SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Your Northwest renewables utility

June 30, 2016

VIA ELECTRONIC FILING

Kimberly D. Bose, Secretary
Nathaniel J. Davis, Sr., Deputy Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Fisheries and Habitat Monitoring Plan – 2015 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 2015 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 F.

If you have any questions on the Fisheries and Habitat Monitoring Plan Annual Report for 2015, please contact Keith Binkley, Natural Resources Manager, at (425) 783-1769 or KMBinkley@snopud.com.

Sincerely,

/s/ Tom DeBoer

Tom DeBoer
Assistant General Manager of Generation, Power, Rates, and Transmission Management
TADeBoer@snopud.com
(425) 783-1825

Enclosed: FHMP Annual Report 2015

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

License Article 410: Fisheries and Habitat Monitoring Plan – 2015 Annual Report

Everett, WA

June 2016

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:

District. 2016. License Article 410: Fisheries and Habitat Monitoring Plan 2015 Annual Report, Henry M. Jackson Hydroelectric Project, FERC No. 2157. June 2016.

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1. INTRODUCTION

Public Utility District No. 1 of Snohomish County (the District) received a license on September 2, 2011 (License) from the Federal Energy Regulatory Commission (FERC) for the Henry M. Jackson Hydroelectric Project (Project) (FERC 2011). 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 2015. Appendices A, B, and C contain water temperature data. Appendix A contains mean daily temperature in graphical format and Appendix B contains the same data in tabular format. Appendix C contains seven-day average of the daily maximum water temperature (7-DAD Max) in tabular format. Appendix D is the Smolt Screw Trap Report for 2015. Appendix E contains data tables from the 2015 supplemental assessments of fish distribution and utilization in the side channels. 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; no comments were received.

2. MONITORING OF FISH HABITAT IN THE SULTAN RIVER

2.1. Riverine Habitat Monitoring

As articulated in the FHM Plan and as prescribed in the Process Flow Plan, Marsh Creek Slide Modification Plan, Side Channel Enhancement/Large Woody Debris Plan, and the Side Channel Ramping Rate Evaluation Report, the District is required to conduct a habitat survey after a high flow event or other major event causing changes in habitat conditions. The flow event of November 18, 2015, warrants a post-event habitat survey. The District will conduct subsequent data collection during summer 2016 with the findings presented in the 2016 FHM Plan Annual Report.

2.2. Water Temperature Monitoring

Water temperature was continuously monitored at 13 locations within the Project area during 2015 (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 13 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 (USGS Gage No. 12138160),
- 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 RM 14.3, 12.8, and 11.3 in the Sultan River is part of the Water Temperature Conditioning Plan monitoring program; the other sites represent requirements under the FHM Plan.

In general, water temperatures in the Sultan Basin during 2015 were warmer than observed in the past. These warmer temperatures occurred earlier in the year than typically observed. This regional pattern was evident throughout the Snohomish Basin and western Washington (Washington State Department of Ecology, 2016). During summer, high water temperatures were exacerbated by persistently low and record low flow conditions. Figures depicting water temperatures during 2015 are presented in Appendix A. A tabulation of all mean daily temperature data for 2015 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.

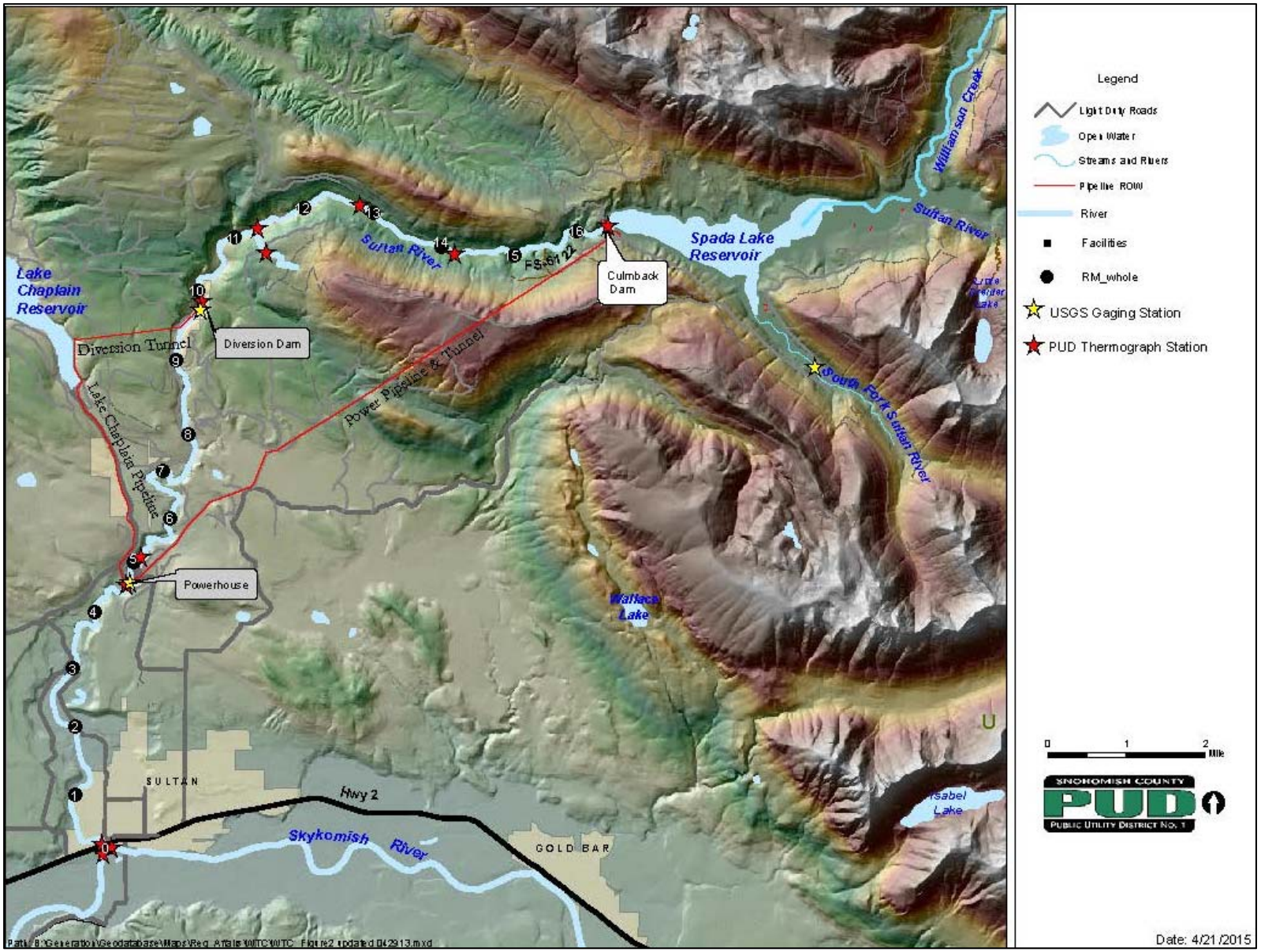


Figure 1. Locations of water temperature monitoring.

On May 15, 2015, Washington State Governor Jay Inslee declared a statewide drought. Within the Sultan Basin, the Project faced lower than normal water supply as inflows were at record low levels. On July, 27, 2015, the City of Everett, along with the cities of Seattle and Tacoma, issued a Stage 1 Drought declaration. Under a Stage 1 Drought Declaration, the License requirement in Reach 1 of the Sultan River is based on reservoir elevation, ranging between 200 and 300 cfs, as outlined in Aquatic License Article 9: Minimum Flows (A-LA9). The long-term forecast, however, indicated drought conditions would persist until November 2015. In accordance with the Adaptive Management Plan, the District conferred with the ARC and agreed to override the reservoir elevation requirement and proactively reduce the instream flow in Reach 1 of the Sultan River to 200 cfs. On July 31, 2015, the District filed with FERC the modification of instream flow schedule pursuant to the drought declaration and the Adaptive Management Plan for the conservation of water supply and managed protection of the fisheries and aquatic resources of the Sultan River. Implications to fishery resources associated with this action were negligible as spawning Chinook salmon were not yet present and steelhead fry had fully emerged. On November 12, 2015, the District filed with FERC notification of the return to normal operations under the established minimum flow regime required by the License Appendix A, Condition No. 5.2 and Appendix B, Condition 2 for Reach 1.

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 2015, water visibility and flow conditions were generally favorable during both the spring and fall surveys. Spring surveys were used to develop an escapement estimate of 139 steelhead based on the direct observation of 74 redds and expanded count of 86 redds. Of the 74 redds observed in index areas, 3 (4.1%) were observed in the Diversion Dam Index Area (DDIA).

Fall surveys occurred between September and October 2015. These surveys were used to generate an escapement estimate of 390 Chinook based on field observations and extrapolation of 156 redds. Of the 122 redds observed in index areas, 10 (8.2%) were observed in the DDIA. Both the steelhead and Chinook escapement estimates were developed cooperatively with WDFW.

