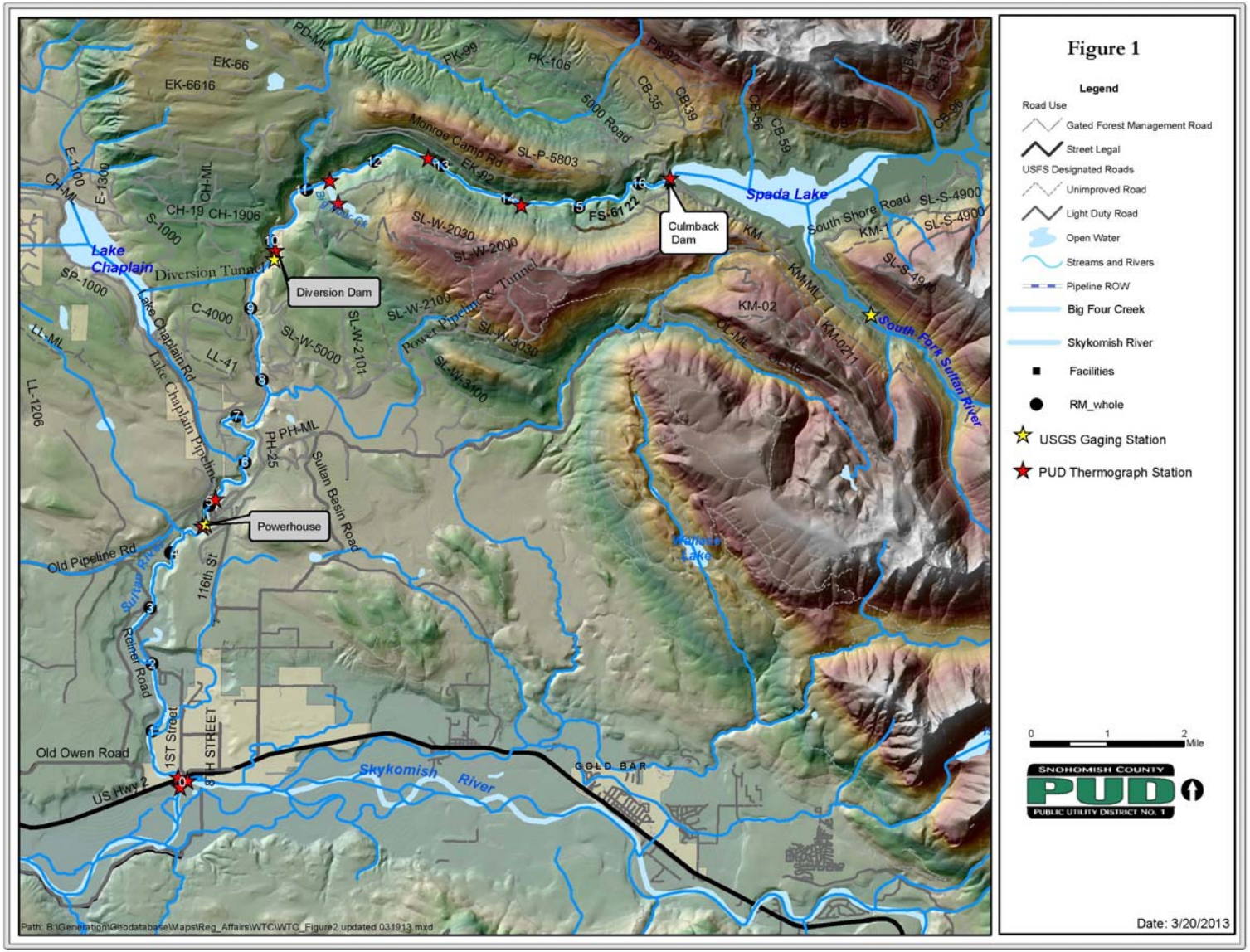

Figure 1. Locations of water temperature monitoring.

3. MONITORING OF FISH POPULATIONS IN THE SULTAN RIVER

3.1. Spawner Abundance, Distribution, and Timing in the Sultan River

In the Sultan River, steelhead and salmon escapement surveys are conducted during the spring and fall, respectively. These surveys are conducted, as conditions allow, within four index areas located downstream of the Diversion Dam (RM 9.7) (Figure 2). During 2012, conditions were generally favorable during both the spring and fall surveys. Spring surveys were used to develop an escapement estimate of 88 steelhead based on the observation of 55 redds. No steelhead redds were observed in the Diversion Dam Index Area. As such, the "passage trigger" for the initiation of actions to implement volitional passage at the Diversion Dam was not met.

Fall surveys occurred after the completion of fish passage modifications at the Marsh Creek Slide. These surveys were used to generate an escapement estimate of 975 Chinook based on field observations and extrapolation to a total 390 redds. Of the 250 redds observed in index areas, 5 (2%) were observed in the Diversion Dam Index Area. For Chinook, the 10 percent "passage trigger" for the initiation of actions to implement volitional passage at the Diversion Dam was not met. Both the steelhead estimate and Chinook estimate were developed cooperatively with WDFW. Conditions during 2012 were insufficient to generate estimates of chum salmon escapement. Future surveys, as viewing conditions allow, and analysis of trends will serve to better establish estimates of escapement

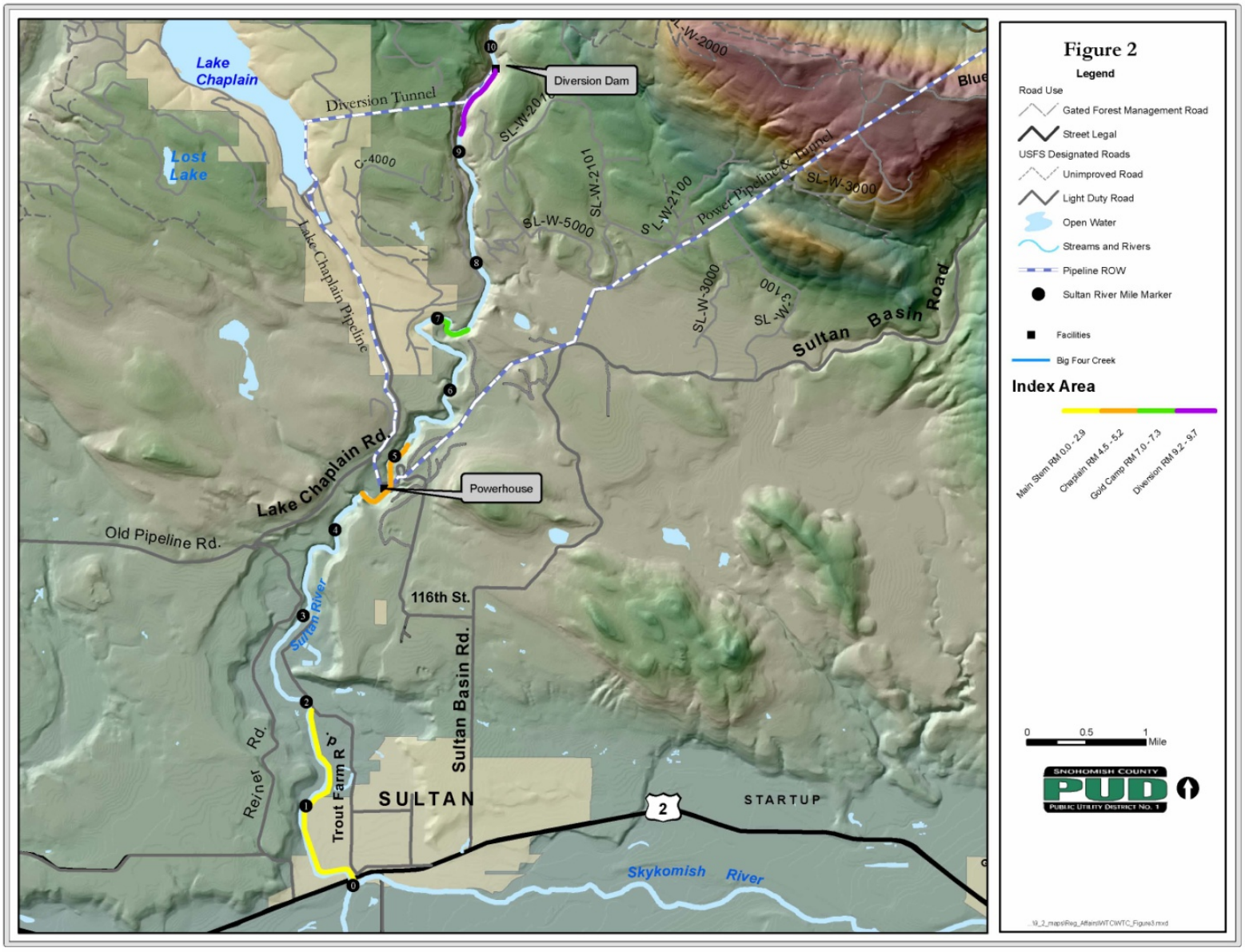

Figure 2. Locations of steelhead and salmon escapement surveys.

3.2. Flow Ceiling, Implemented for Chinook Salmon

A flow ceiling of 550 cfs is implemented annually between September 15 and October 15 in the reach of the Sultan River downstream of the Powerhouse (RM 4.7). This ceiling ensures that areas used by spawning Chinook salmon remain wetted through incubation and emergence should flows from the Project approach the minimum instream flow of 300 cfs. Mean daily discharge downstream of the Powerhouse averaged 329 cfs during the period when the majority of Chinook spawning occurs and were well below the 550 cfs ceiling (Figure 3).

During 2012, no deviations of the flow ceiling and no documented redd dewatering occurred. Therefore, no corrective actions are proposed.

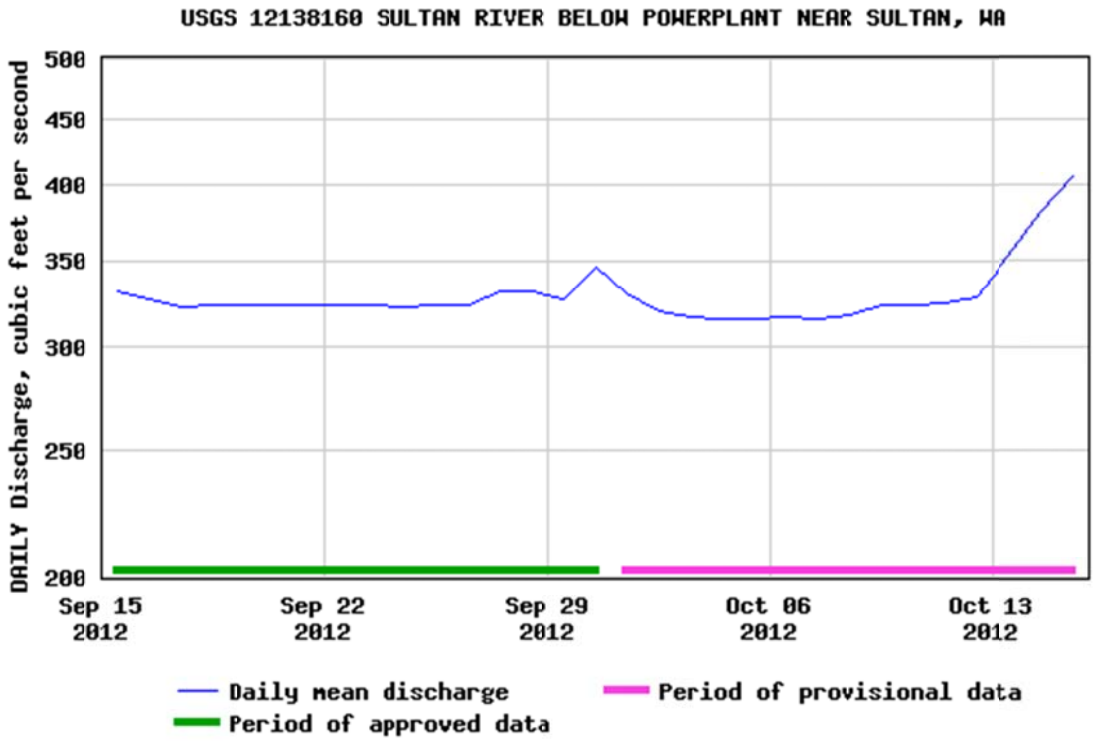

Figure 3. Mean Daily Discharge in the Sultan River downstream of the Powerhouse.

3.3. Juvenile Production in the Sultan River

The first efforts to estimate juvenile production in the Sultan River were initiated on February 1, 2012. A five-foot diameter rotary screw trap operation was established in the Sultan River near RM 0.2, just upstream of the confluence with the Skykomish River. Sampling will continue until June 30. A report presenting the results of the 2012 sampling season is presented in Appendix D.

4. SIDE CHANNEL MAINTENANCE AND MONITORING

Construction of the side channel enhancement and placement of large woody debris was completed in fall 2012. Per Article 404, a complete description of the completed project, including as-built plans is presented in the Side Channel Enhancement Construction Report. Monitoring of physical habitat will address changes in the lower Sultan River tied to the large scale side channel enhancement project and placement of engineered log jams in future reports. Monthly monitoring to assess the performance of both newly constructed and modified side channels, as well as the engineered log jams, was initiated after construction was completed. No maintenance has been required to date.

5. FUTURE MONITORING

The 2012 calendar year marks the first full calendar year under the new license. Monitoring methodologies employed in 2012 were consistent with those identified in the FHM Plan. Monitoring of physical habitat and water quality conditions will continue. During summer 2013, physical measurements will be collected within each of the four side channels receiving treatment in 2012. These measurements, as described in the FERC-approved Ramp Rate Evaluation Plan (Article 405), are intended to quantify hydraulic performance in each of the side channels at flows below 600 cfs. Monitoring of steelhead spawning is currently being conducted. Monitoring of salmon spawning will occur in the fall. The second year of outmigration monitoring has been successful thus far; the results will inform future sampling efforts.

APPENDIX A

2012 Water Temperature Figures

Figure A-1. Mean Daily Water Temperature in the South Fork Sultan River, upstream of Culmback Dam (RM 18.2), and in the Sultan River immediately downstream of Culmback Dam (RM 15.8) during 2012

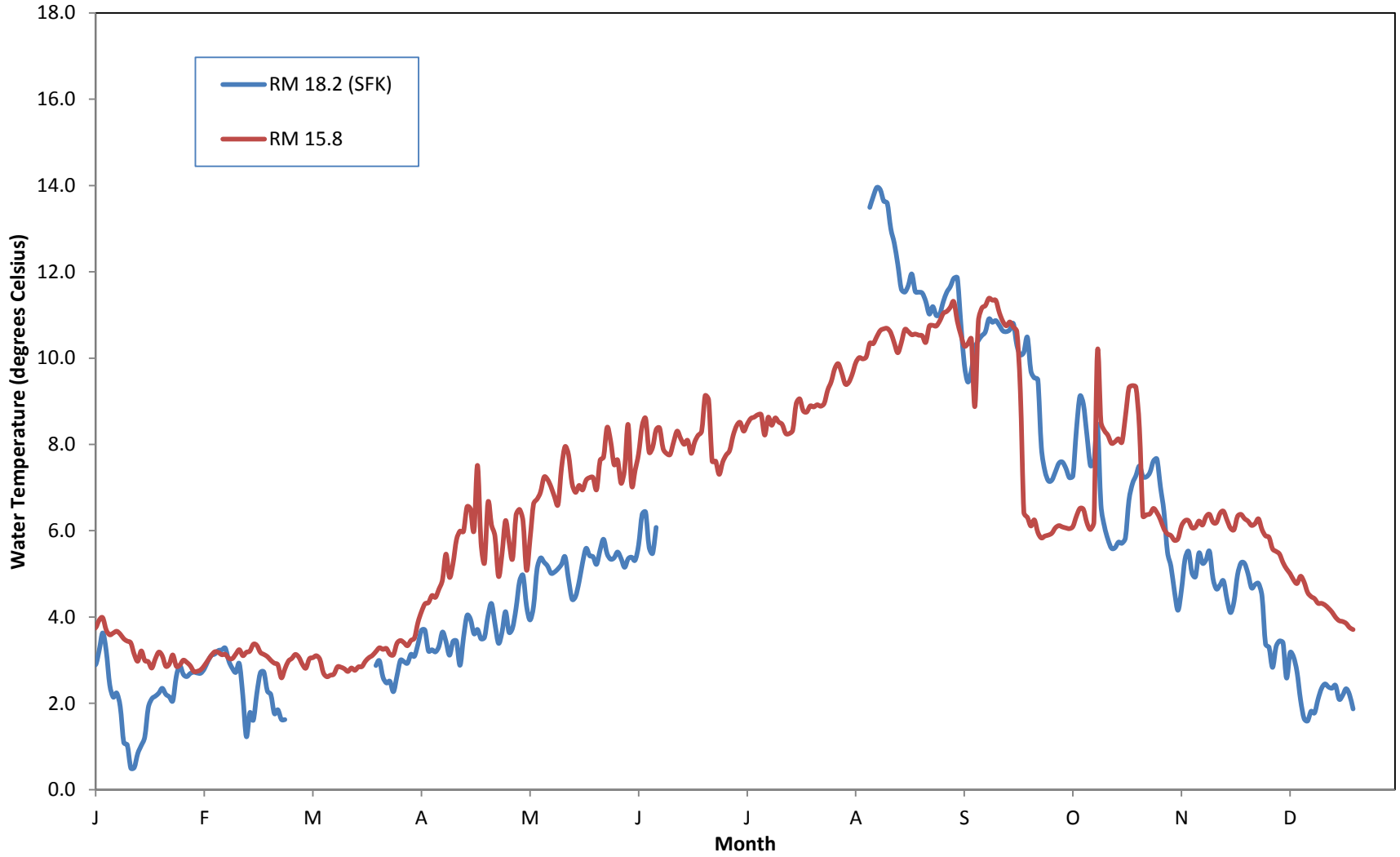

Figure A-2. Mean Daily Water Temperature in the Bypass Reach (Reach 3) of the Sultan River during 2012