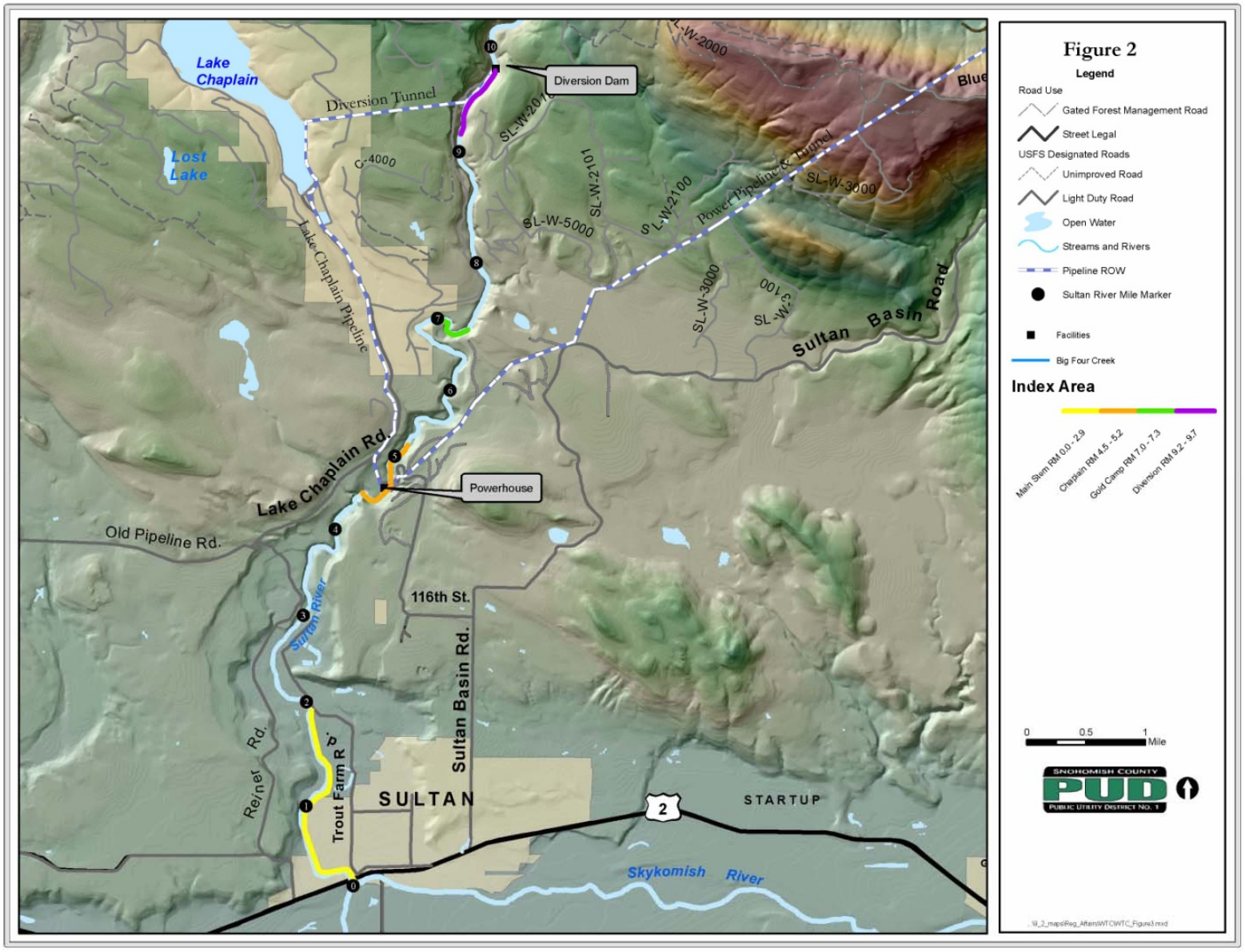


Figure 2. Locations of steelhead and salmon escapement surveys.

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 (Reach 1) 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. During 2015, mean daily discharge downstream of the Powerhouse averaged 231 cfs during the ceiling period due to extreme drought conditions. There were no deviations to the flow ceiling. There was no dewatering of Chinook salmon redds.

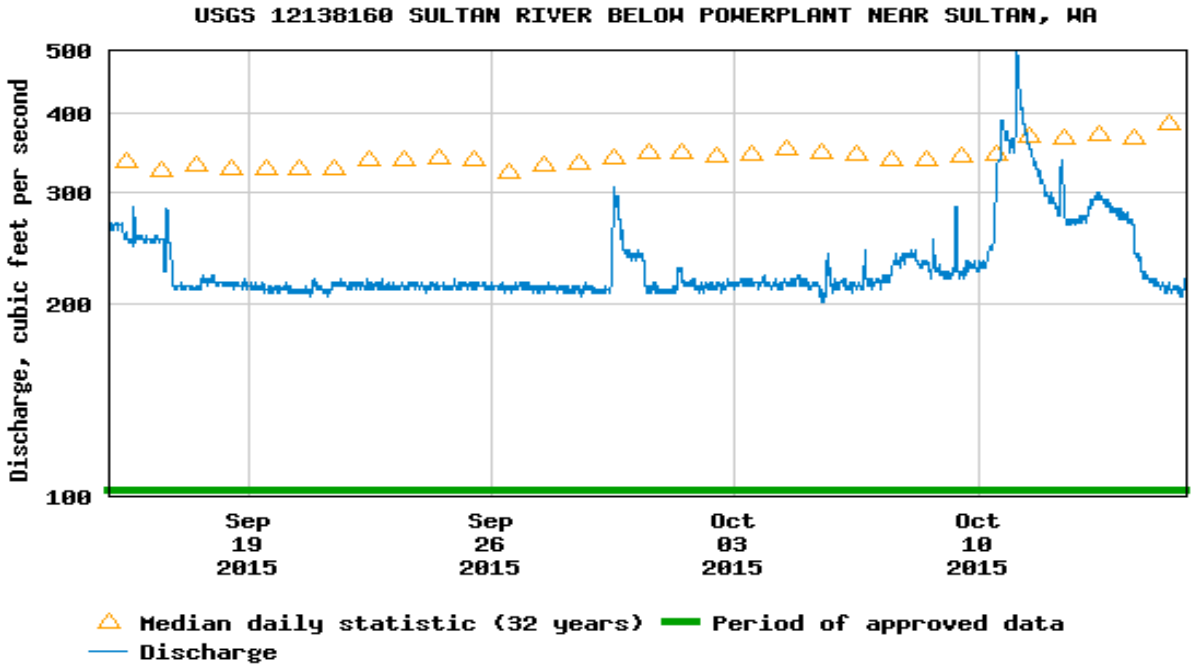


Figure 3. Mean Daily Discharge in the Sultan River downstream of the Powerhouse between September 15 and October 15, 2015.

3.3. Juvenile Production in the Sultan River

The fourth year of smolt trapping efforts to estimate the outmigration of juvenile salmonids and production within the Sultan River was initiated on January 13, 2015. This effort involves operation of a five-foot diameter rotary screw trap positioned in the lower Sultan River near RM 0.2, just upstream of the confluence with the Skykomish River. Sampling during 2015 continued until June 29. A report presenting the results of the 2015 sampling season is presented in Appendix D.

4. SIDE CHANNEL MAINTENANCE AND MONITORING

On October 31, 2013, the District filed with FERC a comprehensive Side Channel Enhancement Ramping Rate Evaluation Report pursuant to the License Article 405 and the FERC-approved

Ramping Rate Evaluation Plan (RREP). During 2013, the District conducted detailed quantitative and qualitative surveys of side channels in the lower Sultan River to assess flow behavior and distribution and to determine whether additional ramping rate restrictions were necessary to prevent juvenile fish stranding within existing and newly constructed side channel habitats. The surveys included measurements of: 1) topography at side channel inlets, 2) water surface and channel elevation at point of hydraulic control near inlet, 3) flow routing and distribution into and within side channels under conditions of low to moderate mainstem discharge, 4) wetted width and depth at systematic intervals along each channel, and 5) photo documentation of low flow habitat conditions along the length of each side channel.

In support of completion of the RREP Supplement, additional quantitative surveys of physical habitat in side channels 1 and 4, related specifically to the adequacy of existing ramping rates, are anticipated during summer 2016. These surveys were originally scheduled to be completed in 2015; however, suitable flow levels were not available due to drought followed by high flow conditions.

Qualitative monitoring to assess the performance of both constructed and modified side channels, as well as the engineered log jams, was initiated after construction was completed in 2012. No maintenance, beyond the removal human placed obstructions to flow, has been required to date.

Qualitative fish populations surveys (snorkel and minnow traps) were conducted during summer 2015, to document species presence, size, relative abundance, and habitat utilization of the newly constructed side channels as identified in Section 3.2.1 of the FHM Plan. Data results for these supplemental assessments are included in Appendix E.