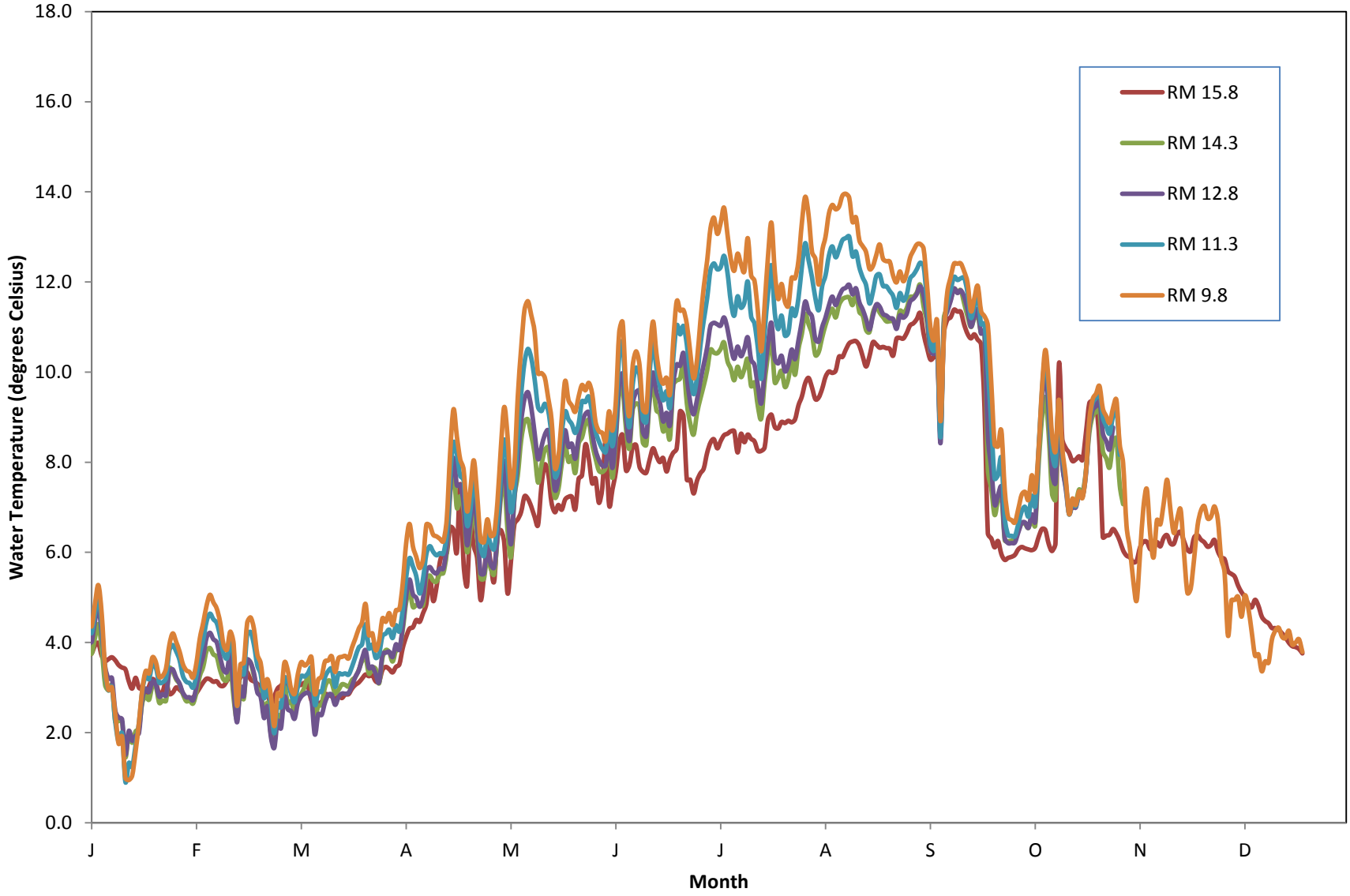

Figure A-3. Longitudinal Depiction of Mean Daily Water Temperature, Sultan River downstream of Culmback Dam, 2012

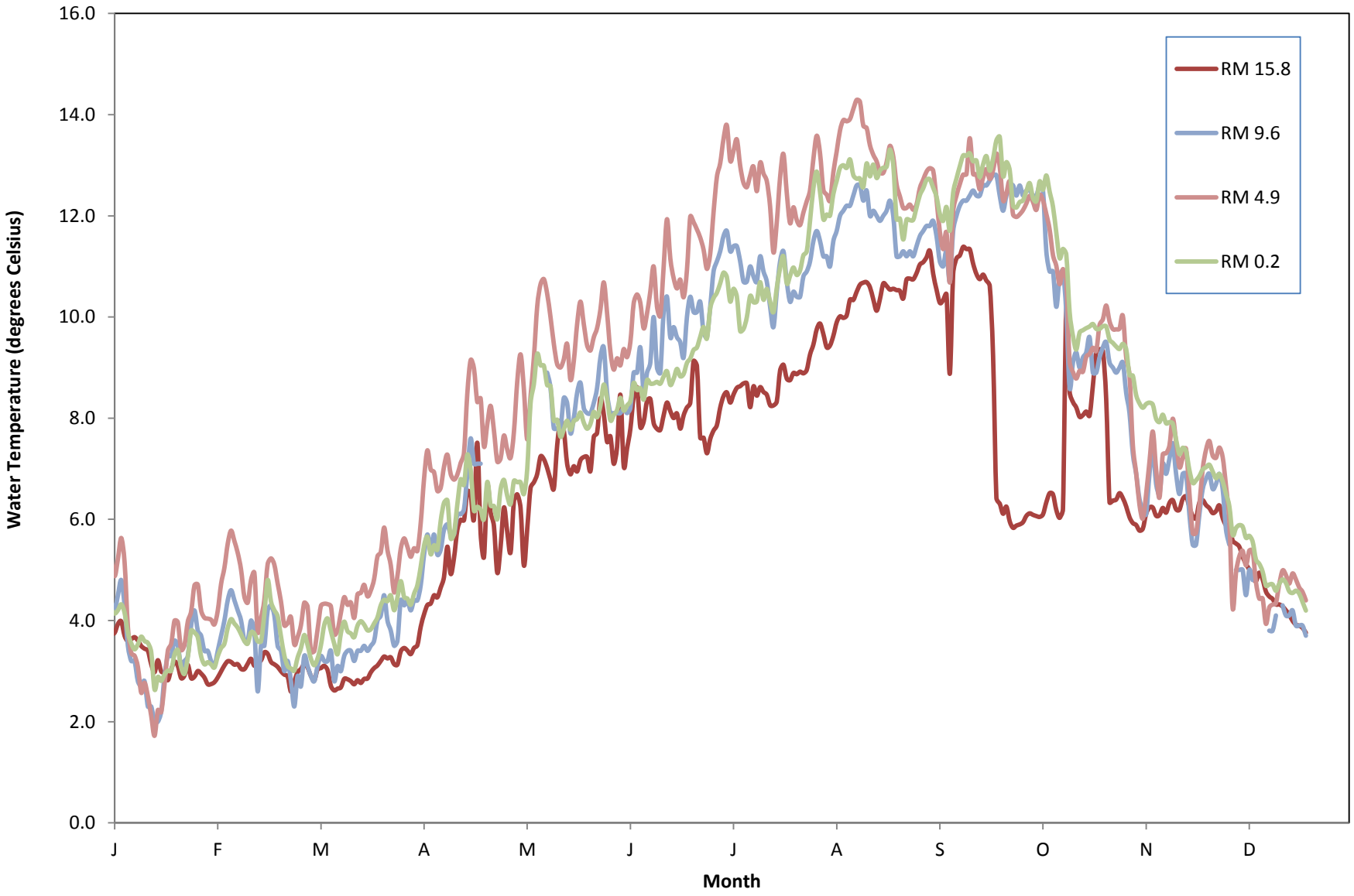

Figure A-4. Mean Daily Water Temperature near confluence of Sultan and Skykomish rivers, 2012

APPENDIX B

2012 Mean Daily Water Temperature Data in Tabular Format

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
1/1	2.7	3.8	3.6	3.8	3.9	4.0	4	4.4		4.3	4.2	4.1	4.3
1/2	3.2	3.9	4.0	4.3	4.3	4.4	4.2	4.7		4.4	5.0	4.2	4.3
1/3	3.4	4.0	4.5	4.7	5.0	5.2	4.8	5.4		4.5	5.4	4.8	4.9
1/4	3.7	4.1	4.6	5.0	5.2	5.4	5.2	5.7		4.4	5.8	5.2	5.2
1/5	3.3	3.9	4.7	4.9	5.4	5.7	5.6	6.2		4.5	5.4	5.1	5.2
1/6	3	3.8	3.8	4.0	4.3	4.5	4.4	5.3		4.2	4.6	4.5	4.6
1/7	2.9	3.8	3.8	4.0	4.2	4.4	4.2	4.9		4.1	4.6	4.3	4.4
1/8	3.2	3.9	4.1	4.5	4.6	4.9	4.5	5.2		4.2	5.1	4.8	4.8
1/9	3.6	4.0	4.4	4.8	5.0	5.3	4.8	5.6		4.3	5.6	5.3	5.2
1/10	3.2	3.7	3.9	4.2	4.4	4.6	4.3	5.2		4.2	4.5	4.9	4.9
1/11	2.4	3.6	3.1	3.5	3.3	3.4	3.5	3.9		3.8	3.7	3.5	3.7
1/12	2.1	3.6	2.9	3.2	2.9	2.9	3.2	3.4		3.6	3.5	2.8	3.1
1/13	2.2	3.7	3.1	3.2	3.0	3.0	3.2	3.3		3.4	3.6	2.9	3.1
1/14	1.9	3.6	2.2	2.5	2.2	2.4	2.8	3.1		3.5	3.1	3.0	3.2
1/15	1.1	3.5	2.3	2.3	1.8	1.8	2.7	2.6		3.7	2.4	2.1	2.6
1/16	1	3.4	2.2	2.3	2.0	1.9	2.8	2.8		3.6	2.0	2.5	2.8
1/17	0.5	3.4	1.4	1.5	0.9	1.0	2.3	2.5		3.6	1.7	1.7	2.4
1/18	0.5	3.1	2.0	2.0	1.3	0.9	2.3	2.1		3.4	1.3	0.8	1.7
1/19	0.8	3.0	1.8	1.8	1.2	1.0	2	1.7		2.6	1.0	0.5	1.2
1/20	1	3.2	2.0	1.9	1.7	1.6	2	2.2		2.9	1.3	1.4	1.9
1/21	1.2	3.0	2.1	2.0	2.2	2.2	2.2	2.2		2.8	3.0	2.8	2.7
1/22	1.9	3.0	2.7	2.8	2.9	3.0	2.9	2.7		2.9	3.2	3.2	3.2
1/23	2.1	2.8	2.8	3.0	3.3	3.4	3.3	3.4		3.0	3.5	3.3	3.3
1/24	2.2	3.0	2.7	2.9	3.2	3.3	3.3	3.5		3.0	3.6	3.5	3.5
1/25	2.2	3.2	3.0	3.1	3.5	3.7	3.6	4.0		3.3	3.8	3.7	3.7
1/26	2.4	3.1	3.0	3.1	3.4	3.6	3.5	4.0		3.4	3.6	3.6	3.7
1/27	2.2	2.9	2.7	2.8	3.1	3.2	3.1	3.4		3.1	3.4	3.4	3.4
1/28	2.2	2.9	2.7	2.9	3.1	3.3	3.2	3.5		2.9	3.4	3.4	3.3
1/29	2.1	3.1	2.7	2.8	3.2	3.4	3.3	4.0		3.3	3.8	3.9	3.9
1/30	2.6	2.9	3.4	3.4	3.8	3.9	3.9	4.2		3.8	3.9	3.7	3.9
1/31	2.9	2.9	3.4	3.4	3.9	4.2	4.2	4.7		3.8	3.7	4.3	4.4
2/1	2.7	3.0	3.2	3.2	3.8	4.0	3.8	4.7		3.7	3.4	4.5	4.5

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
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2/3	2.7	2.9	2.9	2.9	3.3	3.5	3.4	4.1		3.1	3.0	4.1	4.0
2/4	2.7	2.7	2.7	2.8	3.1	3.4	3.4	4.0		3.2	3.1	4.2	4.1
2/5	2.7	2.7	2.7	2.8	3.1	3.3	3.2	4.0		3.1	3.6	4.2	3.9
2/6	2.7	2.8	2.6	2.7	3.0	3.2	3.1	3.9		3.1	4.3	4.1	3.9
2/7	2.8	2.9	2.9	3.0	3.3	3.5	3.4	4.2		3.3	5.5	4.4	4.2
2/8	3	3.0	3.3	3.4	3.7	4.1	3.7	4.7		3.5	4.9	4.7	4.5
2/9	3.1	3.1	3.5	3.7	4.1	4.4	4	5.0		3.5	5.2	5.0	4.7
2/10	3.1	3.2	3.8	4.1	4.5	4.8	4.4	5.5		3.9	6.1	5.3	5.1
2/11	3.2	3.2	3.9	4.2	4.6	5.1	4.6	5.8		4.0	5.4	5.4	5.3
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2/17	2.9	3.2	3.5	3.7	4.0	4.2	4	4.8		3.8	4.0	5.0	4.8
2/18	2.2	3.1	2.8	2.9	3.7	4.0	3.8	4.9		3.7	2.4	4.8	4.7
2/19	1.2	3.2	2.3	2.2	2.6	2.6	2.6	3.8		3.6	1.3	3.5	3.6
2/20	1.8	3.2	3.0	3.0	3.3	3.5	3.5	4.1		3.6	2.0	3.7	3.8
2/21	1.6	3.4	2.8	2.8	3.3	3.5	3.5	4.4		4.1	3.6	4.3	4.4
2/22	2.2	3.3	3.6	3.6	4.2	4.4	4.2	5.1		4.8	4.1	4.1	4.3
2/23	2.7	3.2	3.6	3.6	4.2	4.6	4.3	5.2		4.4	4.0	4.3	4.5
2/24	2.7	3.1	3.3	3.3	3.9	4.3	4.1	5.1		4.2	4.0	4.4	4.6
2/25	2.3	3.1	3.0	2.9	3.5	3.7	3.5	4.7		4.1	3.7	4.1	4.3
2/26	2.2	3.0	2.9	2.8	3.3	3.5	3.4	4.4		3.7	3.3	3.3	3.6
2/27	1.8	2.9	2.4	2.3	2.8	3.0	3	3.9		3.3	2.8	3.6	3.6
2/28	1.9	2.9	2.7	2.6	3.0	3.2	3.2	3.9		3.1	2.9	3.5	3.5
2/29	1.6	2.6	2.0	1.9	2.6	2.8	2.8	4.1		3.1	2.5	3.6	3.6
3/1	1.6	2.8	1.9	1.7	2.0	2.1	2.3	3.5		3.0	2.4	3.5	3.4
3/2		3.0	2.4	2.3	2.6	2.9	2.9	3.7		3.3	2.4	3.8	3.7
3/3		3.0	2.3	2.1	2.6	2.8	2.7	3.9		3.5	2.8	4.1	4.1

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
3/4		3.1	3.0	2.8	3.2	3.5	3.3	4.4		3.7	3.3	4.8	4.6
3/5		3.1	2.7	2.5	3.1	3.4	3.1	4.3		3.5	3.2	4.7	4.6
3/6		2.9	2.7	2.5	2.8	3.0	2.9	3.4		3.2	2.8	3.6	3.6
3/7		2.8	2.4	2.3	2.7	2.9	2.8	3.4		3.1	2.5	3.7	3.6
3/8		3.0	2.8	2.7	3.0	3.3	3.1	3.8		3.3	3.0	4.2	4.1
3/9		3.1	2.9	2.8	3.3	3.6	3.3	4.3		3.5	3.4	4.7	4.6
3/10		3.1	3.0	2.9	3.2	3.5	3.2	4.3		3.9	3.5	5.1	4.9
3/11		3.0	3.3	2.9	3.3	3.6	3.2	4.3		4.0	3.5	4.9	4.8
3/12		2.7	3.0	2.8	3.4	3.7	3.4	4.3		3.8	3.3	4.1	4.1
3/13		2.6	2.3	2.0	2.6	2.9	2.8	3.7		3.5	3.0	3.9	4.0
3/14		2.7	2.6	2.4	2.9	3.2	3.1	3.8		3.3	2.8	3.6	3.6
3/15		2.7	2.6	2.4	2.9	3.2	3	4.2		3.7	3.2	3.9	4.0
3/16		2.8	3.0	2.7	3.2	3.6	3.3	4.5		4.0	3.4	4.2	4.4
3/17		2.8	3.2	2.8	3.4	3.6	3.4	4.3		3.8	3.2	4.5	4.6
3/18		2.8	3.1	2.8	3.4	3.7	3.4	4.4		3.7	3.2	4.6	4.6
3/19		2.7	2.9	2.6	3.0	3.3	3.2	4.1		3.7	2.9	4.9	4.7
3/20		2.8	2.9	2.8	3.3	3.6	3.4	4.5		3.9	3.2	4.9	4.8
3/21		2.8	3.1	2.9	3.3	3.7	3.4	4.5		4.0	3.0	4.6	4.6
3/22		2.8	3.1	2.9	3.3	3.7	3.5	4.7		3.9	2.9	5.3	5.1
3/23		2.9	3.0	2.9	3.3	3.6	3.4	4.5		3.8	3.0	5.4	5.1
3/24		3.0	3.2	3.0	3.5	3.9	3.5	4.6		3.8	3.7	5.6	5.3
3/25		3.1	3.2	3.2	3.7	4.1	3.6	4.8		3.9	4.0	5.8	5.4
3/26		3.1	3.4	3.4	3.9	4.3	4	5.3		4.1	4.1	5.7	5.4
3/27		3.2	3.6	3.6	4.0	4.5	4.1	5.4		4.3	4.2	5.9	5.6
3/28		3.3	3.7	3.8	4.4	4.9	4.5	5.8		4.4	4.4	6.3	6.0
3/29		3.3	3.3	3.4	3.9	4.2	4	5.4		4.4	4.1	5.4	5.3
3/30		3.3	3.4	3.5	4.0	4.2	3.8	5.1		4.5	4.1	4.8	4.9
3/31		3.1	3.4	3.3	3.7	3.8	3.5	4.6		4.2	3.9	4.7	4.8
4/1		3.1	3.1	3.1	3.7	4.0	3.6	4.9		4.5	3.8	5.2	5.2
4/2		3.4	3.7	3.7	4.1	4.5	4.4	5.4		4.8	4.2	5.8	5.7
4/3		3.5	3.8	3.8	4.2	4.5	4.3	5.6		4.5	4.4	6.0	5.8

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
4/4		3.4	3.8	3.8	4.3	4.7	4.4	5.5	4.4	4.4	4.1	6.0	5.8
4/5		3.3	3.6	3.7	4.1	4.4	4.2	5.3	4.2	4.3	3.9	6.0	5.7
4/6		3.5	3.8	4.0	4.4	4.7	4.4	5.4	4.2	4.5	3.9	6.0	5.8
4/7		3.5	3.9	3.8	4.2	4.7	4.4	5.4	4.2	4.7	3.9	6.5	6.2
4/8		3.9	4.3	4.4	4.7	5.3	4.7	5.9	4.4	5.1	4.6	7.1	6.8
4/9		4.1	4.9	5.0	5.4	6.2	5.3	6.8	4.8	5.5	5.4	8.0	7.6
4/10		4.3	5.1	5.4	5.9	6.6	5.7	7.4	5.0	5.7	5.9	8.2	7.8
4/11		4.3	4.8	5.1	5.7	6.1	5.4	7.0	4.9	5.3	5.9	6.8	6.7
4/12		4.5	4.8	5.0	5.5	5.9	5.7	6.9	5.1	5.5	5.5	6.3	6.3
4/13		4.5	4.8	4.8	5.1	5.7	5.3	6.6	5.3	5.4	5.0	6.6	6.4
4/14		4.6	4.8	5.0	5.4	5.8	5.4	6.6	5.7	6.0	5.3	6.9	6.8
4/15		4.9	5.4	5.6	6.0	6.6	5.8	7.0	6.1	6.3	5.6	7.1	7.0
4/16		5.5	5.5	5.7	6.1	6.6	5.9	7.3	5.9	6.4	5.9	7.2	7.2
4/17		4.9	5.4	5.6	6.0	6.4	5.7	6.9	5.4	5.6	5.4	5.9	5.9
4/18		5.2	5.4	5.5	5.9	6.4	5.7	6.8	5.5	5.7	5.5	6.3	6.2
4/19		5.8	5.5	5.6	6.0	6.3	6.1	6.9	6.1	6.3	5.5	6.3	6.3
4/20		6.0	5.5	5.6	6.0	6.2	6.1	7.1	6.6	6.8	5.8	5.9	6.1
4/21		6.0	6.0	6.1	6.4	6.7	6.2	7.3	6.2	6.7	5.9	6.2	6.3
4/22		6.6	7.3	7.4	7.7	8.2	6.9	8.5	6.9	7.3	6.8	7.3	7.4
4/23		6.5	7.8	8.1	8.4	9.2	7.6	9.1	6.9	7.0	7.4	6.9	7.0
4/24		6.0	7.0	7.5	8.2	8.6	7.1	9.0	6.3	6.2	7.3	5.5	5.7
4/25		7.5	7.2	7.5	7.7	8.1	7.1	8.3	6.1	6.2	7.4	5.7	5.8
4/26		5.7	6.9	7.1	7.6	7.8	7.1	8.4	6.2	6.2	7.0	5.6	5.8
4/27		5.3	6.0	6.2	6.6	6.9		7.4	5.9	6.0	6.4	5.6	5.8
4/28		6.7	6.5	6.7	6.9	7.4		7.9	6.4	6.7	6.6	6.3	6.5
4/29		6.1	6.9	7.3	7.6	8.0		8.2	6.1	6.3	7.0	6.7	6.8
4/30		5.9	6.3	6.6	7.1	7.3		7.8	6.2	6.3	6.6	6.4	6.6
5/1		4.9	5.4	5.5	6.1	6.3		7.1	5.9	6.0	6.0	5.7	5.9
5/2		5.5	5.4	5.5	5.9	6.2		7.2	6.3	6.6	5.8	6.4	6.5
5/3		6.2	5.9	6.1	6.4	6.7		7.7	6.5	6.8	6.1	6.5	6.7
5/4		5.7	5.6	5.7	6.2	6.4		7.4	6.4	6.5	5.8	6.3	6.5

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
5/5		5.3	5.5	5.7	6.1	6.4		7.2	6.3	6.3	5.7	6.5	6.6
5/6		6.4	6.3	6.3	6.7	7.1		7.7	6.6	6.8	6.0	7.2	7.3
5/7		6.5	7.2	7.4	7.7	8.3		8.7	6.7	6.7	6.8	8.2	8.2
5/8		6.2	7.6	8.0	8.5	9.2		9.3	6.7	6.7	7.3	8.3	8.3
5/9		5.1	6.5	6.9	7.9	8.6		8.6	6.6	6.5	6.3	7.2	7.3
5/10		5.8	5.9	6.2	6.9	7.4		7.6	6.9	7.0	5.8	6.4	6.6
5/11		6.6	7.2	7.2	7.3	7.9		8.4	8.1	8.3	5.7	6.9	7.2
5/12		6.7	7.7	8.0	8.6	9.4		9.2	8.6	8.7	6.7	8.2	8.4
5/13		6.9	8.5	8.9	9.5	10.5		10.2	9.3	9.3	7.8	8.8	9.0
5/14		7.2	8.9	9.4	10.2	11.4		10.6	9.0	9.0	8.7	8.5	8.6
5/15		7.2	9.0	9.6	10.5	11.6		10.7	9.0	9.0	9.0	7.6	7.7
5/16		7.0	8.6	9.2	10.3	11.3	8.9	10.5	8.6	8.7	8.7	7.2	7.4
5/17		6.8	8.2	8.6	9.8	10.9	8.6	10.0	8.6	8.6	8.3	7.3	7.5
5/18		6.6	7.5	8.1	9.2	10.0	7.8	9.5	8.0	8.0	7.8	7.3	7.4
5/19		7.5	7.9	8.3	9.1	10.0	7.8	9.1	8.1	8.0	7.5	7.6	7.8
5/20		7.9	8.3	8.6	9.3	9.9	7.8	9.0	7.7	7.6	8.0	7.4	7.6
5/21		7.8	8.3	8.7	9.1	9.4	8.4	9.2	7.7	7.8	8.6	6.8	7.0
5/22		7.1	7.7	8.1	8.6	8.9	8.3	9.5	8.0	8.0	7.9	6.2	6.4
5/23		6.9	7.2	7.4	7.7	7.9	7.7	8.8	7.7	7.8	7.5	6.0	6.2
5/24		7.1	7.4	7.6	7.8	8.1	8	9.1	7.6	7.9	7.4	6.9	7.1
5/25		6.9	8.0	8.2	8.6	9.0	8.5	9.9	7.8	8.0	7.6	7.4	7.6
5/26		7.2	8.4	8.7	9.1	9.8	8.7	10.3	7.9	8.1	8.1	7.9	8.1
5/27		7.2	8.0	8.3	9.0	9.4	8.2	9.9	7.7	7.9	8.1	7.3	7.6
5/28		7.2	8.1	8.4	8.8	9.3	8.1	9.4	7.6	7.8	8.1	7.2	7.4
5/29		7.0	7.8	8.1	8.6	9.1	8.1	9.3	7.6	7.9	7.8	7.5	7.6
5/30		7.6	8.4	8.6	8.9	9.5	8.3	9.6	7.8	8.1	8.1	7.6	7.8
5/31		7.7	8.5	8.9	9.4	9.7	8.6	9.8	7.8	8.0	8.5	7.9	8.0
6/1		8.4	8.8	9.1	9.3	9.6	9.2	10.1	8.2	8.2	8.8	7.3	7.5
6/2		8.1	8.9	9.1	9.5	9.8	9.4	10.7	9.1	8.7	8.6	6.8	7.0
6/3		7.5	8.4	8.6	9.1	9.5	8.5	10.1	8.5	8.4	8.2	6.8	7.0
6/4		7.6	8.1	8.3	8.7	8.9	8.1	9.3	7.8	8.0	8.0	6.7	6.9

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
6/5		7.1	7.8	8.1	8.5	8.7	8.1	9.0	7.8	8.1	7.8	6.8	7.0
6/6		7.4	7.8	7.9	8.3	8.6	8.1	9.2	7.9	8.2	7.6	6.9	7.1
6/7		8.5	7.9	7.9	8.2	8.5	8.1	9.0	8.1	8.4	7.8	6.8	7.2
6/8		7.1	8.4	8.4	8.8	9.1	8.2	9.4	7.9	8.2	7.7	7.2	7.5
6/9		7.4	7.7	7.9	8.4	8.7	8.1	9.2	8.0	8.3	7.6	7.0	7.3
6/10		7.8	8.5	8.6	9.0	9.3	8.2	9.5	8.1	8.3	7.9	7.8	8.0
6/11		8.4	9.6	9.8	10.4	10.9	8.9	10.3	8.4	8.7	8.4	9.0	9.1
6/12		8.6	9.7	10.0	10.7	11.1	8.9	10.4	8.6	8.6	9.0	8.6	8.8
6/13		7.8	8.8	9.0	9.4	9.7	9.4	10.3	8.7	8.6	8.6	7.7	7.9
6/14		7.9	8.3	8.5	8.8	9.0	8.5	9.8	8.3	8.4	8.2	7.2	7.4
6/15		8.3	9.2	9.3	9.7	10.1	8.9	10.1	8.5	8.8	8.4	8.4	8.6
6/16		8.4	9.3	9.6	10.1	10.5	9.1	10.5	8.9	8.7	9.1	8.4	8.6
6/17		7.9	9.3	9.6	9.9	10.2	10	11.0	8.7	8.7	9.3	7.8	8.0
6/18		7.8	8.4	8.7	9.0	9.2	9	10.2	8.6	8.7	8.7	7.1	7.4
6/19		7.8	8.4	8.6	8.9	9.1	8.9	10.0	8.4	8.7	8.5	7.5	7.7
6/20		8.1	9.4	9.5	10.0	10.4	10.1	11.0	8.5	8.8	8.9	8.4	8.6
6/21		8.3	9.7	10.0	10.6	11.1	10.4	11.9	8.7	8.9	9.4	9.1	9.3
6/22		8.1	9.2	9.6	10.1	10.4	9.6	11.2	8.5	8.7	9.3	8.1	8.3
6/23		8.0	9.1	9.3	9.7	9.9	9.8	10.8	8.5	8.8	9.1	7.7	8.0
6/24		8.1	8.7	8.9	9.4	9.7	9.6	10.6	8.7	9.0	8.9	7.9	8.1
6/25		7.8	8.8	9.1	9.6	9.9	9.5	10.7	8.5	8.8	8.9	8.4	8.6
6/26		8.1	8.5	8.8	9.2	9.5	9.2	10.4	8.7	8.9	8.8	7.9	8.1
6/27		8.2	9.7	9.8	10.3	10.7	10	10.9	8.7	9.1	9.0	8.5	8.7
6/28		8.3	9.8	10.2	11.0	11.6	10.4	12.0	8.8	9.2	9.6	9.4	9.5
6/29		9.1	9.9	10.1	10.8	11.4	10.1	11.9	9.0	9.3	9.9	9.0	9.2
6/30		9.0	10.2	10.4	11.0	11.4	10.1	11.7	9.4	9.4	10.2	9.0	9.2
7/1		7.6	9.3	9.9	10.6	11.1	10.3	11.6	9.8	9.6	10.0	9.0	9.2
7/2		7.6	8.9	9.3	9.9	10.4	9.7	11.3	9.3	9.8	9.8	8.9	9.1
7/3		7.3	8.6	9.1	9.5	9.9	9.6	11.0	9.2	9.6	9.6	9.0	9.2
7/4		7.6	9.1	9.4	9.9	10.3	10.2	11.3	9.4	10.2	9.4	9.1	9.3
7/5		7.8	9.4	9.8	10.6	11.1	10.9	12.1	9.6	10.4	9.7	10.2	10.3

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
7/6		7.9	9.7	10.2	11.1	11.9	11.1	12.8	9.7	10.5	10.2	10.6	10.8
7/7		8.2	10.0	10.5	11.6	12.5	11.3	13.0	9.8	10.7	10.7	11.0	11.1
7/8		8.4	10.5	11.0	12.3	13.2	11.6	13.5	9.9	10.9	11.4	11.3	11.4
7/9		8.5	10.4	11.1	12.4	13.4	11.7	13.8	9.9	10.8	11.8	11.2	11.3
7/10		8.3	10.4	11.1	12.3	13.1	11.3	13.1	9.5	10.3	11.6	11.0	11.1
7/11		8.5	10.5	11.0	12.3	13.3	11.4	13.3	9.5	10.6	11.6	11.5	11.6
7/12		8.6	10.7	11.2	12.6	13.7	11.4	13.5	9.5	10.4	11.9	12.1	12.2
7/13		8.6	10.2	11.0	12.2	13.1	11.1	13.0	9.4	9.7	12.0	12.2	12.1
7/14		8.7	10.1	10.6	11.6	12.5	10.7	12.7	9.4	9.8	12.0	12.1	11.9
7/15		8.7	9.8	10.3	11.2	12.2	10.7	12.6	9.7	10.0	12.0	11.9	11.8
7/16		8.2	10.1	10.6	11.7	12.6	11	12.8	9.3	10.4	11.8	12.3	12.3
7/17		8.6	9.9	10.4	11.4	12.4	10.8	13.0	9.6	10.3	12.3	12.5	12.5
7/18		8.4	10.1	10.5	11.5	12.2	10.7	12.5	9.4	10.3	12.4	12.5	12.4
7/19		8.6	10.3	10.8	12.0	13.0	11.2	13.1	9.7	10.7	12.4	13.6	13.5
7/20		8.5	9.7	10.3	11.2	12.2	10.9	12.8	9.7	10.3	12.6	12.8	12.7
7/21		8.5	9.8	10.2	11.1	12.0	10.7	12.7	9.6	10.6	12.3	12.5	12.4
7/22		8.3	9.2	9.7	10.5	11.3	10.2	12.2	9.7	10.3	11.9	12.4	12.4
7/23		8.3	9.0	9.3	9.9	10.5	9.8	11.3	9.5	10.1	11.1	11.4	11.4
7/24		8.3	9.8	10.0	10.9	11.5	10.5	11.9	9.7	10.6	11.1	12.2	12.3
7/25		8.9	10.4	10.6	11.7	12.6	11.1	12.8	10.0	11.0	11.5	13.6	13.7
7/26		9.1	10.7	11.1	12.4	13.3	11.3	13.2	10.3	11.2	12.2	14.1	14.5
7/27		8.8	9.8	10.3	11.3	12.2	10.7	12.5	10.1	10.7	12.2	13.6	13.7
7/28		8.8	9.9	10.2	11.0	11.6	10.3	11.9	10.0	10.8	12.0	14.3	13.9
7/29		8.9	10.0	10.4	11.3	12.0	10.5	12.2	10.2	11.0	12.0	14.7	14.4
7/30		8.9	9.7	10.0	10.8	11.6	10.4	11.9	10.2	10.8	11.9	14.2	13.8
7/31		8.9	9.8	10.2	10.9	11.5	10.4	11.8	10.3	10.9	11.8	14.7	
8/1		8.9	10.3	10.5	11.4	12.1	10.8	12.1	10.4	11.2	11.7	15.2	
8/2		9.0	9.9	10.3	11.2	12.1	10.9	12.3	10.6	11.3	11.7	15.3	
8/3		9.3	10.5	10.7	11.6	12.5	11.1	12.5	11.2	11.9	11.8	15.4	
8/4		9.5	10.8	11.1	12.3	13.3	11.5	13.1	11.9	12.5	12.4	16.5	
8/5		9.8	11.3	11.6	12.9	13.9	11.7	13.6	12.2	12.9	13.1	17.2	