5. FUTURE MONITORING

The 2015 calendar year marks the fourth calendar year under the License. Monitoring methodologies employed in 2015 were consistent with those identified in the FHM Plan. Monitoring of physical habitat and water quality conditions will continue through 2016 and 2017. Spawner abundance, distribution, and timing monitoring and juvenile production (smolt trap) monitoring will take place per the FHM Plan.

6. REFERENCES

FERC. 2011. Order Issuing New License, Project No. 2157-188. 136 FERC ¶ 62,188. September 2, 2011. Available at: http://www.snopud.com/Site/Content/Documents/relicensing/License/20110902LICENSE.pdf

Washington State Department of Ecology. 2016. 2015 Drought Response: Summary Report. Publication no. 16-11-001. March 2016.

APPENDIX A

2015 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 mainstem Sultan River immediately downstream of Culmback Dam (RM 15.8) during 2015

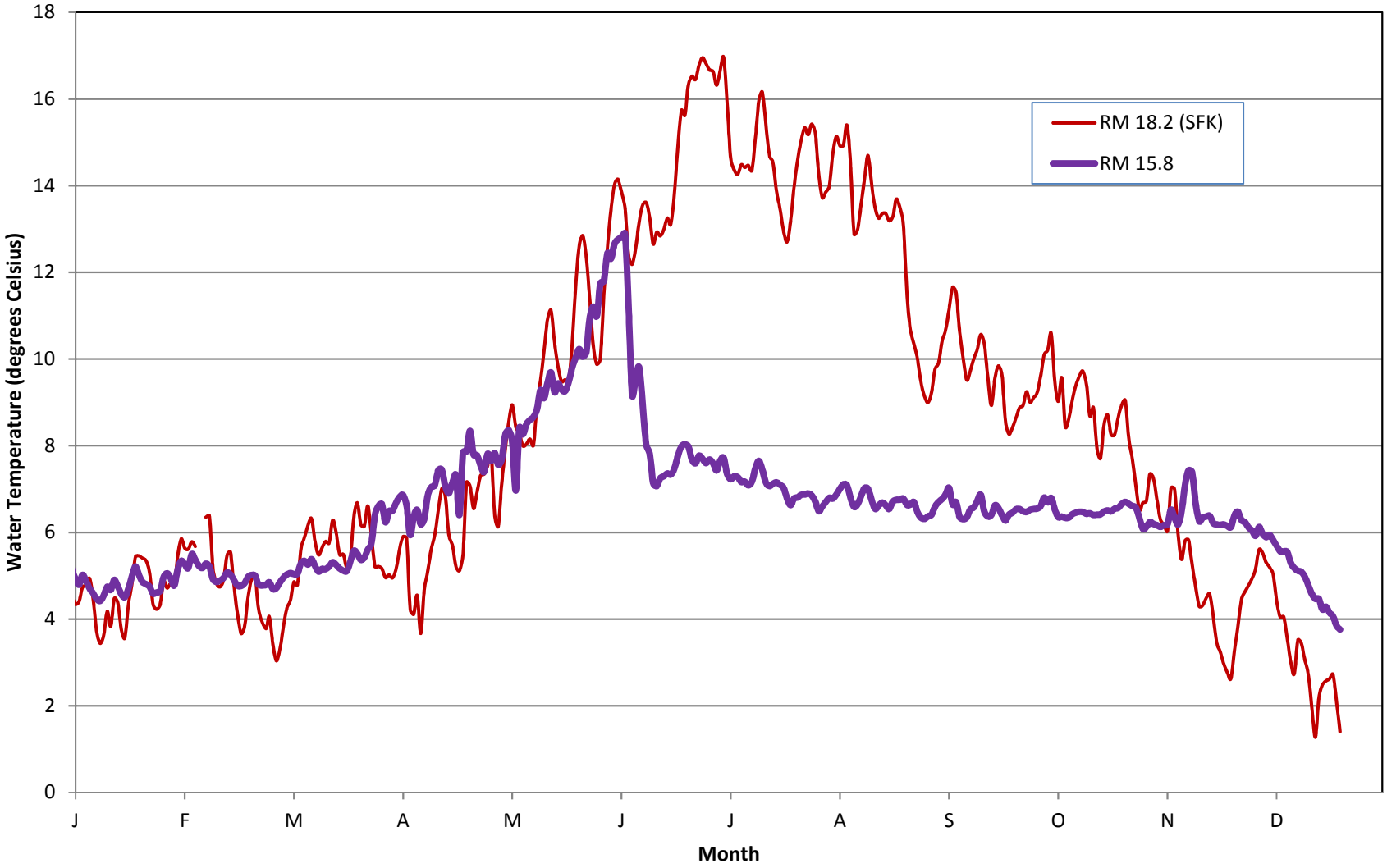


Figure A-2. Longitudinal Depiction of Mean Daily Water Temperature in the Bypass Reach (Reach 3) of the Sultan River during 2015

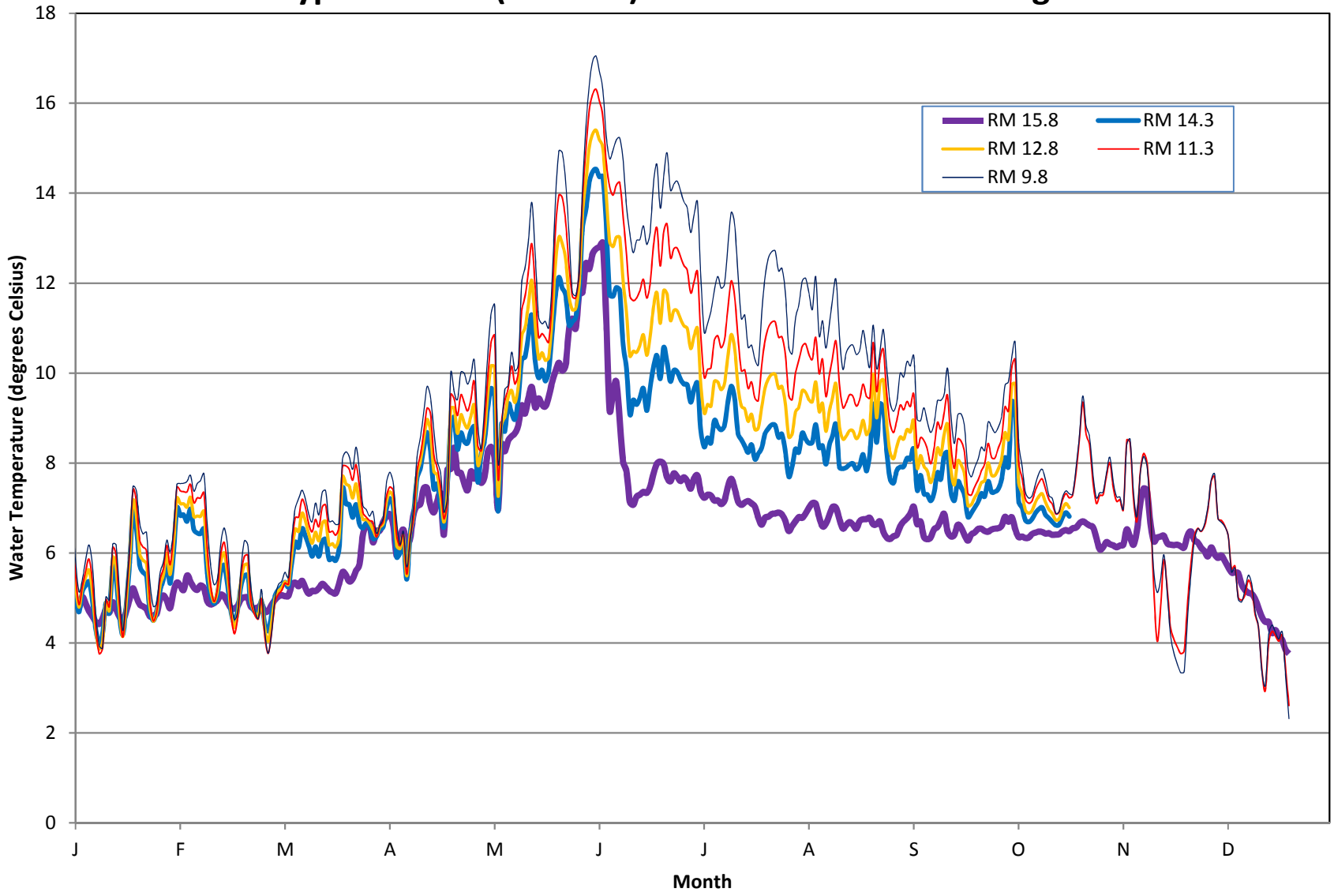


Figure A-3. Longitudinal Depiction of Mean Daily Water Temperature, Sultan River downstream of Culmback Dam, 2015