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
8/6		9.9	11.1	11.3	12.5	13.5	11.5	13.2	12.0	12.5	13.4	16.8	
8/7		9.7	10.8	11.2	12.1	12.7	11.2	12.5	11.6	11.9	13.2	15.7	
8/8		9.4	10.4	10.7	11.6	12.5	11.2	12.4	11.5	12.0	13.0	15.6	
8/9		9.4	10.4	10.7	11.4	11.9	11	12.3	11.4	12.0	12.6	16.0	
8/10		9.6	10.8	11.0	11.9	12.7	11.5	12.9	11.7	12.4	12.5	16.4	
8/11		9.9	11.0	11.2	12.1	13.0	11.7	13.3	12.0	12.7	12.5	16.9	
8/12		10.0	11.3	11.5	12.6	13.5	12	13.7	12.2	12.9	12.8	17.5	
8/13		10.0	11.4	11.7	12.8	13.7	12.1	13.9	12.4	13.0	13.0	17.8	
8/14		10.0	11.2	11.5	12.5	13.6	12.2	13.9	12.3	12.9	12.7	17.5	
8/15		10.3	11.5	11.7	12.7	13.7	12.2	13.9	12.4	13.1	12.9	17.9	
8/16		10.3	11.6	11.8	12.9	13.9	12.4	14.1	12.0	12.8	13.1	18.3	
8/17		10.5	11.7	11.9	13.0	14.0	12.6	14.3	11.9	12.7	13.4	18.2	
8/18		10.6	11.7	11.9	13.0	13.9	12.6	14.3	12.1	12.7	13.4	17.9	
8/19		10.7	11.5	11.7	12.6	13.3	12.3	13.8	12.0	12.6	13.1	17.0	
8/20		10.7	11.8	11.9	12.7	13.4	12.5	13.7	12.3	13.0	12.9	16.9	
8/21		10.6	11.3	11.6	12.3	12.9	12	13.4	12.4	12.8	12.5	16.4	
8/22		10.3	11.3	11.4	12.1	12.8	12.1	13.2	12.3	13.0	12.2	16.3	
8/23		10.1	10.9	11.2	11.9	12.7	12	13.1	12.3	12.7	11.9	16.1	
8/24		10.4	10.9	10.9	11.5	12.3	11.9	12.9	12.3	12.9	11.4	15.4	
8/25		10.7	11.3	11.2	11.8	12.4	12	12.8	12.4	13.0	11.3	15.7	
8/26		10.6	11.5	11.5	12.1	12.6	12.1	13.1	12.5	13.0	11.4	15.9	
8/27		10.5	11.3	11.5	12.2	12.8	12.3	13.4	12.7	13.3	11.5	16.1	
8/28		10.6	11.2	11.3	11.9	12.5	12	13.2	12.4	13.0	11.4	15.8	
8/29		10.5	11.1	11.3	11.9	12.5	11.2	12.6	11.5	11.9	11.3	15.2	
8/30		10.5	11.1	11.2	11.8	12.5	11.2	12.4	11.4	11.9	11.3	15.4	
8/31		10.4	11.1	11.2	11.7	12.1	11.3	12.2	11.2	11.5	10.9	15.5	
9/1		10.7	11.0	11.0	11.4	12.0	11.2	12.2	11.4	11.9	10.6	15.4	
9/2		10.8	11.4	11.3	11.8	12.2	11.3	12.2	11.5	11.9	10.6	15.4	
9/3		10.7	11.3	11.2	11.6	12.0	11.2	12.1	11.5	11.9	10.4	15.3	
9/4		10.9	11.4	11.3	11.7	12.2	11.4	12.2	11.6	12.2	10.4	15.5	
9/5		11.0	11.7	11.6	12.1	12.5	11.6	12.6	11.8	12.4	10.8	16.1	

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
9/6		11.1	11.7	11.6	12.2	12.7	11.7	12.7	12.0	12.5	10.9	16.4	
9/7		11.2	11.8	11.7	12.3	12.8	11.8	12.9	12.0	12.7	11.2	16.6	
9/8		11.3	11.9	11.9	12.4	12.8	11.8	12.9	12.1	12.7	11.5	16.6	
9/9		10.9	11.5	11.7	12.4	12.7	11.9	12.9	12.1	12.6	11.5	16.0	
9/10		10.5	11.1	11.2	11.6	11.9	11.6	12.3	11.9	12.4	11.0	14.7	
9/11		10.3	10.5	10.5	10.6	11.0	11.1	11.7	11.6	12.0	10.1	13.8	
9/12		10.3	10.5	10.4	10.5	10.7	11	11.3	11.5	11.9	9.7	13.3	
9/13		10.4	10.8	10.7	10.9	11.1	11.3	11.7	11.7	12.2	10.1	13.6	
9/14		8.9	8.6	8.4	8.6	8.9	10.7	10.7	11.0	11.7	10.6	14.3	
9/15		10.9	11.2	11.1	11.0	10.8	11.7	12.1	12.0	12.5	10.7	14.5	
9/16		11.2	11.4	11.3	11.5	11.8	12	12.4	12.3	12.7	10.6	14.7	
9/17		11.2	11.6	11.6	11.8	12.1	12.2	12.6	12.5	13.0	10.8	14.9	
9/18		11.4	11.9	11.9	12.1	12.4	12.3	12.8	12.7	13.2	11.1	15.2	
9/19		11.3	11.8	11.8	12.0	12.4	12.3	12.8	12.7	13.2	11.1	15.3	
9/20		11.3	11.8	11.8	12.1	12.4	12.4	13.5	12.8	13.2	11.1	15.2	
9/21		11.1	11.5	11.7	12.1	12.2	12.5	12.8	12.7	13.1	11.0	14.5	
9/22		10.8	11.2	11.4	11.8	12.0	12.4	12.8	12.7	13.1	10.7	13.8	
9/23		10.7	11.0	11.0	11.2	11.4	12.4	12.5	12.5	12.8	10.3	13.4	
9/24		10.8	11.2	11.2	11.5	11.6	12.6	12.8	12.7	13.0	10.3	13.7	
9/25		10.7	11.3	11.4	11.7	11.9	12.6	12.9	12.9	13.2	10.4	13.9	
9/26		10.6	10.9	10.9	11.1	11.4	12.7	12.7	12.7	12.9	10.1	13.5	
9/27		9.2	10.9	10.9	11.1	11.2	12.8	12.9	12.9	13.1	10.1	13.7	
9/28		6.4	7.9	8.6	10.1	11.0	12.8	13.2	13.2	13.5	10.4	13.7	13.7
9/29		6.3	7.4	7.9	8.9	9.8	12.4	13.0	13.0	13.6	10.5	14.0	14.0
9/30		6.1	6.8	7.1	7.6	8.4	12.1	12.3	12.5	12.8	9.8	13.1	13.1
10/1		6.3	7.2	7.3	7.7	8.3	12.4	12.5	12.6	13.1	9.8	13.2	13.2
10/2		6.0	7.3	7.4	8.1	8.7	12.6	12.7	12.8	12.9	9.5	13.4	13.4
10/3		5.8	6.3	6.3	6.8	7.4	12.6	12.0	12.3	12.2	8.6	11.7	12.0
10/4		5.9	6.2	6.2	6.4	6.8	12.4	12.0	12.2	12.2	8.4	11.0	11.5
10/5		5.9	6.3	6.2	6.4	6.7	12.6	12.0	12.3	12.3	8.4	10.7	11.4
10/6		5.9	6.3	6.2	6.4	6.7	12.4	12.1	12.3	12.3	8.6	10.5	11.3

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
10/7		6.1	6.5	6.4	6.6	7.0	12.5	12.2	12.4	12.5	8.8	10.7	11.5
10/8		6.1	6.6	6.6	6.9	7.3	12.5	12.4	12.6	12.6	8.9	11.0	11.8
10/9		6.1	6.6	6.7	7.0	7.3	12.4	12.3	12.4	12.4	8.8	10.6	11.4
10/10		6.1	6.5	6.5	6.8	7.2	12.4	12.1	12.3	12.3	8.5	10.3	11.1
10/11		6.0	6.8	6.8	7.3	7.7	12.6	12.4	12.6	12.7	8.5	11.1	11.9
10/12		6.1	6.6	6.7	7.0	7.3	12.5	12.3	12.5	12.5	8.5	10.4	11.4
10/13		6.3	7.9	8.2	8.3	8.3	11.3	12.0	12.2	12.8	9.2	10.7	11.5
10/14		6.5	9.0	9.4	9.6	9.6	10.9	11.7	12.0	12.5	10.5	10.7	11.1
10/15		6.5	9.4	10.0	10.3	10.5	10.9	11.2	11.5	12.2	10.6	10.9	11.1
10/16		6.2	8.6	9.1	9.5	9.8	10.2	11.0	11.1	11.7	10.0	10.3	10.4
10/17		6.0	7.3	7.8	8.2	8.6	10.8	10.6	10.9	11.2	9.2	9.4	9.6
10/18		6.2	7.2	7.5	7.9	8.2	10.9	10.9	11.1	11.3	9.3	9.6	9.9
10/19		10.2	9.3	9.3	9.4	9.4	10.1	10.7	10.8	11.2	9.9	10.1	10.3
10/20		8.5	7.9	8.0	8.2	8.3	8.6	9.1	9.6	10.1	8.6	8.6	8.6
10/21		8.3	7.5	7.4	7.6	7.7	9.1	8.9	9.4	9.6	7.9	8.2	8.0
10/22		8.2	7.0	6.9	6.8	6.9	9.3	8.8	9.3	9.4	7.5	8.0	7.5
10/23		8.0	7.1	7.0	7.1	7.2	9	8.9	9.4	9.7	7.4	8.0	7.9
10/24		8.1	7.1	7.0	7.0	7.0	9.2	8.9	9.5	9.7		7.8	7.9
10/25		8.1	7.4	7.3	7.3	7.4	9.3	9.2	9.6	9.8		7.9	8.1
10/26		8.1	7.3	7.2	7.2	7.2	9.6	9.3	9.7	9.8		7.9	8.1
10/27		8.6	7.8	7.7	7.8	7.8	8.9	9.4	9.5	9.9		7.6	7.9
10/28		9.3	8.6	8.8	8.9	8.9	8.9	9.3	9.4	9.8		8.0	8.2
10/29		9.4	9.0	9.2	9.3	9.4	9.2	9.8	9.4	9.8		8.5	8.7
10/30		9.3	9.1	9.3	9.4	9.5	9.4	10.0	9.6	9.8		8.5	8.7
10/31		8.4	9.2	9.4	9.6	9.7	9.5	10.2	9.6	9.8		8.7	8.9
11/1		6.3	8.3	8.6	9.0	9.2	9.1	9.9	9.4	9.6		8.8	9.0
11/2		6.4	8.1	8.5	8.8	9.0	9	9.8	9.3	9.5		8.8	9.0
11/3		6.4	7.9	8.3	8.6	8.9	8.9	9.8	9.2	9.4		8.9	9.1
11/4		6.5	8.4	8.8	9.0	9.2	9	9.8	9.2	9.4		9.0	9.2
11/5		6.4	8.5		9.2	9.4	9.1	10.0	9.4	9.5		9.3	9.4
11/6		6.3	7.5		8.2	8.4	8.5	9.2	9.2	9.4		8.4	8.6

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
11/7		6.0	7.1			8.0	8.1	8.9	8.7	8.9		8.2	8.4
11/8		5.9				6.6	7.3	7.5	8.7	8.8		6.8	7.3
11/9		5.9				6.1	6.9	6.9	8.4	8.5		6.3	6.8
11/10		5.8				5.4	6.4	6.3	8.2	8.3		5.8	6.5
11/11		5.8				4.9	6.2	6.0	8.1	8.2		5.2	6.1
11/12		6.1				6.0	6.1	6.5	8.1	8.3		5.4	6.3
11/13		6.2				7.0	6.9	7.1	8.1	8.3		5.9	6.6
11/14		6.2				7.4	7.4	7.7	8.1	8.3		6.5	7.0
11/15		6.1				6.4	6.7	7.0	7.9	8.0		6.1	6.5
11/16		6.1				5.9	6.5	6.4	7.8	7.9		5.6	6.2
11/17		6.2				6.7	7.1	7.3	7.9	8.1		6.3	6.9
11/18		6.1				6.6	6.9	7.3	7.7	7.9		6.5	6.9
11/19		6.3				7.1	7.2	7.5	7.7	7.9		6.5	6.9
11/20		6.4				7.6	7.5	8.0	7.7	7.9		6.5	6.8
11/21		6.2				6.9	6.9	7.5	7.4	7.6		6.5	6.7
11/22		6.2				6.4	6.5	7.0	7.1	7.3		6.0	6.3
11/23		6.4				6.8	6.9	7.2	7.2	7.4		6.2	6.5
11/24		6.5				7.0	6.9	7.4	7.2	7.4		6.1	6.3
11/25		6.2				6.0	6.1	6.5	6.8	7.0		5.9	6.1
11/26		6.1				5.1	5.5	5.7	6.6	6.7		5.1	5.4
11/27		6.0				5.2	5.5	5.7	6.6	6.8		5.0	5.4
11/28		6.3				5.9	6.1	6.3	6.7	6.9		5.4	5.8
11/29		6.4				6.6	6.6	7.0	6.8	7.0		6.0	6.4
11/30		6.3				6.9	6.8	7.4	6.8	7.0		6.3	6.7
12/1		6.2				7.0	6.9	7.5	6.9	7.1		6.6	6.8
12/2		6.1				6.8	6.6	7.3	6.8	6.9		6.3	6.5
12/3		6.2				6.8	6.7	7.2	6.7	6.8		5.8	5.6
12/4		6.3				7.0	6.9	7.4	6.8	6.9		6.1	5.5
12/5		6.0				6.7	6.6	7.2	6.7	6.8		5.9	6.2
12/6		5.9				5.9	5.8	6.7	6.3	6.5		5.5	6.5
12/7		5.8				5.5	5.5	6.0	6.1	6.3		5.0	6.6

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
12/8		5.6				4.2		4.2	5.4	5.7		4.2	6.3
12/9		5.5				4.9	5	4.9	5.6	5.8		4.5	5.9
12/10		5.5				4.9	5	5.3	5.6	5.9		4.9	6.1
12/11		5.3				5.0	5	5.4	5.7	5.9		5.0	5.9
12/12		5.1				4.6	4.5	5.1	5.3	5.6		4.9	5.4
12/13		5.0				5.0	5	5.4	5.4	5.7		5.1	5.0
12/14		4.9				4.8	4.8	5.4	5.4	5.6		4.8	4.1
12/15		4.8				4.2		4.8	5.0	5.2		4.1	4.6
12/16		4.9				3.7		4.4	4.8	5.1		3.7	5.0
12/17		4.8				3.7	4	4.4	4.5	5.0		3.6	5.0
12/18		4.6				3.4		3.9	4.3	4.7		3.4	5.0
12/19		4.5				3.6	3.8	4.3	4.5	4.7		3.4	5.2
12/20		4.4				3.6	3.8	4.3	4.4	4.7		3.3	4.9
12/21		4.3				4.1	4.1	4.3	4.4	4.6		3.5	4.2
12/22		4.3				4.3		4.7	4.6	4.7		4.0	3.9
12/23		4.3				4.3	4.3	5.0	4.7	4.8		4.3	3.6
12/24		4.2				4.1	4.1	4.9	4.7	4.7		4.5	3.6
12/25		4.1				4.1	4.1	4.7	4.5	4.6		4.1	3.5
12/26		4.0				4.3	4.2	4.9	4.5	4.5		4.2	3.6
12/27		3.9				4.0	3.9	4.8	4.5	4.6		4.4	3.8
12/28		3.9				4.0	3.9	4.7	4.4	4.5		4.4	4.3
12/29		3.9				4.1	3.9	4.6	4.3	4.4		4.1	4.6
12/30		3.8				3.8	3.7	4.4	4.1	4.2		3.9	4.7
12/31		3.7				3.4	3.4	3.9	3.8	3.8		3.2	4.3

APPENDIX C

2012 Seven-Day Average of the Daily Maximum (7-DAD Max) Water Temperature in Tabular Format

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
1/1		4.1	4.5	4.9	5.1	5.2	5.0	5.6		4.5	5.3	4.9	4.9
1/2		4.1	4.5	4.8	5.1	5.2	5.1	5.6		4.6	5.3	5.0	5.0
1/3		4.0	4.4	4.7	4.9	5.1	5.1	5.6		4.8	5.2	4.9	5.0
1/4	3.4	4.0	4.4	4.7	4.9	5.1	5.1	5.5		4.5	5.3	4.9	5.0
1/5	3.5	4.0	4.5	4.8	5.0	5.2	4.8	5.6		4.7	5.4	5.0	5.1
1/6	3.5	4.0	4.5	4.9	5.1	5.3	4.5	5.8		4.3	5.5	5.1	5.1
1/7	3.6	4.0	4.5	4.9	5.1	5.3	4.3	5.8		4.2	5.4	5.2	5.2
1/8	3.4	3.9	4.3	4.6	4.8	5.0	4.2	5.5		4.4	5.1	5.0	5.0
1/9	3.2	3.9	4.0	4.4	4.4	4.6	3.9	5.1		4.4	4.8	4.7	4.7
1/10	3.1	3.9	3.9	4.3	4.3	4.4	3.6	4.8		4.4	4.7	4.4	4.5
1/11	3.0	3.9	3.8	4.2	4.1	4.3	3.3	4.6		4.0	4.6	4.3	4.3
1/12	2.7	3.8	3.5	3.9	3.7	3.8	3.1	4.2		3.7	4.1	3.9	4.0
1/13	2.3	3.7	3.2	3.5	3.3	3.3	3.0	3.8		3.6	3.6	3.5	3.7
1/14	1.9	3.7	2.9	3.1	2.8	2.8	2.8	3.4		3.8	3.2	3.1	3.4
1/15	1.6	3.6	2.7	2.9	2.5	2.5	2.7	3.1		3.7	2.8	2.7	3.0
1/16	1.4	3.5	2.5	2.7	2.3	2.3	2.8	2.9		3.7	2.5	2.4	2.8
1/17	1.2	3.5	2.4	2.6	2.1	2.1	2.9	2.8		3.7	2.3	2.3	2.6
1/18	1.1	3.4	2.3	2.5	2.1	2.0	3.0	2.6		3.6	2.2	2.2	2.6
1/19	1.2	3.3	2.3	2.5	2.2	2.2	3.1	2.7		3.1	2.4	2.3	2.6
1/20	1.4	3.2	2.4	2.6	2.4	2.4	3.3	2.8		3.0	2.6	2.5	2.7
1/21	1.6	3.2	2.6	2.7	2.6	2.6	3.5	2.9		2.9	2.8	2.7	2.9
1/22	1.8	3.2	2.7	2.9	2.9	3.0	3.6	3.2		3.1	3.2	3.2	3.2
1/23	2.0	3.2	2.9	3.0	3.2	3.3	3.7	3.4		3.3	3.5	3.5	3.5
1/24	2.2	3.2	3.0	3.1	3.4	3.5	3.7	3.6		3.3	3.6	3.8	3.7
1/25	2.3	3.2	3.0	3.1	3.4	3.6	3.9	3.8		3.5	3.7	3.8	3.8
1/26	2.4	3.2	3.0	3.2	3.5	3.6	3.9	3.9		3.7	3.8	4.0	3.9
1/27	2.5	3.2	3.1	3.2	3.5	3.7	4.0	4.1		3.3	3.9	4.0	4.0
1/28	2.6	3.1	3.2	3.3	3.6	3.8	4.0	4.2		3.1	4.0	4.1	4.1
1/29	2.7	3.1	3.2	3.3	3.7	3.9	4.1	4.3		3.6	4.0	4.2	4.2
1/30	2.7	3.1	3.2	3.3	3.7	3.9	4.1	4.4		4.0	4.1	4.3	4.2
1/31	2.8	3.1	3.2	3.3	3.7	4.0	4.0	4.5		3.9	4.1	4.4	4.4

	Sultan River											Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
2/1	2.8	3.1	3.2	3.3	3.7	4.0	3.9	4.6		3.9	4.2	4.6	4.7
2/2	2.9	3.0	3.2	3.3	3.7	4.0	3.8	4.6		3.5	4.5	4.7	4.5
2/3	2.9	3.0	3.1	3.2	3.6	3.9	3.9	4.5		3.4	4.8	4.7	4.6
2/4	2.9	3.0	3.1	3.1	3.5	3.9	4.0	4.5		3.5	5.1	4.8	4.6
2/5	2.9	3.0	3.1	3.2	3.5	3.9	4.2	4.5		3.4	5.4	4.9	4.3
2/6	3.0	3.0	3.1	3.3	3.6	4.0	4.3	4.6		3.4	5.7	5.0	4.5
2/7	3.0	3.0	3.3	3.5	3.8	4.2	4.4	4.8		3.6	6.2	5.1	4.8
2/8	3.1	3.1	3.5	3.7	4.0	4.4	4.5	5.0		3.6	6.5	5.2	4.7
2/9	3.2	3.1	3.6	3.9	4.2	4.6	4.5	5.2		3.7	6.6	5.3	4.9
2/10	3.3	3.2	3.8	4.0	4.4	4.8	4.4	5.4		4.3	6.5	5.5	5.6
2/11	3.3	3.2	3.9	4.2	4.5	5.0	4.4	5.5		4.4	6.1	5.5	5.5
2/12	3.3	3.2	3.9	4.2	4.5	4.9	4.3	5.5		4.3	5.8	5.5	5.4
2/13	3.2	3.2	3.8	4.1	4.4	4.8	4.2	5.4		4.1	5.4	5.5	5.4
2/14	3.2	3.2	3.8	4.1	4.4	4.7	4.1	5.3		4.1	5.2	5.4	5.1
2/15	3.2	3.2	3.7	4.0	4.3	4.6	4.1	5.1		4.1	4.8	5.4	5.1
2/16	2.9	3.2	3.6	3.8	4.1	4.3	4.1	5.0		3.7	4.2	5.2	4.5
2/17	2.7	3.2	3.5	3.6	4.0	4.2	4.3	4.9		4.2	4.0	4.9	5.3
2/18	2.5	3.3	3.4	3.5	3.9	4.1	4.2	4.8		3.9	4.0	4.8	5.0
2/19	2.5	3.3	3.5	3.5	3.9	4.2	4.2	4.9		3.8	4.0	4.7	4.3
2/20	2.5	3.4	3.5	3.6	4.0	4.3	4.3	5.0		3.8	4.1	4.7	4.2
2/21	2.4	3.3	3.5	3.5	4.0	4.3	4.2	5.0		4.7	3.8	4.5	4.6
2/22	2.4	3.3	3.4	3.4	3.9	4.2	4.1	5.0		5.0	3.9	4.4	4.5
2/23	2.5	3.3	3.5	3.5	4.0	4.3	4.0	5.0		4.6	4.0	4.4	4.8
2/24	2.5	3.3	3.4	3.4	3.9	4.2	3.7	5.0		4.3	3.9	4.4	4.7
2/25	2.6	3.2	3.3	3.3	3.8	4.2	3.5	4.9		4.2	3.8	4.3	4.7
2/26	2.4	3.1	3.2	3.2	3.7	4.0	3.4	4.8		4.0	3.6	4.3	3.9
2/27	2.3	3.0	3.0	2.9	3.4	3.7	3.3	4.6		3.6	3.3	4.1	4.2
2/28		3.0	2.9	2.8	3.2	3.5	3.4	4.4		3.4	3.1	4.1	3.8
2/29		3.0	2.8	2.7	3.1	3.3	3.3	4.2		3.4	2.9	4.0	3.9
3/1		3.0	2.8	2.7	3.1	3.3	3.3	4.3		3.2	2.9	4.3	4.1
3/2		3.1	2.9	2.7	3.1	3.4	3.5	4.3		3.4	3.0	4.4	4.3
3/3		3.0	2.9	2.7	3.1	3.4	3.5	4.2		3.7	3.0	4.5	4.3

	Sultan River									Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
3/4		3.1	2.9	2.7	3.1	3.4	3.6	4.2		4.1	3.0	4.6	4.4
3/5		3.1	3.0	2.8	3.2	3.6	3.6	4.3		3.8	3.1	4.8	4.6
3/6		3.2	3.1	2.9	3.3	3.7	3.6	4.3		3.9	3.3	4.9	4.7
3/7		3.1	3.2	3.0	3.4	3.8	3.6	4.4		3.4	3.4	5.0	4.8
3/8		3.1	3.3	3.0	3.4	3.8	3.6	4.4		3.9	3.4	5.0	4.8
3/9		3.1	3.3	3.0	3.4	3.8	3.5	4.3		3.7	3.4	4.8	4.7
3/10		3.0	3.2	3.0	3.4	3.7	3.5	4.4		4.0	3.4	4.9	4.7
3/11		3.0	3.1	2.9	3.4	3.7	3.6	4.5		4.4	3.4	4.8	4.7
3/12		3.0	3.1	2.9	3.3	3.7	3.6	4.4		4.0	3.4	4.6	4.6
3/13		2.9	3.1	2.8	3.3	3.7	3.6	4.5		3.9	3.4	4.6	4.6
3/14		2.9	3.1	2.9	3.4	3.7	3.7	4.5		3.5	3.4	4.5	4.6
3/15		2.9	3.1	2.9	3.4	3.8	3.8	4.5		4.2	3.4	4.5	4.6
3/16		2.8	3.1	2.9	3.4	3.8	4.0	4.5		4.4	3.3	4.8	4.7
3/17		2.9	3.2	3.0	3.4	3.9	4.0	4.5		4.1	3.3	4.8	4.8
3/18		2.9	3.3	3.1	3.5	4.0	4.0	4.7		4.2	3.4	5.1	5.1
3/19		2.9	3.4	3.3	3.6	4.1	4.1	4.8		4.4	3.3	5.4	5.3
3/20		2.9	3.4	3.3	3.6	4.2	4.2	4.8		4.3	3.3	5.7	5.5
3/21		3.0	3.5	3.4	3.7	4.4	4.4	4.9		4.9	3.4	6.0	5.7
3/22		3.0	3.6	3.5	3.8	4.5	4.4	5.0		4.5	3.6	6.2	5.9
3/23		3.1	3.6	3.6	3.9	4.6	4.5	5.1		4.9	3.7	6.2	5.9
3/24		3.2	3.8	3.8	4.0	4.8	4.5	5.3		4.8	3.9	6.5	6.1
3/25		3.2	3.8	3.9	4.2	4.9	4.5	5.5		4.7	4.1	6.7	6.3
3/26		3.3	3.8	3.9	4.2	4.9	4.4	5.6		4.5	4.3	6.6	6.2
3/27		3.3	3.8	3.9	4.3	4.9	4.6	5.6		5.1	4.4	6.4	6.1
3/28		3.3	3.7	3.9	4.3	4.8	4.6	5.6		5.1	4.4	6.1	5.9
3/29		3.3	3.7	3.9	4.3	4.7	4.6	5.5		4.7	4.3	6.0	5.9
3/30		3.4	3.9	4.0	4.4	4.9	4.7	5.7		4.9	4.4	6.2	6.0
3/31		3.5	3.8	3.9	4.4	4.8	4.8	5.7		4.5	4.4	6.1	6.0
4/1		3.5	3.9	4.0	4.4	4.9	5.0	5.8		5.0	4.4	6.1	6.0
4/2		3.5	4.0	4.1	4.5	5.0	5.3	5.8		5.8	4.3	6.3	6.1
4/3		3.6	4.1	4.2	4.6	5.1	5.4	5.8		4.8	4.3	6.5	6.3
4/4		3.7	4.3	4.3	4.8	5.3	5.7	6.0		5.3	4.3	6.9	6.7

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
4/5		3.8	4.6	4.6	5.0	5.7	5.8	6.2		4.8	4.5	7.3	7.0
4/6		3.9	4.9	4.8	5.2	6.0	6.0	6.4	4.8	5.1	4.7	7.6	7.3
4/7		4.1	5.2	5.2	5.4	6.4	6.2	6.6	4.9	6.0	4.9	8.0	7.6
4/8		4.2	5.3	5.4	5.6	6.6	6.2	6.8	4.9	6.4	5.2	8.2	7.8
4/9		4.4	5.5	5.6	5.8	6.8	6.3	7.1	5.0	6.7	5.4	8.2	7.9
4/10		4.6	5.7	5.8	6.0	7.1	6.3	7.3	5.2	7.0	5.6	8.3	8.0
4/11		4.7	5.8	5.9	6.2	7.2	6.3	7.5	5.5	5.5	5.8	8.3	8.0
4/12		4.8	5.9	6.0	6.4	7.4	6.3	7.6	5.8	6.4	5.9	8.3	8.0
4/13		5.0	5.9	6.0	6.4	7.3	6.4	7.7	5.9	6.4	5.9	8.0	7.9
4/14		5.1	5.8	5.9	6.4	7.1	6.4	7.5	5.9	7.6	5.9	7.6	7.5
4/15		5.3	5.9	6.0	6.3	7.2	6.6	7.5	6.0	7.7	5.8	7.5	7.4
4/16		5.5	6.0	6.1	6.4	7.2	6.8	7.4	6.2	7.4	5.8	7.4	7.4
4/17		5.6	6.0	6.1	6.4	7.1	7.2	7.4	6.3	5.9	5.9	7.2	7.2
4/18		5.9	6.2	6.4	6.7	7.3	7.4	7.6	6.4	6.5	6.0	7.2	7.2
4/19		6.1	6.6	6.7	7.0	7.6	7.6	7.9	6.5	6.8	6.3	7.2	7.3
4/20		6.4	7.1	7.2	7.4	8.1	7.9	8.2	6.8	7.3	6.5	7.3	7.3
4/21		6.6	7.4	7.6	7.8	8.5	8.1	8.6	6.9	7.9	6.8	7.4	7.5
4/22		7.0	7.7	7.9	8.1	8.7	8.2	8.8	7.0	8.6	7.1	7.3	7.4
4/23		7.0	8.0	8.2	8.4	8.9	8.3	9.0	7.0	7.8	7.3	7.2	7.4
4/24		6.9	8.1	8.3	8.5	9.0	8.0	9.1	6.9	6.3	7.4	7.2	7.4
4/25		7.0	8.1	8.3	8.4	9.0	8.2	9.1	6.9	6.6	7.5	7.1	7.3
4/26		6.9	7.8	8.1	8.3	8.8	8.3	9.0	6.7	6.6	7.4	6.9	7.1
4/27		6.9	7.4	7.8	8.0	8.4		8.7	6.5	6.3	7.3	6.8	6.9
4/28		6.7	7.1	7.4	7.7	8.1		8.3	6.4	7.6	7.1	6.6	6.8
4/29		6.3	6.9	7.2	7.4	7.9		8.2	6.5	6.7	6.9	6.8	6.9
4/30		6.4	6.7	7.0	7.2	7.7		8.1	6.6	6.8	6.7	6.9	7.0
5/1		6.4	6.6	6.9	6.6	7.6		8.2	6.6	6.4	6.6	6.9	7.0
5/2		6.3	6.4	6.7	6.6	7.5		8.0	6.6	7.1	6.5	7.0	7.1
5/3		6.4	6.5	6.7	7.0	7.5		8.1	6.7	7.3	6.4	7.2	7.3
5/4		6.4	6.8	7.0	6.7	7.9		8.3	6.8	6.9	6.5	7.5	7.6
5/5		6.6	7.3	7.4	6.7	8.5		8.7	6.9	6.8	6.7	7.9	8.0
5/6		6.6	7.4	7.6	8.8	8.8		8.9	7.0	7.8	6.8	8.1	8.1

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
5/7		6.7	7.5	7.7	9.2	9.1		8.9	7.2	7.7	6.7	8.1	8.2
5/8		6.8	8.0	8.1	9.6	9.6		9.1	7.5	7.6	6.8	8.4	8.5
5/9		7.0	8.5	8.6	8.8	10.2		9.5	7.9	7.4	7.0	8.7	8.8
5/10		7.1	8.9	9.0	7.4	10.8	10.3	9.9	8.4	8.4	7.3	8.9	9.0
5/11		7.2	9.2	9.3	9.2	11.3	10.2	10.2	8.8	9.6	7.5	9.0	9.1
5/12		7.4	9.5	9.5	10.2	11.6	10.0	10.4	9.3	10.3	7.7	8.9	9.1
5/13		7.8	9.9	9.9	11.3	12.1	9.8	10.8	9.7	11.0	8.0	8.9	9.1
5/14		8.0	10.3	10.3	11.9	12.6	9.5	11.2	9.9	11.3	8.4	9.1	9.2
5/15		8.1	10.3	10.3	11.6	12.7	9.5	11.4	10.0	11.4	8.6	9.1	9.2
5/16		8.2	10.3	10.3	11.5	12.8	9.4	11.4	9.9	11.0	8.7	8.9	9.1
5/17		8.4	10.0	10.1	10.8	12.5	9.1	11.2	9.5	11.0	8.6	8.7	8.8
5/18		8.5	9.7	9.8	10.0	11.9	9.0	10.8	9.2	10.4	8.6	8.4	8.5
5/19		8.4	9.3	9.5	10.5	11.3	9.0	10.5	9.0	9.5	8.5	8.1	8.2
5/20		8.2	8.9	9.1	9.6	10.7	9.1	10.2	8.7	8.5	8.3	7.8	7.9
5/21		8.2	8.8	9.0	9.4	10.2	9.2	10.0	8.4	8.0	8.2	7.7	7.9
5/22		8.1	8.8	9.0	9.2	10.0	9.1	10.1	8.3	8.7	8.2	7.7	7.9
5/23		8.0	8.9	9.1	8.1	10.0	9.0	10.2	8.3	8.4	8.3	7.8	8.0
5/24		7.8	8.8	9.0	9.0	9.8	9.1	10.3	8.3	8.7	8.3	7.8	8.0
5/25		7.6	8.8	9.0	10.1	9.9	9.0	10.3	8.2	9.0	8.2	7.9	8.1
5/26		7.6	8.8	8.9	10.5	10.0	9.1	10.3	8.2	9.4	8.2	8.1	8.3
5/27		7.6	9.1	9.3	9.7	10.3	9.1	10.5	8.2	8.5	8.3	8.4	8.6
5/28		7.6	9.1	9.3	9.2	10.4	9.1	10.5	8.2	8.3	8.4	8.4	8.6
5/29		7.8	9.1	9.3	9.0	10.4	9.1	10.5	8.2	8.6	8.5	8.4	8.5
5/30		7.9	9.0	9.2	9.8	10.2	9.0	10.4	8.4	8.8	8.5	8.1	8.2
5/31		8.0	9.0	9.2	9.6	10.2	9.0	10.4	8.5	8.6	8.5	7.9	8.1
6/1		8.1	9.0	9.2	9.5	10.1	9.0	10.4	8.6	8.7	8.5	7.9	8.0
6/2		8.1	9.0	9.2	9.5	10.0	8.8	10.4	8.6	9.6	8.5	7.7	7.9
6/3		8.1	8.8	9.0	9.4	9.8	8.6	10.2	8.6	9.0	8.4	7.6	7.7
6/4		8.2	8.7	8.9	9.2	9.6	8.6	10.1	8.7	8.6	8.3	7.4	7.6
6/5		8.1	8.7	8.8	9.3	9.7	8.8	10.0	8.6	8.5	8.2	7.4	7.7
6/6		8.0	8.5	8.7	9.1	9.5	8.9	9.8	8.4	9.0	8.1	7.5	7.7
6/7		8.0	8.7	8.8	9.3	9.6	9.2	9.8	8.4	9.1	8.1	7.8	8.0