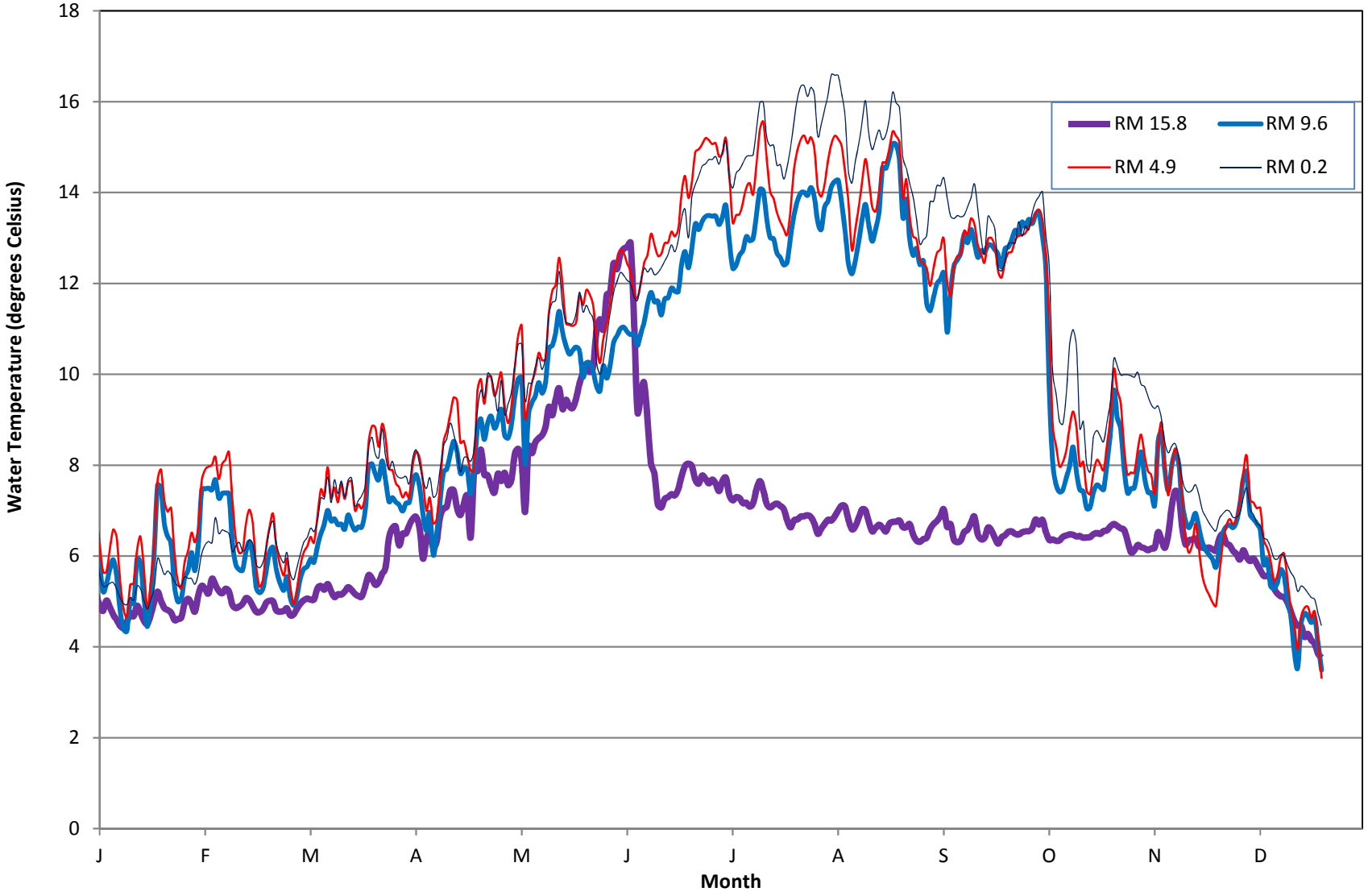
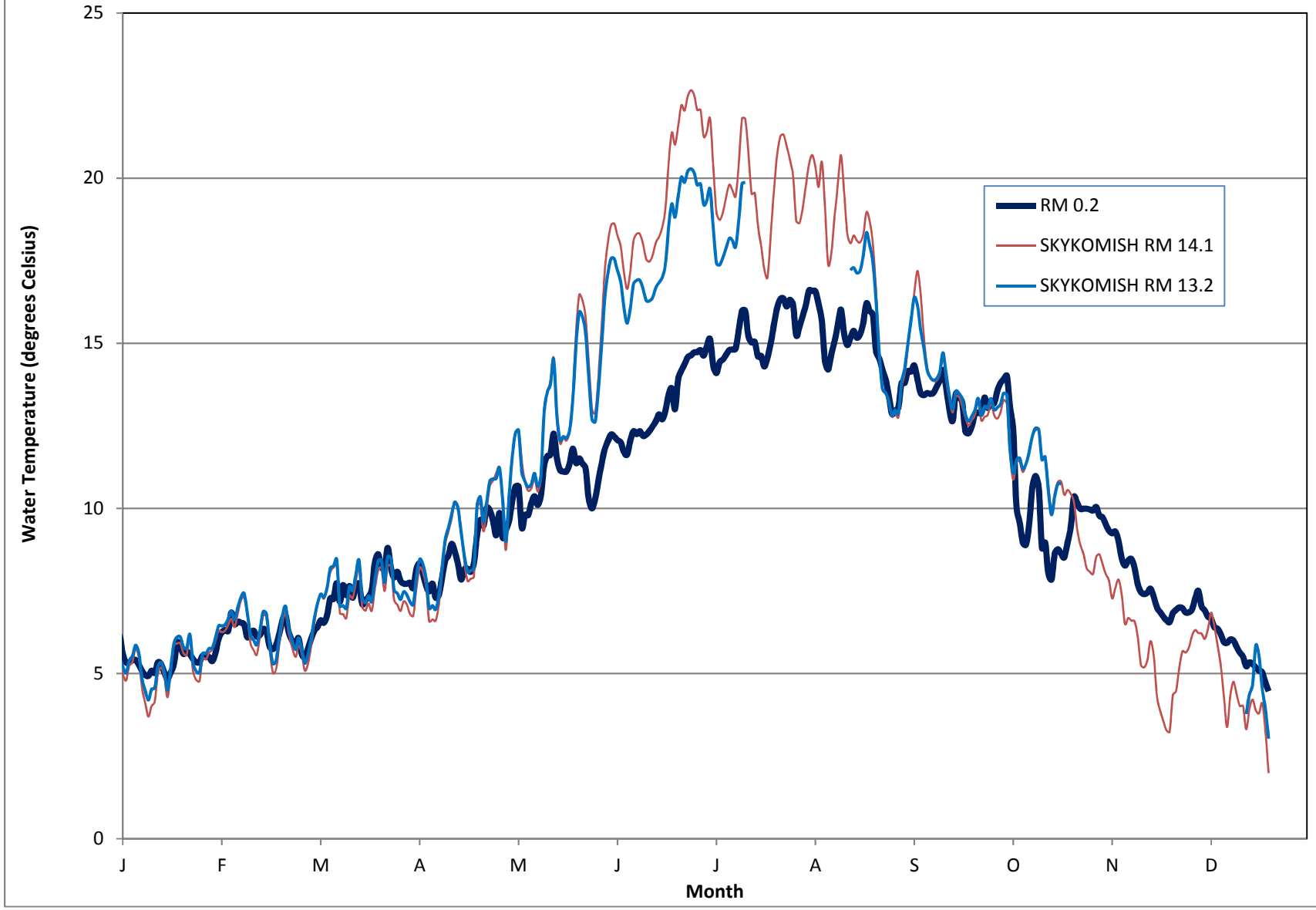


Figure A-4. Mean Daily Water Temperature near confluence of Sultan and Skykomish rivers, 2015