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
6/8		8.2	9.1	9.2	9.8	10.2	9.2	10.0	8.4	8.8	8.2	8.3	8.5
6/9		8.5	9.4	9.5	10.2	10.6	9.4	10.3	8.5	9.0	8.3	8.7	8.9
6/10		8.5	9.6	9.7	10.4	10.7	9.6	10.4	8.7	9.0	8.5	8.8	8.9
6/11		8.4	9.6	9.8	10.4	10.8	9.8	10.5	8.7	9.8	8.6	8.9	9.0
6/12		8.7	9.9	10.0	10.7	11.1	9.8	10.7	8.8	9.3	8.7	9.1	9.2
6/13		8.8	10.1	10.3	11.0	11.3	9.8	10.9	8.9	9.2	9.0	9.4	9.4
6/14		8.8	10.1	10.3	11.0	11.3	10.1	11.1	9.0	8.7	9.1	9.1	9.3
6/15		8.6	9.6	9.9	10.4	10.8	10.5	11.0	9.0	9.9	9.1	8.7	8.9
6/16		8.4	9.5	9.7	10.2	10.5	10.5	10.9	8.9	9.3	9.0	8.6	8.8
6/17		8.5	9.7	9.9	10.5	10.8	10.6	11.2	8.9	9.3	9.1	8.8	9.0
6/18		8.6	10.1	10.2	10.9	11.2	10.6	11.5	8.9	9.2	9.3	9.1	9.3
6/19		8.4	9.9	10.1	10.8	11.0	10.7	11.6	8.9	9.3	9.4	9.1	9.3
6/20		8.4	9.9	10.1	10.7	10.9	10.7	11.6	8.9	9.8	9.4	9.0	9.1
6/21		8.4	9.9	10.0	10.7	11.0	10.6	11.6	9.0	9.8	9.3	9.1	9.2
6/22		8.5	10.0	10.1	10.9	11.2	10.7	11.6	8.9	9.2	9.4	9.3	9.4
6/23		8.5	10.0	10.1	10.9	11.2	10.7	11.6	9.0	9.4	9.4	9.3	9.4
6/24		8.5	10.0	10.2	11.0	11.3	10.8	11.6	9.0	9.6	9.4	9.3	9.5
6/25		8.5	10.1	10.2	11.0	11.4	10.8	11.7	9.0	9.6	9.5	9.3	9.5
6/26		8.6	10.2	10.3	11.1	11.5	10.8	11.7	9.1	9.2	9.5	9.4	9.5
6/27		8.7	10.4	10.4	11.3	11.7	10.9	11.9	9.3	9.9	9.7	9.5	9.6
6/28		8.8	10.5	10.5	11.3	11.8	10.9	11.9	9.4	10.2	9.8	9.6	9.7
6/29		8.8	10.4	10.6	11.4	11.9	11.0	12.0	9.6	9.9	9.9	9.7	9.8
6/30		8.6	10.5	10.6	11.4	12.0	11.4	12.1	9.6	10.0	10.1	9.8	9.9
7/1		8.6	10.3	10.5	11.2	11.8	11.8	12.1	9.8	10.3	10.1	9.9	10.0
7/2		8.5	10.3	10.5	11.3	11.9	12.1	12.1	9.9	10.6	10.2	10.1	10.3
7/3		8.3	10.4	10.6	11.6	12.2	12.4	12.3	10.0	10.2	10.2	10.4	10.6
7/4		8.2	10.7	10.8	11.9	12.5	12.8	12.7	10.0	11.8	10.4	10.8	10.9
7/5		8.2	11.0	11.2	12.4	13.1	12.9	13.1	10.0	12.4	10.6	11.2	11.4
7/6		8.3	11.3	11.5	12.9	13.6	12.8	13.5	10.1	12.2	10.9	11.6	11.7
7/7		8.6	11.8	11.9	13.5	14.2	12.7	13.9	10.2	12.4	11.2	12.0	12.1
7/8		8.7	12.2	12.2	14.0	14.6	12.4	14.3	10.3	12.5	11.5	12.3	12.4
7/9		8.8	12.3	12.4	14.3	14.9	12.1	14.6	10.4	11.9	11.8	12.5	12.6

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
7/10		8.9	12.3	12.4	14.2	14.9	12.1	14.5	10.4	11.1	11.9	12.7	12.7
7/11		9.0	12.1	12.3	14.0	14.7	12.0	14.4	10.4	11.9	12.1	12.7	12.8
7/12		9.1	11.8	12.0	13.6	14.4	11.8	14.2	10.5	11.8	12.1	12.7	12.7
7/13		9.1	11.8	11.9	13.6	14.4	11.7	14.1	10.4	10.2	12.1	13.0	12.9
7/14		9.1	11.5	11.7	13.3	14.1	11.7	14.0	10.4	10.7	12.2	13.1	13.1
7/15		9.0	11.4	11.6	13.0	13.8	11.8	13.7	10.3	10.6	12.3	13.2	13.1
7/16		9.0	11.3	11.5	12.9	13.7	11.7	13.7	10.2	12.2	12.3	13.4	13.3
7/17		9.0	11.1	11.3	12.8	13.6	11.4	13.7	10.2	10.6	12.4	13.6	13.4
7/18		8.9	11.1	11.3	12.9	13.7	11.4	13.7	10.2	10.9	12.5	13.8	13.6
7/19		8.9	11.0	11.2	12.8	13.6	11.5	13.6	10.1	11.9	12.5	13.9	13.7
7/20		8.8	10.6	10.9	12.3	13.0	11.5	13.2	10.1	10.6	12.4	13.6	13.5
7/21		8.8	10.8	11.0	12.4	13.0	11.5	13.2	10.1	11.9	12.2	13.8	13.6
7/22		8.8	10.9	11.1	12.7	13.3	11.3	13.4	10.2	10.6	12.1	14.0	13.9
7/23		8.9	11.0	11.1	12.7	13.3	11.4	13.4	10.2	10.6	12.1	14.1	14.1
7/24		9.0	11.0	11.2	12.8	13.3	11.5	13.4	10.3	12.0	12.1	14.1	14.2
7/25		9.0	11.0	11.2	12.7	13.2	11.3	13.2	10.4	12.2	12.0	14.3	14.3
7/26		9.0	11.2	11.3	12.8	13.3	11.2	13.2	10.5	12.6	12.0	14.6	14.6
7/27		9.1	11.3	11.4	13.0	13.4	11.1	13.4	10.6	11.1	12.1	15.0	14.9
7/28		9.2	11.1	11.3	12.8	13.3	11.2	13.3	10.7	12.1	12.2	15.2	
7/29		9.2	11.0	11.2	12.6	13.1	11.4	13.1	10.8	12.0	12.2	15.4	
7/30		9.2	10.8	11.0	12.3	12.8	11.6	12.9	10.9	11.3	12.1	15.6	
7/31		9.2	11.2	11.2	12.5	12.9	11.7	13.0	11.0	11.7	12.0	16.0	
8/1		9.3	11.5	11.4	12.8	13.3	11.8	13.3	11.3	12.6	12.1	16.4	
8/2		9.4	11.8	11.6	13.2	13.7	11.9	13.6	11.7	12.1	12.3	16.9	
8/3		9.6	12.1	11.9	13.5	14.0	11.9	13.8	11.9	13.8	12.6	17.3	
8/4		9.7	12.3	12.1	13.6	14.1	11.9	13.9	12.1	14.6	12.8	17.4	
8/5		9.8	12.2	12.0	13.5	14.0	12.0	13.9	12.2	14.9	12.9	17.3	
8/6		9.9	12.3	12.1	13.5	14.0	12.1	13.9	12.3	13.6	13.1	17.4	
8/7		10.0	12.2	12.0	13.5	14.0	12.3	13.9	12.3	12.6	13.2	17.6	
8/8		10.0	12.3	12.1	13.4	13.9	12.5	13.9	12.3	13.1	13.1	17.6	
8/9		10.1	12.3	12.1	13.4	13.8	12.7	13.9	12.3	13.1	13.1	17.7	
8/10		10.1	12.4	12.2	13.5	13.9	12.9	14.0	12.4	14.5	13.0	17.9	

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
8/11		10.2	12.5	12.3	13.7	14.1	13.1	14.4	12.5	14.7	13.0	18.4	
8/12		10.3	12.9	12.6	14.0	14.4	13.2	14.6	12.6	15.0	13.0	18.9	
8/13		10.4	13.2	12.7	14.3	14.7	13.2	15.0	12.8	14.9	13.1	19.2	
8/14		10.5	13.3	12.9	14.4	14.9	13.2	15.2	12.8	14.8	13.2	19.5	
8/15		10.6	13.3	12.9	14.4	15.0	13.1	15.3	12.9	14.9	13.4	19.6	
8/16		10.8	13.1	12.8	14.3	14.8	13.0	15.1	12.9	14.5	13.4	19.4	
8/17		10.9	13.1	12.8	14.3	14.8	12.9	15.1	12.9	14.0	13.4	19.3	
8/18		11.0	13.0	12.7	14.1	14.6	12.7	15.0	12.9	13.8	13.3	19.0	
8/19		10.9	12.8	12.6	13.9	14.4	12.7	14.8	12.9	13.3	13.2	18.7	
8/20		10.9	12.6	12.4	13.6	14.1	12.6	14.6	12.8	14.6	13.0	18.3	
8/21		10.9	12.4	12.2	13.3	13.9	12.5	14.3	12.9	13.7	12.7	17.9	
8/22		10.9	12.4	12.1	13.3	13.7	12.6	14.2	12.8	14.3	12.4	17.7	
8/23		10.9	12.5	12.2	13.2	13.7	12.4	14.1	12.8	13.8	12.2	17.6	
8/24		10.8	12.4	12.1	13.1	13.5	12.4	14.0	12.8	14.5	12.0	17.5	
8/25		10.8	12.4	12.1	13.0	13.5	12.3	14.0	12.9	14.8	11.8	17.4	
8/26		10.8	12.3	12.0	13.0	13.4	12.1	13.9	12.7	14.3	11.6	17.1	
8/27		10.8	12.4	12.0	13.0	13.5	12.1	13.9	12.7	14.8	11.5	17.1	
8/28		10.8	12.3	12.0	13.0	13.6	11.9	13.7	12.5	14.4	11.5	17.1	
8/29		10.8	12.2	11.9	12.9	13.5	11.8	13.6	12.4	12.9	11.4	17.1	
8/30		10.8	12.2	11.8	12.9	13.6	11.9	13.5	12.3	13.6	11.2	17.0	
8/31		10.8	12.2	11.8	12.9	13.6	11.9	13.3	12.1	12.5	11.1	16.9	
9/1		10.9	12.2	11.8	12.9	13.6	12.0	13.2	12.0	13.3	11.0	16.9	
9/2		11.0	12.4	11.9	13.0	13.7	12.1	13.3	12.1	13.3	10.9	17.2	
9/3		11.1	12.5	12.0	13.0	13.7	12.2	13.3	12.1	13.4	10.9	17.3	
9/4		11.2	12.6	12.1	13.1	13.8	12.3	13.5	12.2	13.6	10.9	17.5	
9/5		11.3	12.8	12.3	13.2	13.9	12.3	13.5	12.2	14.0	11.1	17.6	
9/6		11.3	12.7	12.3	13.2	13.8	12.2	13.5	12.3	14.2	11.2	17.6	
9/7		11.3	12.6	12.2	13.1	13.7	12.2	13.4	12.5	14.4	11.3	17.4	
9/8		11.2	12.4	12.1	12.9	13.5	12.1	13.3	12.5	14.2	11.3	17.1	
9/9		11.1	12.2	11.9	12.6	13.2	12.0	13.1	12.4	13.0	11.2	16.7	
9/10		11.1	12.0	11.8	12.4	13.0	12.0	12.9	12.4	13.7	11.1	16.3	
9/11		11.0	11.8	11.6	12.1	12.5	12.0	12.7	12.3	13.6	11.0	15.9	

		Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
9/12		11.0	11.6	11.5	11.9	12.4	12.1	12.6	12.4	13.5	10.8	15.6	
9/13		11.0	11.7	11.5	11.8	12.4	12.3	12.6	12.4	13.7	10.7	15.4	
9/14		11.1	11.9	11.6	11.9	12.4	12.4	12.7	12.5	12.3	10.7	15.6	
9/15		11.2	12.1	11.8	12.1	12.6	12.6	12.9	12.6	13.9	10.8	15.7	
9/16		11.4	12.2	12.0	12.3	12.8	12.6	13.0	12.8	14.1	11.0	16.0	
9/17		11.5	12.3	12.2	12.4	13.0	12.7	21.2	13.0	14.3	11.1	16.1	
9/18		11.5	12.4	12.3	12.5	13.2	12.7	21.4	13.2	14.5	11.1	16.1	
9/19		11.5	12.3	12.2	12.5	13.1	12.7	21.4	13.2	14.4	11.1	15.9	
9/20		11.4	12.2	12.2	12.5	13.0	12.8	21.4	13.2	14.5	11.1	15.7	
9/21		11.3	12.1	12.1	12.4	12.9	12.8	21.4	13.2	13.4	11.0	15.5	
9/22		11.2	12.0	12.0	12.3	12.8	12.9	21.4	13.2	13.9	10.8	15.2	
9/23		11.1	11.8	11.8	12.1	12.6	12.9	21.4	13.2	13.8	10.7	14.9	
9/24		11.0	11.7	11.7	11.9	12.4	12.9	13.3	13.2	14.1	10.6	14.7	
9/25		10.3	11.3	11.6	11.8	12.2	12.9	13.4	13.3	13.9	10.5	14.6	
9/26		9.7	10.8	11.1	11.4	12.0	13.0	13.5	13.4	14.1	10.4	14.6	
9/27		9.0	10.2	10.5	10.9	11.5	13.0	13.4	13.3	14.4	10.4	14.6	
9/28		8.4	9.6	10.0	10.4	11.1	13.0	13.4	13.3	14.7	10.3	14.5	
9/29		7.7	9.0	9.4	9.9	10.7	13.0	13.4	13.4	14.5	10.3	14.5	
9/30		7.0	8.4	8.8	9.3	10.2	13.0	13.4	13.3	13.9	10.1	14.2	
10/1		6.3	7.7	8.1	8.6	9.6	13.0	13.2	13.2	14.3	9.8	13.8	14.1
10/2		6.2	7.4	7.5	7.9	9.0	13.0	13.0	13.1	13.9	9.6	13.4	13.8
10/3		6.2	7.3	7.3	7.6	8.6	13.0	12.9	13.0	13.5	9.3	12.9	13.4
10/4		6.2	7.2	7.2	7.4	8.5	12.9	12.9	13.0	13.4	9.1	12.6	13.2
10/5		6.1	7.1	7.1	7.2	8.3	12.9	12.9	13.0	13.5	9.0	12.2	13.0
10/6		6.1	7.0	6.9	7.1	8.1	12.9	12.8	12.9	13.5	8.8	11.9	12.6
10/7		6.1	7.0	6.9	7.0	8.0	12.8	12.7	12.9	13.7	8.8	11.6	12.5
10/8		6.2	7.1	6.9	7.1	8.1	12.7	12.8	12.9	13.8	8.8	11.6	12.5
10/9		6.2	7.1	7.0	7.2	8.1	12.5	12.8	12.9	13.0	8.8	11.6	12.3
10/10		6.3	7.4	7.4	7.5	8.3	12.3	12.8	12.9	13.0	9.0	11.5	12.2
10/11		6.3	7.8	7.8	8.0	8.6	12.0	12.7	12.8	13.5	9.3	11.4	12.0
10/12		6.4	8.2	8.3	8.4	8.9	11.7	12.6	12.7	12.9	9.5	11.3	11.8
10/13		6.4	8.4	8.7	8.8	9.3	11.4	12.4	12.5	12.9	9.8	11.2	11.7