APPENDIX B

2015 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	1.9	4.9	3.5	3.2	2.9	2.8	3.7	3.2	5.0	5.0	3.0	2.4	3.3
1/2	2.6	5.0	4.1	3.8	3.6	3.5	4.2	3.9	5.1	5.2	3.5	3.2	3.9
1/3	2.9	4.9	4.3	4.2	4.0	4.0	4.6	4.5	5.1	5.3	3.7	4.1	4.6
1/4	2.7	4.8	4.2	4.2	4.1	4.2	4.6	4.7	5.1	5.3	3.9	4.3	4.8
1/5	3.6	5.4	5.4	5.6	5.8	6.0	5.9	6.0	6.0	6.0	5.7	4.5	4.8
1/6	4.5	5.1	5.9	6.2	6.4	6.6	6.6	6.8	6.2	6.1	6.3	5.1	5.4
1/7	4.3	4.9	5.1	5.3	5.5	5.8	5.8	6.3	5.5	5.6	6.0	5.0	5.2
1/8	4.4	4.8	4.7	4.8	4.9	5.1	5.2	5.7	5.2	5.3	5.8	4.8	5.0
1/9	4.7	5.0	5.1	5.2	5.2	5.4	5.4	5.7	5.2	5.3	6.1	5.2	5.4
1/10	4.8	4.9	5.3	5.5	5.6	5.8	5.7	6.2	5.3	5.4	6.1	5.3	5.5
1/11	4.9	4.7	5.4	5.6	5.9	6.2	5.9	6.6	5.2	5.4	6.3	5.7	5.9
1/12	4.5	4.6	4.9	5.1	5.4	5.7	5.6	6.4	5.2	5.3	5.9	5.5	5.6
1/13	3.7	4.5	4.3	4.3	4.3	4.6	4.8	5.5	5.0	5.1	5.2	4.6	4.9
1/14	3.4	4.4	4.0	3.9	3.8	3.9	4.4	4.8	4.9	5.0	4.7	4.1	4.5
1/15	3.6	4.5	4.2	4.0	3.9	3.9	4.3	4.7	4.8	4.9	4.7	3.7	4.2
1/16	4.2	4.7	4.9	4.9	5.0	5.0	5.0	5.4	4.9	5.1	5.3	4.0	4.5
1/17	3.8	4.7	4.7	4.7	4.8	5.0	5.0	5.4	4.9	5.0	5.3	4.2	4.6
1/18	4.5	4.9	5.7	5.9	6.1	6.2	5.9	6.1	5.2	5.3	6.3	5.0	5.2
1/19	4.4	4.8	5.4	5.7	6.0	6.2	5.9	6.4	5.1	5.3	6.0	5.2	5.3
1/20	3.8	4.6	4.6	4.7	4.8	5.1	5.1	5.7	4.9	5.0	5.3	4.9	5.1
1/21	3.6	4.5	4.2	4.1	4.1	4.3	4.4	4.8	4.7	4.8	4.8	4.3	4.5
1/22	4.3	4.7	4.9	4.9	5.0	5.1	5.1	5.4	4.9	5.0	5.5	5.0	5.2
1/23	4.8	5.0	5.8	5.9	6.0	6.1	6.1	6.2	5.2	5.3	6.4	5.8	5.9
1/24	5.4	5.2	6.9	7.2	7.4	7.5	7.6	7.6	6.0	5.9	7.2	5.9	6.1
1/25	5.5	5.0	6.6	6.8	7.2	7.4	7.5	7.9	5.8	5.8	7.4	5.9	6.1
1/26	5.4	4.9	5.7	6.0	6.3	6.6	6.7	7.2	5.5	5.6	7.3	5.6	5.8
1/27	5.3	4.8	5.6	5.8	6.1	6.4	6.4	7.0	5.5	5.7	7.1	5.6	5.8
1/28	5.1	4.8	5.5	5.8	6.0	6.5	6.3	7.1	5.4	5.6	6.9	6.1	6.2
1/29	4.3	4.6	4.7	4.8	4.9	5.4	5.3	6.1	5.3	5.4	6.1	5.1	5.3
1/30	4.2	4.6	4.5	4.5	4.5	4.8	5.0	5.4	5.2	5.3	5.8	4.8	5.1
1/31	4.3	4.6	4.7	4.7	4.7	4.9	5.1	5.3	5.2	5.4	5.8	4.8	5.0

		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**
2/1	4.9	5.0	5.2	5.3	5.4	5.6	5.5	5.9	5.4	5.5	6.3	5.5	5.6
2/2	4.7	5.1	5.4	5.5	5.7	5.8	5.7	6.1	5.3	5.5	6.2	5.4	5.6
2/3	4.8	4.9	5.8	6.0	6.2	6.3	6.1	6.5	5.3	5.5	6.4	5.6	5.8
2/4	4.8	4.8	5.3	5.5	5.7	6.0	5.7	6.3	5.2	5.4	6.2	5.7	5.8
2/5	5.5	5.1	6.0	6.2	6.4	6.5	6.3	6.6	5.5	5.6	6.9	6.0	6.1
2/6	5.9	5.3	7.0	7.2	7.5	7.5	7.5	7.7	6.1	6.1	7.5	6.3	6.4
2/7	5.6	5.3	6.8	7.1	7.4	7.5	7.5	7.9	6.2	6.2	7.4	6.3	6.4
2/8	5.6	5.2	6.8	7.1	7.4	7.6	7.5	8.0	6.3	6.3	7.4	6.3	6.5
2/9	5.8	5.5	6.7	7.0	7.4	7.6	7.5	8.0	6.2	6.3	7.5	6.5	6.7
2/10	5.7	5.4	7.0	7.2	7.5	7.7	7.7	8.2	7.0	6.8	7.5	6.7	6.9
2/11		5.2	6.5	6.8	7.1	7.4	7.3	7.7	6.4	6.5	7.4	6.4	6.6
2/12		5.2	6.4	6.8	7.2	7.5	7.4	8.0	6.4	6.6	7.6	6.8	7.0
2/13	6.4	5.3	6.4	6.8	7.2	7.6	7.4	8.1	6.3	6.5	8.0	7.2	7.3
2/14	6.4	5.2	6.5	6.9	7.3	7.8	7.4	8.3	6.6	6.5	7.9	7.3	7.4
2/15	5.2	4.9	5.5	5.8	6.1	6.6	6.3	7.2	6.0	6.1	6.8	6.8	6.8
2/16	4.8	4.9	5.1	5.2	5.3	5.7	5.8	6.4	6.1	6.2	6.3	5.9	6.2
2/17	4.7	4.9	4.9	4.9	4.9	5.3	5.7	6.1	6.1	6.3	6.3	5.7	6.0
2/18	4.9	4.9	5.1	5.2	5.2	5.4	5.7	6.1	5.9	6.1	6.3	5.6	5.9
2/19	5.5	5.1	5.6	5.8	6.0	6.2	6.1	6.7	6.0	6.2	6.8	6.2	6.3
2/20	5.5	5.0	5.7	6.0	6.2	6.6	6.3	7.0	6.3	6.4	6.8	6.8	6.9
2/21	4.7	4.9	5.3	5.5	5.7	6.1	6.0	6.7	6.1	6.3	6.1	6.7	6.8
2/22	4.1	4.8	4.7	4.7	4.7	5.0	5.3	5.8	5.7	5.8	5.5	5.7	5.9
2/23	3.7	4.8	4.4	4.3	4.2	4.5	5.2	5.3	5.7	5.7	5.0	5.0	5.3
2/24	3.8	4.8	4.8	4.7	4.6	4.7	5.3	5.5	5.7	5.9	5.1	5.1	5.4
2/25	4.5	5.0	5.3	5.4	5.5	5.7	5.7	6.2	6.0	6.2	5.7	5.8	6.1
2/26	4.9	5.0	5.5	5.7	5.9	6.3	6.1	6.7	6.3	6.6	6.0	6.5	6.8
2/27	5.0	5.0	5.5	5.7	5.9	6.2	6.2	6.9	6.5	6.8	6.1	6.8	7.0
2/28	4.2	4.8	4.8	4.9	4.9	5.2	5.7	6.2	6.1	6.2	5.5	6.2	6.4