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
10/14		6.4	8.5	8.9	9.1	9.4	11.0	12.2	12.3	12.6	9.9	11.1	11.5
10/15		6.5	8.7	9.1	9.2	9.4	10.6	12.0	12.1	12.6	10.1	10.8	11.2
10/16		7.2	9.1	9.4	9.5	9.7	10.4	11.8	11.9	12.3	10.3	10.7	11.0
10/17		7.5	9.1	9.4	9.6	9.7	10.1	11.5	11.6	11.9	10.2	10.5	10.7
10/18		7.8	8.8	9.1	9.2	9.4	9.9	11.0	11.2	11.7	9.8	10.1	10.3
10/19		8.1	8.4	8.6	8.7	8.9	9.6	10.6	10.8	11.7	9.4	9.7	9.8
10/20		8.3	8.2	8.3	8.3	8.5	9.5	10.3	10.5	10.7	8.9	9.3	9.4
10/21		8.7	8.2	8.2	8.1	8.3	9.6	10.0	10.3	10.2	8.6	9.0	9.1
10/22		8.9	8.1	8.0	8.0	8.2	9.5	9.7	10.0	9.7		8.8	8.8
10/23		8.6	7.7	7.6	7.7	7.8	9.5	9.5	9.8	10.2		8.4	8.5
10/24		8.6	7.6	7.5	7.6	7.7	9.6	9.4	9.7	10.3		8.2	8.3
10/25		8.7	7.7	7.7	7.8	7.9	9.6	9.4	9.7	10.2		8.2	8.3
10/26		8.9	8.0	8.0	8.1	8.2	9.6	9.6	9.7	10.1		8.2	8.4
10/27		9.1	8.3	8.3	8.4	8.5	9.5	9.7	9.7	10.1		8.3	8.5
10/28		9.3	8.6	8.6	8.8	8.9	9.4	9.9	9.8	9.9		8.4	8.6
10/29		9.0	8.7	8.9	9.0	9.1	9.3	10.0	9.7	10.6		8.5	8.7
10/30		8.7	8.8	9.1	9.2	9.4	9.3	10.0	9.6	10.0		8.6	8.8
10/31		8.3	8.9	9.1	9.3	9.5	9.2	10.1	9.6	10.0		8.8	9.0
11/1		7.9	8.9	9.1	9.3	9.5	9.1	10.1	9.5	9.7		8.9	9.1
11/2		7.5	8.9	9.2	9.4	9.5	8.8	10.1	9.6	9.7		9.0	9.2
11/3		7.0	8.6	9.2	9.2	9.4	8.5	10.0	9.5	9.5		9.0	9.2
11/4		6.6	8.4			9.2	8.2	9.9	9.4	9.5		9.0	9.2
11/5		6.5				8.8	7.8	9.6	9.3	9.6		8.8	9.0
11/6		6.5				8.4	7.4	9.2	9.2	9.7		8.4	8.7
11/7		6.4				8.0	7.2	8.8	9.0	9.1		8.0	8.3
11/8		6.2				7.4	7.1	8.3	8.9	9.1		7.5	7.9
11/9		6.1				6.9	7.0	7.8	8.6	8.7		6.9	7.4
11/10		6.1				6.7	7.0	7.5	8.4	8.6		6.6	7.1
11/11		6.1				6.6	7.1	7.3	8.3	8.4		6.4	6.9
11/12		6.1				6.6	7.1	7.2	8.2	8.3		6.2	6.8
11/13		6.2				6.6	7.3	7.2	8.1	8.4		6.1	6.7
11/14		6.2				6.8	7.4	7.3	8.0	8.5		6.2	6.8

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
11/15		6.3				7.0	7.3	7.4	8.0	8.1		6.4	6.9
11/16		6.3				7.2	7.2	7.6	8.0	8.0		6.5	6.9
11/17		6.3				7.2	7.5	7.7	7.9	8.2		6.5	6.9
11/18		6.3				7.2	7.5	7.6	7.8	8.0		6.5	6.9
11/19		6.3				7.1	7.4	7.6	7.7	8.0		6.5	6.9
11/20		6.4				7.2	7.1	7.6	7.6	8.0		6.5	6.9
11/21		6.4				7.2	6.9	7.7	7.6	7.7		6.5	6.8
11/22		6.4				7.2	6.7	7.6	7.4	7.4		6.4	6.7
11/23		6.4				6.8	6.8	7.3	7.3	7.5		6.2	6.5
11/24		6.3				6.5	6.5	7.1	7.1	7.5		6.1	6.3
11/25		6.4				6.4	6.5	6.9	7.0	7.2		5.9	6.2
11/26		6.5				6.4	6.5	6.9	6.9	6.9		5.9	6.2
11/27		6.4				6.4	6.7	6.9	6.9	7.0		5.9	6.3
11/28		6.4				6.4	6.8	6.9	6.8	7.0		6.0	6.3
11/29		6.4				6.5	6.9	7.0	6.8	7.1		6.1	6.4
11/30		6.4				6.7	6.8	7.1	6.8	7.1		6.1	6.4
12/1		6.4				6.9	6.6	7.4	6.8	7.3		6.2	6.5
12/2		6.3				7.0	6.6	7.5	6.9	7.0		6.3	6.5
12/3		6.2				7.0	6.3	7.4	6.8	6.9		6.3	6.5
12/4		6.2				6.8	6.0	7.2	6.7	7.0		6.1	6.5
12/5		6.1				6.5	5.7	6.9	6.5	6.9		5.8	6.4
12/6		6.0				6.2	5.4	6.6	6.4	6.6		5.5	6.5
12/7		5.9				6.0	5.2	6.4	6.2	6.4		5.4	6.5
12/8		5.7				5.7	5.1	6.1	6.1	6.0		5.2	6.5
12/9		5.6				5.4	5.1	5.8	5.9	5.9		5.1	6.5
12/10		5.5				5.2	5.1	5.6	5.7	5.9		5.0	6.2
12/11		5.3				5.1	4.9	5.5	5.7	5.9		5.0	5.9
12/12		5.2				5.0	4.9	5.4	5.6	5.8		5.0	5.7
12/13		5.1				4.9	4.7	5.3	5.5	5.8		4.8	5.4
12/14		5.1				4.7	4.4	5.3	5.4	5.7		4.7	5.2
12/15		5.0				4.5	4.2	5.1	5.2	5.3		4.5	5.1
12/16		4.9				4.4	4.2	4.9	5.0	5.2		4.3	5.1

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 14.3	RM 12.8	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	Big Four Creek	RM 14.1	RM 13.2
12/17		4.8				4.1	4.2	4.7	4.9	5.2		4.1	5.1
12/18		4.7				4.0	4.2	4.6	4.7	4.8		3.9	5.0
12/19		4.6				4.0	4.2	4.6	4.7	4.8		3.9	4.9
12/20		4.5				4.1	4.3	4.7	4.6	4.8		4.0	4.8
12/21		4.4				4.1	4.3	4.7	4.6	4.8		4.1	4.6
12/22		4.4				4.2	4.2	4.8	4.7	4.9		4.1	4.5
12/23		4.3				4.3	4.2	4.9	4.7	4.9		4.2	4.2
12/24		4.2				4.4	4.2	5.0	4.7	4.9		4.4	4.1
12/25		4.1				4.3	4.1	5.0	4.7	4.6		4.5	4.1
12/26		4.1				4.3		5.0	4.6	4.7		4.5	4.2
12/27		4.0				4.3		4.9	4.6	4.7		4.4	4.3
12/28		4.0				4.2		4.8	4.5	4.8		4.3	4.4
12/29		3.9				4.1		4.7	4.3	4.5		4.1	4.5
12/30		3.9				3.8		4.4	4.2	4.4		3.8	4.6
12/31		3.8				3.6		4.2	4.0	4.2		3.4	4.7

APPENDIX D

Smolt Outmigration Report, Sultan River

Smolt Outmigration Report
Sultan River

Annual Monitoring Report - 2012

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Table of Contents

List of Figures

List of Tables

1. SUMMARY OF TRAP OPERATION

In 2012, the District began monitoring the outmigration of juvenile salmonids (smolts) as a measure of reproductive success in the Sultan River. This monitoring is one component of the Fisheries and Habitat Monitoring Plan (FHMP), as outlined in Article 410 of the License issued by the Federal Energy Regulatory Commission (FERC) on September 2, 2011, for the continued operation of the Jackson Hydroelectric Project (Project). This report presents the results of the initial year (Year 1) of operation of the rotary screw trap (smolt trap) located on the lower Sultan River near the Skykomish River (Figure 1). Year 1 will represent the first of six consecutive years of operation, as outlined in Article 410, Fisheries and Habitat Monitoring Plan. Starting in 2018, the District will continue to operate the smolt trap for 2 of every 6 years for the remainder of the License term. The FHMP also stipulates that, subject to the results of monitoring, the District will operate the smolt trap beginning February 1 through June 30 of each sampling year. The goal is to have sampling sufficient to encompass at least 90 percent of the out-migration period. As in 2012, the District will operate the trap between 30 and 40 percent of the hours in any given week during each sampling year (Table 1).

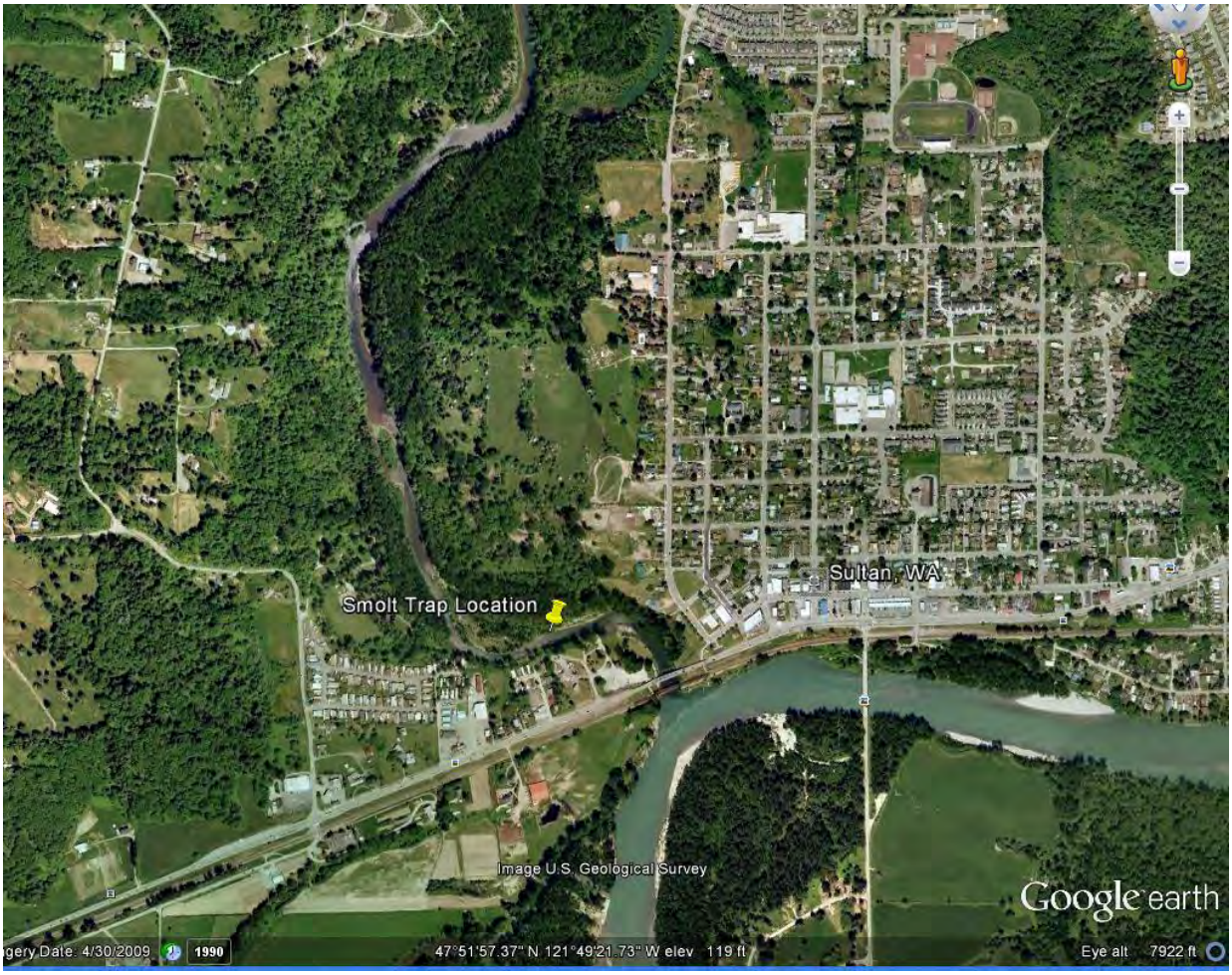

Figure 1. Aerial photograph depicting location of smolt trap on lower Sultan River near the confluence with the Skykomish River.

Table 1. Number of hours that smolt trap fished, by sampling week, in 2012.

Weekly Totals			
Sampling Week	Sample Block Start	Hours Fished	Percent of Hours Fished/Week
1	1-Feb	24.5	26%
2	8-Feb	47.0	28%
3	12-Feb	109.5	65%
4	20-Feb	66.3	39%
5	26-Feb	133.1	79%
6	4-Mar	102.6	61%
7	11-Mar	108.8	65%
8	18-Mar	158.2	94%
9	25-Mar	165.5	99%
10	1-Apr	144.0	86%
11	9-Apr	112.7	67%
12	16-Apr	123.4	73%
13	22-Apr	141.5	84%
14	29-Apr	97.9	58%
15	7-May	111.0	66%
16	14-May	119.7	71%
17	22-May	71.5	43%
18	28-May	113.0	67%
19	4-Jun	117.0	70%
20	11-Jun	118.0	70%
21	18-Jun	96.0	57%
22	25-Jun	96.0	67%

2. DATA ANALYSIS

The District has compiled and analyzed the following smolt trap data by species and life stage: number captured, size distribution, timing (diel and seasonal), fish population estimates and trap efficiency.

2.1. Number Captured

A total of 14,354 fish and 15 salamanders were captured during the 2012 sampling year (Table 2). As anticipated after an odd-year return, pink salmon fry were the dominant species encountered, accounting for 87.6 percent of the catch. Chinook salmon were second in dominance accounting for 5.1 percent of the catch. Coho salmon and chum salmon accounted for 2.5 percent and 2.0 percent of the catch, respectively.

Table 2. Total fish captured by species and lifestage, Sultan River Smolt Trap.

Species	Total
Pink salmon (0+, live)	12,016
Chinook salmon (0+, live)	725
Pink salmon (live, w/yolk)	374
Chum salmon (live)	270
Coho salmon (1+, live)	234
Dace (sp.) (live)	200
Pink salmon (dead)	183
Coho salmon (0+, live)	116
Sculpin (sp.) (live)	61
Rainbow trout (live)	53
Lamprey (sp.) (live)	50
Cutthroat trout (live)	30
Northwest Salamander (live)	15
Stickleback (sp.) (live)	13
Chum salmon (dead)	9
Chum salmon (live, w/yolk)	6
Coho salmon (live, w/yolk)	3
Coho salmon (0+, dead)	3
Potential Rainbow x Cutthroat trout Hybrid (live)	2
Smallmouth Bass (live)	2
Brook trout (live)	1
Sucker (sp.) (live)	1
Sucker (sp.) (dead)	1
Mountain Whitefish	1

2.2. Size Distribution

The size distribution analysis focused on Chinook and coho salmon since the duration of freshwater residency for pink and chum salmon is short. The majority (99%) of Chinook encountered were between 26 and 50 mm (Figure 2). Coho were more variable in length and noticeable trends observed over the course of the sampling season (Figure 2, Figure 3).

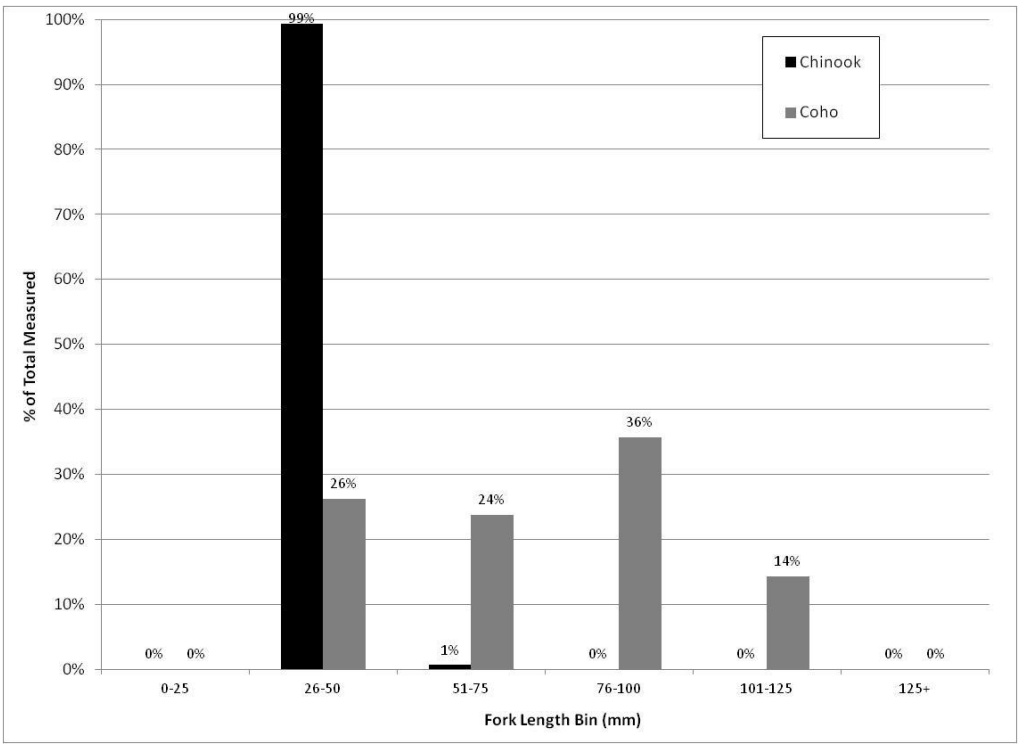

Figure 2. Chinook and coho salmon length frequency distribution.