		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
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3/2	4.1	4.8	4.9	5.0	5.0	5.2	5.5	5.9	5.8	6.1	5.1	5.9	6.1
3/3	3.4	4.7	4.4	4.3	4.1	4.3	5.1	5.3	5.5	5.6	4.3	5.6	5.8
3/4	3.0	4.7	4.3	4.0	3.8	3.8	4.9	4.9	5.4	5.5	3.8	5.1	5.3
3/5	3.3	4.8	4.6	4.4	4.2	4.2	5.1	5.3	5.6	5.8	4.1	5.3	5.6
3/6	3.8	5.0	5.0	5.0	4.9	5.0	5.5	5.8	5.8	6.1	4.7	5.8	6.1
3/7	4.2	5.0	5.2	5.1	5.1	5.3	5.7	6.1	6.0	6.3	5.2	6.5	6.7
3/8	4.4	5.1	5.3	5.2	5.2	5.4	5.8	6.2	6.1	6.4	5.4	7.1	7.1
3/9	4.9	5.0	5.3	5.4	5.3	5.6	5.9	6.4	6.3	6.6	5.7	7.4	7.4
3/10	4.8	5.0	5.3	5.3	5.3	5.5	5.9	6.3	6.2	6.5	5.6	7.3	7.3
3/11	5.6	5.3	5.8	6.0	6.2	6.3	6.2	6.9	6.5	6.8	6.4	7.6	7.6
3/12	5.9	5.3	6.2	6.5	6.8	7.0	6.5	7.5	6.7	7.3	7.0	8.1	8.2
3/13	6.2	5.3	6.1	6.5	6.8	7.2	6.7	7.3	7.0	7.3	7.3	8.2	8.3
3/14	6.3	5.4	6.5	6.9	7.2	7.4	7.0	8.0	7.4	7.7	7.9	8.3	8.5
3/15	5.8	5.2	6.4	6.7	7.0	7.2	6.8	7.3	7.1	7.2	7.5	6.8	7.1
3/16	5.5	5.1	6.2	6.4	6.6	6.9	6.8	7.5	7.2	7.7	6.8	6.8	7.1
3/17	5.6	5.2	5.9	6.2	6.5	6.7	6.7	7.2	7.0	7.4	7.0	6.7	7.0
3/18	5.8	5.2	6.1	6.5	6.7	7.1	6.7	7.6	7.2	7.7	7.0	7.4	7.6
3/19	5.8	5.2	5.9	6.3	6.6	6.8	6.6	7.3	7.0	7.3	7.1	7.3	7.5
3/20	6.3	5.3	6.3	6.7	7.0	7.4	6.9	7.6	7.3	7.7	7.6	7.8	8.0
3/21	6.0	5.3	6.3	6.7	7.1	7.4	6.7	7.6	7.2	7.7	7.6	8.2	8.4
3/22	5.5	5.2	5.9	6.2	6.5	6.7	6.6	7.0	6.9	7.1	6.9	7.0	7.3
3/23	5.5	5.1	5.9	6.2	6.5	6.7	6.6	7.1	7.0	7.2	6.7	6.9	7.1
3/24	5.2	5.1	5.8	6.1	6.4	6.6	6.6	7.0	6.9	7.3	6.5	7.1	7.4
3/25	5.4	5.3	6.1	6.4	6.6	6.7	7.0	7.3	7.4	7.5	6.9	6.9	7.2
3/26	6.4	5.6	7.4	7.7	7.9	8.1	8.0	8.5	8.1	8.4	7.9	7.6	7.8
3/27	6.7	5.5	7.1	7.5	7.9	8.2	8.0	8.9	8.3	8.6	8.2	8.1	8.4
3/28	6.2	5.4	7.1	7.5	7.9	8.1	7.8	8.8	8.0	8.2	7.9	8.2	8.4
3/29	6.1	5.4	6.8	7.2	7.6	7.9	7.7	8.4	8.1	8.2	7.8	7.5	7.8
3/30	6.6	5.6	7.1	7.5	8.0	8.4	8.1	8.9	8.5	8.8	8.2	8.3	8.5
3/31	5.9	5.7	6.6	7.1	7.5	7.8	7.7	8.6	8.0	8.2	7.6	8.2	8.5

		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**
4/1	5.2	6.4	6.6	6.7	6.9	7.1	7.2	7.9	7.7	7.9	6.7	7.2	7.5
4/2	5.2	6.6	6.7	6.7	6.8	7.0	7.3	7.9	7.8	8.1	6.6	7.1	7.4
4/3	5.2	6.6	6.6	6.7	6.7	6.8	7.2	7.6	7.6	7.8	6.5	6.9	7.2
4/4	5.0	6.2	6.3	6.5	6.7	6.9	7.1	7.5	7.4	7.7	6.2	7.2	7.5
4/5	5.0	6.5	6.4	6.4	6.4	6.4	7.0	7.3	7.5	7.7	6.0	7.1	7.4
4/6	5.0	6.5	6.5	6.6	6.6	6.6	7.2	7.4	7.5	7.7	6.2	6.8	7.2
4/7	5.1	6.7	6.6	6.7	6.7	6.8	7.2	7.3	7.4	7.6	6.2	6.7	7.1
4/8	5.6	6.8	7.0	7.1	7.3	7.6	7.6	8.0	7.8	8.2	6.5	7.6	7.9
4/9	5.9	6.9	7.2	7.4	7.5	7.8	7.8	8.3	8.1	8.3	6.6	8.2	8.5
4/10	5.9	6.6	7.0	7.2	7.4	7.5	7.5	8.2	7.8	8.0	6.8	8.1	8.3
4/11	4.2	5.9	5.9	6.2	6.4	6.7	6.9	7.6	7.4	7.7	6.2	7.6	7.9
4/12	4.1	6.4	6.0	6.1	6.2	6.2	6.6	7.0	7.2	7.5	6.0	6.6	7.0
4/13	4.5	6.5	6.3	6.4	6.4	6.5	7.0	7.3	7.5	7.7	6.1	6.6	7.1
4/14	3.7	6.2	5.4	5.5	5.5	5.7	6.0	6.7	6.9	7.3	5.3	6.6	6.9
4/15	4.7	6.3	6.4	6.4	6.3	6.3	6.5	6.8	7.0	7.4	5.8	7.1	7.3
4/16	5.1	6.9	6.9	6.8	6.8	7.0	7.2	7.5	7.5	7.9	5.9	8.0	8.2
4/17	5.6	7.0	7.6	7.7	7.8	8.1	7.8	8.5	8.1	8.4	6.8	8.9	9.1
4/18	5.9	7.1	7.9	8.0	8.2	8.6	7.9	8.8	8.2	8.6	6.9	9.3	9.4
4/19	6.5	7.4	8.3	8.5	8.7	9.1	8.2	9.1	8.5	8.9	7.4	9.7	9.8
4/20	7.0	7.4	8.7	9.0	9.2	9.7	8.5	9.5	8.5	8.7	7.9	10.2	10.2
4/21	6.8	7.1	8.3	8.7	9.1	9.5	8.3	9.4	7.9	8.3	8.0	10.1	10.0
4/22	5.9	6.9	7.4	7.8	8.2	8.7	7.8	8.5	7.5	7.8	7.0	9.3	9.3
4/23	5.7	7.1	7.5	7.7	7.9	8.0	7.9	8.5	7.9	8.2	6.7	8.4	8.6
4/24	5.2	7.3	7.0	7.3	7.5	7.8	7.9	8.2	8.0	8.2	6.4	7.8	8.1
4/25	5.1	6.4	6.6	6.7	6.8	6.9	7.4	7.9	7.8	8.1	6.2	7.9	8.1
4/26	5.5	7.8	7.5	7.3	7.1	7.2	7.9	7.9	8.1	8.3	6.0	7.9	8.2
4/27	7.2	7.9	8.9	9.2	9.5	10.0	8.8	9.6	8.7	9.2	7.4	10.0	10.1
4/28	7.1	8.3	9.0	9.2	9.4	9.6	9.0	9.9	9.5	9.7	8.4	10.2	10.4
4/29	6.5	7.8	8.3	8.7	9.1	9.4	8.6	9.4	9.0	9.5	7.7	9.3	9.6
4/30	6.9	7.8	8.7	9.1	9.5	10.0	8.9	9.9	9.3	10.0	7.8	10.0	10.2

		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**
5/1	7.3	7.5	8.5	8.9	9.3	10.0	9.1	9.9	9.3	9.9	7.9	10.7	10.8
5/2	7.3	7.4	8.4	8.8	9.2	9.8	8.8	9.5	9.0	9.6	7.5	10.8	10.9
5/3	7.5	7.8	8.7	9.0	9.4	10.0	9.0	9.8	8.9	9.2	7.4	11.1	10.9
5/4	7.8	7.7	8.8	9.3	9.8	10.3	9.2	10.0	9.4	9.9	7.7	11.2	11.2
5/5	6.4	7.8	7.6	8.0	8.4	8.9	8.7	9.3	9.1	9.1	7.5	10.2	10.3
5/6	6.1	7.6	8.2	8.2	8.3	8.3	8.6	8.9	8.8	9.3	6.9	8.7	9.0
5/7	7.1	7.7	8.5	8.7	8.9	9.2	8.9	9.3	9.1	9.6	7.1	10.2	10.3
5/8	7.9	8.3	9.2	9.6	9.9	10.4	9.5	10.2	9.7	10.2	7.7	11.5	11.6
5/9	8.6	8.4	9.7	10.2	10.7	11.3	9.9	10.9	10.1	10.7	8.5	12.3	12.3
5/10	8.9	8.1	9.5	10.1	10.8	11.5	9.9	11.1	10.2	10.7	9.2	12.4	12.4
5/11	8.4	7.0	6.9	7.3	7.7	8.0	8.0	9.0	9.1	9.4	9.1	11.5	11.1
5/12	8.3	8.4	8.9	8.8	8.9	8.7	9.1	9.4	9.4	9.8	9.0	10.8	10.8
5/13	8.0	8.3	8.7	9.0	9.4	9.6	9.4	9.8	9.5	9.8	8.8	10.5	10.6
5/14	8.0	8.5	9.3	9.5	9.7	9.7	9.5	10.1	9.7	10.2	8.5	10.6	10.7
5/15	8.2	8.6	9.1	9.6	10.2	10.5	9.8	10.5	10.0	10.4	8.9	10.9	11.1
5/16	8.0	8.7	9.0	9.3	9.8	10.0	9.6	10.3	9.9	10.1	9.0	10.5	10.7
5/17	8.9	8.8	9.4	9.7	10.0	10.2	9.8	10.3	9.9	10.4	9.0	10.9	11.0
5/18	9.5	9.3	10.3	10.8	11.4	12.0	10.6	11.4	10.6	11.3	9.5	13.0	12.9
5/19	10.2	9.1	10.4	11.0	11.7	12.3	10.6	11.8	10.8	11.6	10.1	13.5	13.5
5/20	10.9	9.5	10.8	11.5	12.3	12.9	10.9	12.0	11.0	11.6	10.4	13.9	13.8
5/21	11.1	9.7	11.3	12.1	12.9	13.8	11.4	12.6	11.6	12.3	10.8	14.6	14.5
5/22	10.4	9.2	10.3	11.1	11.9	12.6	10.9	12.0	11.4	11.5	10.9	12.7	12.8
5/23	9.8	9.4	9.9	10.3	10.8	11.2	10.6	11.1	10.9	11.2	10.4	12.0	12.1
5/24	9.5	9.3	10.1	10.5	10.9	11.1	10.4	11.1	10.8	11.1	10.2	12.1	12.2
5/25	9.5	9.3	9.8	10.3	10.8	11.1	10.5	11.1	10.8	11.1	10.1	12.1	12.1
5/26	9.5	9.5	10.0	10.3	10.7	11.0	10.6	11.1	10.9	11.4	10.0	12.3	12.4
5/27	10.4	9.8	10.9	11.2	11.6	12.0	10.5	11.7	11.1	11.8	10.4	13.4	13.3
5/28	11.7	10.0	11.7	12.4	13.2	13.9	9.9	11.5	10.6	11.4	10.9	15.3	14.9
5/29	12.6	10.2	12.1	13.0	14.0	14.9	10.2	11.9	10.9	11.5	11.5	16.5	15.9
5/30	12.8	10.1	11.9	12.9	13.9	14.9	10.3	11.8	10.8	11.4	11.5	16.3	15.8
5/31	12.4	10.2	11.7	12.5	13.4	14.3	10.1	11.5	10.6	11.2	11.3	15.8	15.3