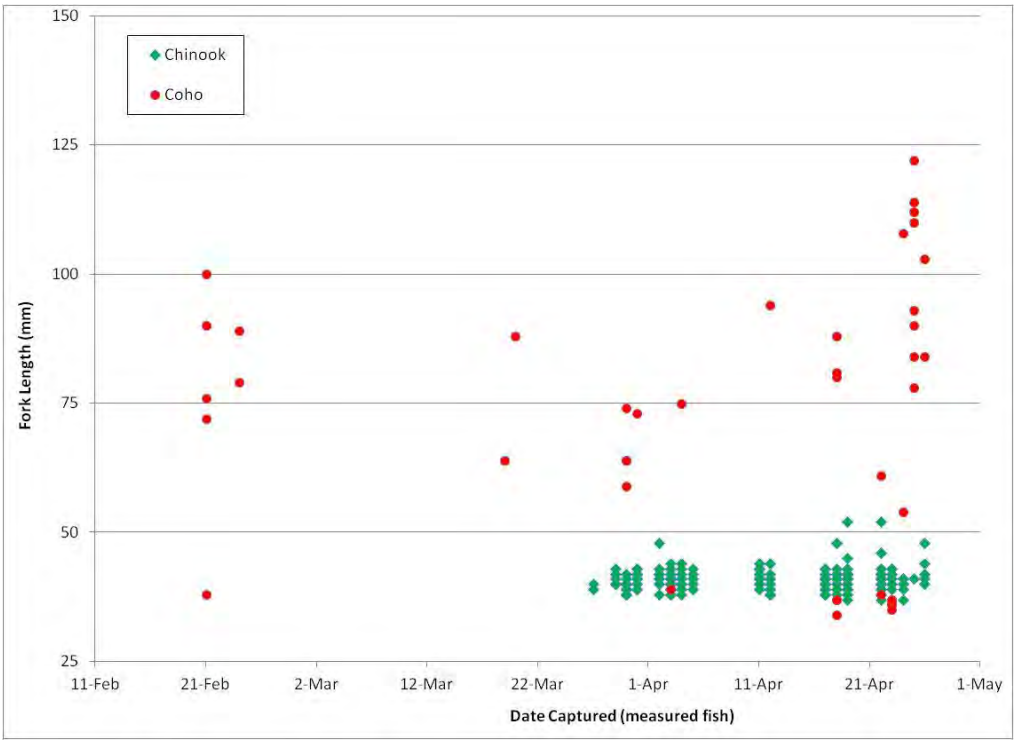

Figure 3. Individual Chinook and coho captured and measured over time by length.

2.3. Timing (seasonal)

Species migration timing was determined using weekly catch data (Table 3). Weekly estimates of total outmigration for each species size class were generated using a trap cross section to river cross section area relationship as a surrogate for weekly trap efficiency for coho and Chinook salmon; and a discharge to measured efficiency relationship for pink and chum salmon (Figure 4). Weekly estimates of outmigration timing were not generated for other species due to overall low weekly captures. Due to the overall low recapture rates, an assessment of diel timing was not possible. However, the lack of diel timing information does not hinder generating estimates of total outmigration or overall assessment of species outmigration timing.

Table 3. Weekly catch, by species, Sultan River smolt trap.

Live Fish Weekly Totals									
Week	Cone Down	Coho (1+)	Coho (0+)	Pink (0+)	Chum (0+)	Chinook (0+)	Rainbow	Cutthroat	Lamprey
1	1-Feb			28	1		2	1	1
2	8-Feb	6		12	2		1		
3	12-Feb			37	3			1	
4	20-Feb	9	1	172	28				11
5	26-Feb	11		226	31	4	1		
6	4-Mar	8	1	132	16	7	3	2	1
7	11-Mar	10		379	18	23	1	1	1
8	18-Mar	13		537	53	21	3	3	2
9	25-Mar	10	2	583	31	89	2	2	2
10	1-Apr	3	1	2701	12	46	4	1	2
11	9-Apr	10	1	586	41	78		3	
12	16-Apr	22	30	2294	18	306	4	1	7
13	22-Apr	38	9	1467	12	32	6	5	1
14	29-Apr	22	21	2390	3	8	2	3	
15	7-May	25	2	353	1	7	7	1	3
16	14-May	25	12	84		12	4	2	3
17	22-May	9	3	22		14	1	2	4
18	28-May	3	10	3		6	1	1	1
19	4-Jun	5	11	8		25	2		1
20	11-Jun	2	8	1		23	3	1	5
21	18-Jun	3	3	1		8	1		4
22	25-Jun		1			16	5		1

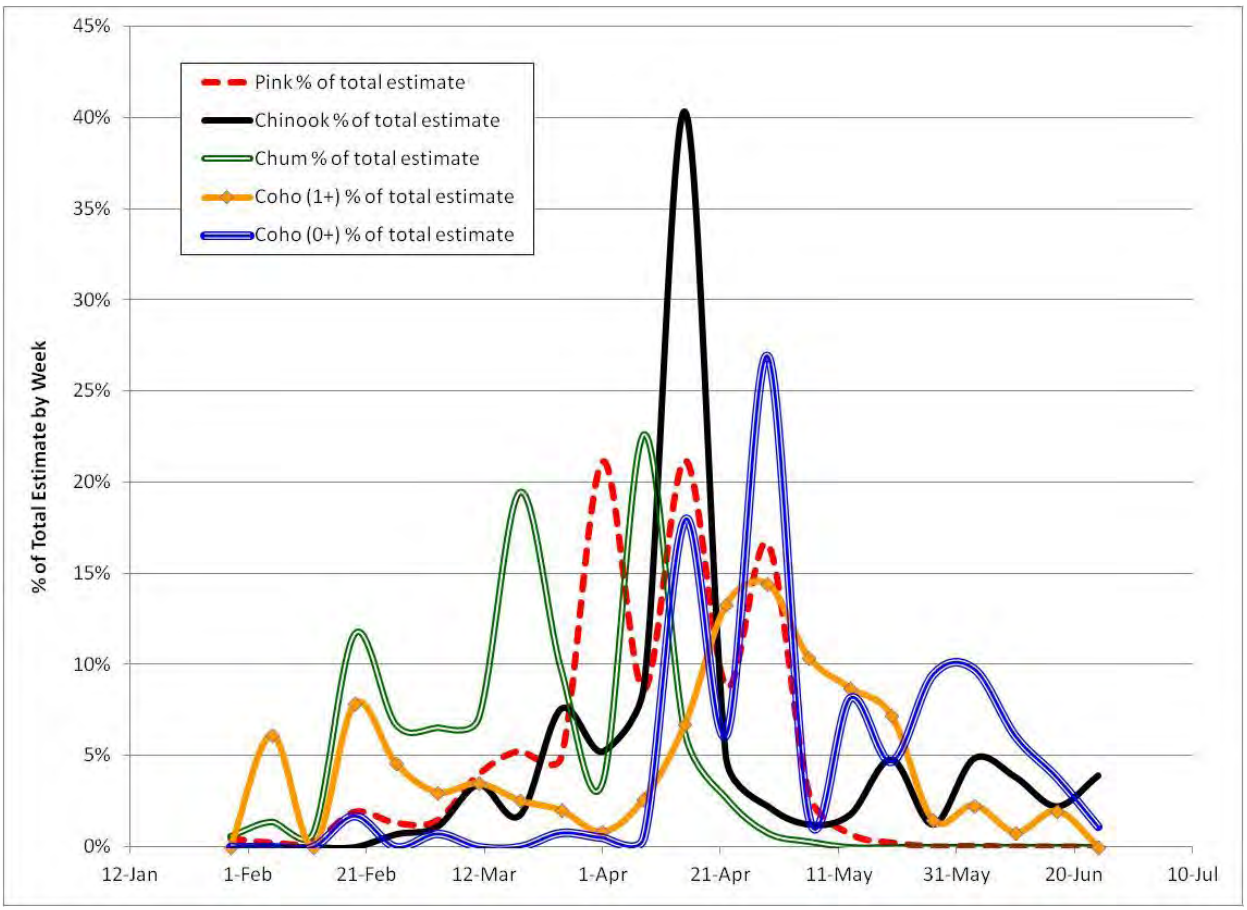

Figure 4. Timing of outmigration for pink, chum, coho, and Chinook salmon, Sultan River, 2012.

2.4. Trap Efficiency and Species Outmigration Estimates

Mark-recapture tests were used to generate estimates of trap capture efficiency. Table 4 presents a summary of tests conducted during 2012 and the results by species.

Table 4. Summary of mark-recapture tests of trap capture efficiency by species.

Species	Total Marked & Released	Total Recaptured	% Trap Efficiency
Chinook (0+)	408	10	2.5%
Coho (1+)	60	1	2.1%
Chum (0+)	96	2	1.7%
Pink (0+)	312	17	5.4%
Chinook/Coho Combined	468	11	2.4%
Pink/Chum Combined	408	19	4.7%
All Species Combined	1,752	60	3.4%

2.4.1. Bootstrap Method (Thedinga et al. 1994)

The bootstrap method (Thedinga et al. 1994) was used to calculate total outmigration estimates and 95 percent confidence intervals by species age class (Table 5). A second estimate of total outmigration was generated following methods described in Volkhardt et al. (2007). These two

methods estimate total outmigration and confidence intervals following very different statistical methods; however, estimates for each species age class were similar.

Due to low coho recapture rates, the combined trap capture efficiency for coho and Chinook salmon was used to generate the coho salmon outmigration estimates. Also, to increase sample size and reduce the effect of low recapture rates for pink and chum salmon, a combined efficiency was used for both species, as chum and pink salmon fry are of similar size and likely behave similarly during outmigration. The combined coho and Chinook capture efficiency was used to estimate rainbow and cutthroat abundance in absence of species specific mark-recapture tests. The total trap efficiency for all species combined was used to produce the lamprey outmigration estimate in absence of species specific mark-recapture tests.

Table 5. Estimates of total outmigration by species (bootstrap method).

Species	Capture Efficiency Applied	Bootstrap Mean Outmigration Estimate	95% CI +/-	95% CI as % of Outmigration Estimate
Coho (1+)	2.4%	16,418	12,074	74%
Coho (0+)	2.4%	7,815	5,818	74%
Pink (0+)	4.7%	411,336	213,516	52%
Chum (0+)	4.7%	9,114	4,837	53%
Chinook (0+)	2.5%	45,986	34,822	76%
Rainbow	2.4%	3,795	2,904	77%
Cutthroat	2.4%	2,118	1,703	80%
Lamprey	3.4%	2,281	1,036	45%

2.4.2. Modeled Trap Efficiency/Summed Discrete Estimates Method (Volkhardt et al. 2007)

Mark-recapture efficiency testing was not sufficient to generate daily or weekly estimates of total chum and pink salmon outmigration. However, a very strong positive relationship exists between combined measured pink and chum salmon efficiency (through mark-recapture testing) and average daily discharge during a mark-recapture test sample block (R^2=0.99). While the relationship is very strong, the relationship should be considered with caution as the regression relies on only three data points. This relationship was used to generate weekly estimates of total pink and chum salmon outmigration, which were summed to generate total season outmigration for these species (Table 6).

Table 6. Estimates of total outmigration of pink and chum salmon (based on modeled weekly trap efficiency).

	Chum (0+)	Pink (0+)
Outmigration estimate (sum of weekly estimates based on measured pink & chum flow to efficiency relationship, R^2 = 0.99)	11,107	415,150
95% CI +/-	3,150	242,475

A negative relationship exists between measured Chinook salmon efficiency and discharge (R^2 =0.70), which was developed using only three data points. A relationship between trap cross section area to total river cross section by discharge was used as a surrogate for coho and

Chinook salmon capture efficiency to generate weekly estimates of total outmigration, which were summed to generate total season outmigration for these species (Table 7).

Table 7. Estimates of total outmigration of Chinook and coho (based on modeled weekly trap efficiency).

	Chinook (0+)	Coho (0+)	Coho (1+)
Outmigration estimate (sum of weekly estimates based on trap cross section area to river cross section area as surrogate for measured efficiency)	49,257	10,829	21,196
95% CI +/-	9,148	2,499	3,545

This report presents the results of the Year 1 monitoring of the juvenile salmonid production in the Sultan River. A similar survey and subsequent report will be prepared annually as indicated in the Fisheries and Habitat Monitoring Plan.

Please contact Keith Binkley (Generation - Natural Resources Manager, fish biologist) at KMBinkley@snopud.com if you have any questions about the data collected to date and how they apply to the Fisheries and Habitat Monitoring Plan.

3. REFERENCES

Thedinga J. F., M. L. Murphy, S. W. Johnson, J. M. Lorenz, and K. V. Koski. 1994. Determination of salmonid smolt yield with rotary-screw traps in the Situk River, Alaska, to predict effects of glacial flooding. North American Journal of Fisheries Management 14:837 851.

Volkhardt, G.C., S.L. Johnson, B. Miller, T.E. Nickelson, and D. E. Seiler. 2007. Rotary screw traps and inclined plane traps. Pages 235-266 in D.H. Johnson, B.M. Shrier, J.S. O'Neal, J.A. Knutzen, X. Augerot, T.A. O'Neil, and T.N. Pearsons. Salmonid field protocols handbook: techniques for assessing status and trends in salmon and trout populations. American Fisheries Society, Bethesda, Maryland.

APPENDIX E

Consultation Documentation

Presler, Dawn

From: Presler, Dawn
Sent: Monday, April 01, 2013 9:14 AM
To: 'Steven Fransen' (steven.m.fransen@noaa.gov); 'Loren Everest - USFS' (leverest@fs.fed.us); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); 'Anne Savery' (asavery@tulaliptribes-nsn.gov); 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Maynard, Chris (ECY)' (cmay461@ecy.wa.gov); 'Jim Miller' (JMiller@ci.everett.wa.us); 'mick.matheson@ci.sultan.wa.us' (mick.matheson@ci.sultan.wa.us); 'Leonetti, Frank' (frank.leonetti@snoco.org); 'Thomas O'Keefe' (okeefe@americanwhitewater.org)
Cc: Binkley, Keith; Moore, Kim
Subject: JHP ARC - DRAFT FHM Plan 2012 Annual Report for you 30-day review and comment period
Attachments: DRAFT_2012 FHMP_Annual_Report.pdf

Dear ARC,
Attached is the DRAFT Fish Habitat Monitoring Plan Annual Report for 2012. Please take the next 30 days to review and comment on it; comments should be emailed to me (and cc: Keith) by May 1. We can also discuss any questions you may have on it at the ARC meeting on April 17.

If you have no comments on the draft report, an email stating so would be appreciated!

Dawn J. Presler
Sr. Environmental Coordinator
Generation Resources

Snohomish County PUD
PO Box 1107 Everett, WA 98206-1107
425-783-1709

Presler, Dawn

From: Anne Savery <asavery@tulaliptribes-nsn.gov>
Sent: Wednesday, April 10, 2013 1:39 PM
To: Presler, Dawn
Subject: RE: JHP ARC - draft FHE Plan Annual Report for your review adn comment.

I have no comments.

Thanks

Anne

_____
From: Presler, Dawn [DJPresler@SNOPUD.com]
Sent: Friday, March 22, 2013 9:34 AM
To: 'Steven Fransen' (steven.m.fransen@noaa.gov); 'Loren Everest - USFS' (leverest@fs.fed.us); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); Anne Savery; 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Maynard, Chris (ECY)' (cmay461@ecy.wa.gov); 'Jim Miller' (JMiller@ci.everett.wa.us); 'mick.matheson@ci.sultan.wa.us' (mick.matheson@ci.sultan.wa.us); 'Leonetti, Frank' (frank.leonetti@snoco.org); 'Thomas O'Keefe' (okeefe@americanwhitewater.org)
Cc: Moore, Kim; Binkley, Keith
Subject: JHP ARC - draft FHE Plan Annual Report for your review adn comment.

Dear ARC,
Attached is the DRAFT Fish Habitat Enhancement Plan Annual Report for 2012. (A really short read/review.) Please take the next 30 days to review and comment on it; comments should be emailed to me (and cc: Keith) by April 21. We can also discuss any questions you may have on it at the ARC meeting on Wednesday April 17. If you have no comments on the draft report, a quick email stating so would be appreciated.

Have a great weekend!

Dawn J. Presler
Sr. Environmental Coordinator
Generation Resources

Snohomish County PUD
PO Box 1107 Everett, WA 98206-1107
425-783-1709