		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**
6/1	11.4	11.0	11.1	11.7	12.4	13.1	9.7	10.7	10.1	10.3	11.2	14.4	13.9
6/2	10.3	11.2	11.1	11.4	11.7	11.8	9.6	10.2	9.8	10.0	10.9	13.0	12.7
6/3	9.9	11.0	11.2	11.4	11.7	11.7	10.2	10.8	10.1	10.3	10.4	12.9	12.6
6/4	10.0	11.7	11.8	12.0	12.2	12.2	9.9	11.1	10.4	10.8	10.3	14.0	13.6
6/5	11.5	11.8	13.2	13.5	13.9	14.1	10.2	11.6	10.7	11.3	10.9	15.5	14.9
6/6	12.6	12.4	13.6	14.3	15.0	15.5	10.7	12.2	11.2	11.8	11.5	17.2	16.4
6/7	13.4	12.3	14.2	15.0	15.8	16.4	10.8	12.5	11.4	12.0	12.2	18.1	17.1
6/8	14.0	12.7	14.5	15.3	16.2	16.9	11.0	12.7	11.6	12.2	12.6	18.6	17.6
6/9	14.1	12.8	14.5	15.4	16.3	17.0	11.0	12.7	11.6	12.2	12.7	18.6	17.6
6/10	13.8	12.8	14.4	15.2	16.0	16.7	10.9	12.4	11.5	12.1	12.3	18.3	17.2
6/11	13.5	12.9	14.4	15.0	15.7	16.3	10.9	12.3	11.4	12.0	11.9	17.9	16.9
6/12	12.4	11.2	13.3	14.0	14.7	15.3	10.9	11.8	11.1	11.7	11.3	17.2	16.1
6/13	12.2	9.2	11.7	12.9	14.2	14.8	10.6	11.7	11.1	11.6	10.8	16.6	15.6
6/14	12.5	9.5	11.7	12.8	14.0	15.0	10.9	12.0	11.4	12.0	10.8	17.2	16.1
6/15	13.2	9.8	11.9	13.0	14.2	15.2	11.2	12.5	11.7	12.3	11.3	18.1	16.8
6/16	13.6	9.0	11.8	13.0	14.2	15.2	11.6	12.6	11.3	12.3	11.4	18.3	16.9
6/17	13.6	8.0	10.6	12.0	13.5	14.7	11.8	13.1	11.1	12.3	11.2	18.3	16.9
6/18	13.3	7.8	10.1	11.4	12.6	13.7	11.6	12.9	11.0	12.2	11.4	18.0	16.6
6/19	12.7	7.1	9.1	10.4	11.7	13.1	11.6	12.6	11.1	12.2	11.4	17.5	16.3
6/20	12.9	7.1	9.4	10.5	11.6	12.7	11.3	12.6	11.1	12.3	11.0	17.5	16.3
6/21	12.8	7.3	9.3	10.5	11.7	12.9	11.7	12.9	11.4	12.5	11.0	17.7	16.4
6/22	13.0	7.3	9.5	10.6	11.8	13.0	11.7	12.9	11.4	12.6	11.1	18.0	16.7
6/23	13.3	7.4	9.7	10.9	12.1	13.3	11.9	13.1	11.7	12.8	11.1	18.2	16.8
6/24	13.1	7.3	9.2	10.4	11.7	12.9	11.8	13.0	11.7	12.7	11.4	18.5	17.0
6/25	13.8	7.5	9.7	10.8	12.0	13.1	11.8	13.2	11.5	13.0	11.7	19.1	17.4
6/26	14.9	7.8	10.1	11.5	12.8	14.2	12.4	14.0	11.9	13.4	12.3	20.4	18.5
6/27	15.7	8.0	10.4	11.8	13.2	14.6	12.7	14.4	12.2	13.6	12.9	21.4	19.2
6/28	15.6	8.0	9.9	11.1	12.4	13.7	12.3	13.9	12.1	13.0	13.4	21.0	18.8
6/29	16.3	8.0	10.6	11.8	13.1	14.4	12.8	14.2	12.3	13.9	13.7	21.6	19.4
6/30	16.5	7.7	10.2	11.8	13.3	14.9	13.3	14.9	12.9	14.2	13.8	22.2	20.0

		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
7/1	16.5	7.6	9.8	11.2	12.6	14.1	13.2	15.0	12.9	14.4	13.6	22.0	19.9
7/2	16.8	7.8	10.1	11.4	12.8	14.2	13.4	15.1	13.1	14.6	13.9	22.5	20.2
7/3	17.0	7.7	10.0	11.4	12.8	14.3	13.5	15.2	13.3	14.6	14.0	22.7	20.3
7/4	16.8	7.6	9.9	11.2	12.6	14.1	13.5	15.2	13.6	14.7	13.9	22.5	20.2
7/5	16.7	7.7	9.8	11.1	12.4	13.8	13.5	15.1	13.6	14.7	13.8	22.1	19.8
7/6	16.6	7.6	9.7	11.0	12.3	13.7	13.5	15.1	13.7	14.8	13.8	22.1	19.8
7/7	16.3	7.4	9.4	10.5	11.8	13.1	13.3	14.8	13.6	14.6	13.4	21.3	19.2
7/8	16.6	7.7	9.6	10.8	12.0	13.5	13.5	14.9	13.8	14.9	13.3	21.4	19.3
7/9	17.0	7.7	9.8	11.0	12.3	13.8	13.7	15.2	13.9	15.1	13.5	21.8	19.7
7/10	15.9	7.3	8.7	9.7	10.8	12.1	13.0	14.4	13.6	14.3	13.3	20.3	18.5
7/11	14.6	7.2	8.4	9.1	9.9	10.9	12.3	13.3	13.3	14.1	12.9	19.0	17.4
7/12	14.4	7.3	8.6	9.3	10.1	11.1	12.4	13.5	13.5	14.4	12.8	18.7	17.4
7/13	14.3	7.3	8.4	9.3	10.1	11.4	12.6	13.5	13.4	14.5	12.7	18.9	17.6
7/14	14.5	7.2	8.9	9.8	10.7	11.8	12.7	13.8	13.6	14.6	12.3	19.4	17.9
7/15	14.4	7.2	8.8	9.8	10.8	12.1	13.0	14.1	13.8	14.8	12.2	19.8	18.2
7/16	14.5	7.1	8.7	9.6	10.6	11.9	12.9	14.2	13.8	14.8	12.1	19.6	18.1
7/17	14.4	7.2	8.8	9.8	10.7	12.0	13.0	14.0	13.8	14.8	11.9	19.4	17.9
7/18	15.1	7.5	9.4	10.4	11.4	12.8	13.5	14.6	14.2	15.4	12.1	20.5	18.7
7/19	16.0	7.6	9.7	10.9	12.0	13.6	14.1	15.4	14.7	16.0	12.7	21.8	19.8
7/20	16.2	7.4	9.4	10.6	11.7	13.3	14.0	15.6	14.7	16.0	13.0	21.8	19.9
7/21	15.4	7.1	8.7	9.7	10.8	12.2	13.4	14.7	14.4	15.2	12.7	20.8	
7/22	14.7	7.1	8.5	9.3	10.1	11.2	13.0	14.0	14.2	15.0	12.2	19.5	
7/23	14.5	7.1	8.4	9.2	10.1	11.3	13.0	13.9	14.2	15.0	12.0	19.6	
7/24	13.9	7.2	8.2	8.9	9.7	10.6	12.7	13.6	14.2	14.6	11.9	18.6	
7/25	13.5	7.1	8.4	9.1	9.8	10.6	12.6	13.4	14.0	14.6	12.0	17.9	
7/26	13.0	7.0	8.1	8.7	9.4	10.3	12.4	13.2	14.0	14.3	11.9	17.2	
7/27	12.7	6.8	8.2	8.8	9.4	10.2	12.5	13.1	13.9	14.6	11.8	17.0	
7/28	13.2	6.6	8.3	9.2	10.2	11.3	13.0	13.6	13.9	15.0	11.8	18.3	
7/29	14.0	6.8	8.7	9.7	10.7	12.1	13.5	14.5	14.5	15.6	12.1	19.6	
7/30	14.6	6.8	8.8	9.9	11.0	12.6	13.8	14.9	14.9	16.1	12.4	20.7	
7/31	15.0	6.9	8.9	10.0	11.1	12.7	14.0	15.2	15.1	16.3	12.6	21.3	

		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
8/1	15.3	6.9	8.8	10.0	11.1	12.7	14.0	15.3	15.2	16.4	12.7	21.3	
8/2	15.2	6.9	8.6	9.7	10.8	12.3	13.9	15.1	15.1	16.1	12.9	21.0	
8/3	15.4	6.9	8.6	9.7	10.8	12.3	14.1	15.2	15.2	16.3	12.8	20.6	
8/4	15.2	6.7	8.3	9.3	10.4	11.8	13.9	15.0	15.1	16.2	12.6	20.1	
8/5	14.3	6.5	7.7	8.6	9.5	10.6	13.3	14.1	14.6	15.2	12.1	18.7	
8/6	13.7	6.6	7.9	8.6	9.4	10.4	13.2	13.9	14.5	15.5	11.9	18.6	
8/7	13.9	6.7	8.3	9.1	10.0	11.2	13.7	14.2	14.7	15.8	11.8	19.1	
8/8	14.0	6.8	8.2	9.2	10.3	11.5	13.8	14.7	15.0	16.2	12.0	19.8	
8/9	14.7	6.8	8.7	9.6	10.6	12.0	14.1	15.1	15.3	16.6	12.2	20.4	
8/10	15.1	6.9	8.5	9.6	10.6	12.1	14.2	15.2	15.4	16.6	12.4	20.7	
8/11	14.9	7.0	8.4	9.4	10.4	11.8	14.3	15.2	15.5	16.6	12.6	20.3	
8/12	14.9	7.1	8.5	9.4	10.3	11.4	13.8	15.0	15.0	16.2	12.9	19.7	
8/13	15.4	7.1	8.9	9.8	10.8	12.1	13.2	14.5	14.3	15.7	13.0	20.5	
8/14	14.5	6.8	8.3	9.1	10.0	10.8	12.4	13.8	13.9	14.5	13.1	19.1	
8/15	12.9	6.6	8.4	9.3	10.3	11.2	12.2	12.7	13.2	14.2	13.2	17.4	
8/16	13.0	6.6	8.0	8.7	9.5	10.6	12.5	13.2	13.5	14.7	12.7	17.7	
8/17	13.6	6.8	8.4	9.1	9.9	11.1	12.9	13.7	13.9	15.1	12.6	18.8	
8/18	14.2	7.0	8.6	9.5	10.4	11.7	13.4	14.2	14.4	15.5	12.8	19.8	
8/19	14.7	7.0	8.8	9.8	10.7	12.1	13.7	14.7	14.8	16.0	13.1	20.7	
8/20	14.0	6.7	7.9	8.8	9.8	10.8	13.3	14.3	14.5	15.3	13.0	19.6	
8/21	13.5	6.5	7.9	8.5	9.2	10.1	12.9	13.7	14.2	14.9	12.5	18.3	
8/22	13.2	6.6	7.9	8.6	9.3	10.4	13.2	13.6	14.2	15.2	12.3	18.0	17.2
8/23	13.4	6.7	8.0	8.7	9.5	10.6	13.6	14.0	14.6	15.4	12.5	18.3	17.3
8/24	13.4	6.6	8.0	8.7	9.5	10.6	14.5	14.7	14.7	15.2	12.3	18.1	17.1
8/25	13.2	6.5	7.9	8.5	9.3	10.4	14.5	14.7	14.7	15.3	11.7	18.1	17.2
8/26	13.3	6.7	7.9	8.7	9.4	10.5	14.8	15.0	15.0	15.6	11.7	18.3	17.6
8/27	13.7	6.8	8.2	9.0	9.8	11.0	15.1	15.3	15.4	16.2	12.1	19.0	18.3
8/28	13.5	6.8	7.8	8.6	9.5	10.5	15.1	15.2	15.3	16.0	12.3	18.7	18.0
8/29	13.1	6.8	8.2	8.8	9.4	10.1	14.7	15.1	15.2	15.9	12.6	18.0	17.5
8/30	11.6	6.6	9.3	10.0	10.7	11.1	13.4	13.9	13.9	14.8	12.8	16.6	16.3
8/31	10.7	6.6	8.5	9.0	9.6	10.1	13.9	14.3	14.3	14.5	12.5	14.7	14.7

		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**
9/1	10.4	6.7	9.3	9.8	10.3	10.5	13.0	13.5	13.5	14.2	12.5	13.6	13.6
9/2	10.0	6.5	9.2	9.8	10.5	11.0	12.6	13.0	13.1	13.9	12.1	13.5	13.5
9/3	9.5	6.3	8.3	8.9	9.5	10.1	12.8	13.0	13.0	13.4	11.4	13.2	13.2
9/4	9.1	6.3	7.6	8.2	8.9	9.3	12.4	12.5	12.6	12.9	10.8	12.8	12.8
9/5	9.0	6.4	7.6	8.1	8.7	9.1	12.5	12.4	12.5	13.0	10.5	12.9	13.0
9/6	9.2	6.4	7.8	8.4	9.0	9.4	11.6	12.3	12.7	13.1	10.9	12.8	12.9
9/7	9.8	6.6	7.9	8.6	9.3	10.0	11.4	11.9	12.7	13.8	11.4	13.7	13.8
9/8	9.9	6.7	7.9	8.5	9.2	9.9	11.7	12.3	13.0	13.8	11.6	14.1	14.2
9/9	10.4	6.8	8.1	8.7	9.4	10.3	12.0	12.7	13.2	14.2	11.9	14.9	15.0
9/10	10.7	6.9	8.1	8.7	9.3	10.2	12.1	12.7	13.3	14.1	12.0	15.7	15.7
9/11	11.1	7.0	8.3	8.9	9.5	10.4	12.2	13.0	13.4	14.3	12.6	16.5	16.4
9/12	11.7	6.6	7.4	7.9	8.4	9.0	10.9	12.0	12.9	13.9	13.0	17.2	16.1
9/13	11.5	6.7	7.7	8.2	8.6	8.9	11.8	11.7	13.1	13.5	12.9	16.5	15.4
9/14	10.6	6.4	7.3	7.9	8.5	9.2	12.4	12.4	12.9	13.4	12.0	15.2	14.9
9/15	10.0	6.3	7.3	7.8	8.3	8.9	12.5	12.6	13.1	13.5	11.3	14.3	14.2
9/16	9.5	6.3	7.2	7.6	8.0	8.7	12.7	12.6	13.1	13.5	10.7	14.0	14.0
9/17	9.7	6.5	7.3	7.8	8.3	8.9	13.1	13.2	13.2	13.5	10.8	13.9	13.9
9/18	10.0	6.6	7.8	8.3	8.9	9.4	12.9	13.1	13.2	13.7	11.1	13.9	13.9
9/19	10.2	6.7	7.6	8.2	8.8	9.4	13.2	13.4	13.5	13.9	11.4	14.1	14.1
9/20	10.6	6.9	8.2	8.6	9.1	9.5	12.9	13.3	13.4	14.2	11.9	14.6	14.7
9/21	10.4	6.5	8.2	8.9	9.5	10.1	12.6	12.9	12.9	13.6	11.6	13.9	14.0
9/22	9.6	6.4	7.3	7.9	8.4	9.1	12.7	12.6	12.7	13.0	10.6	13.3	13.4
9/23	8.9	6.4	7.2	7.5	7.9	8.4	12.7	12.5	12.5	12.7	10.0	12.9	13.0
9/24	9.5	6.6	7.6	8.0	8.5	9.1	12.8	13.0	13.0	13.5	10.6	13.4	13.5
9/25	9.8	6.6	7.5	8.0	8.5	9.1	12.8	13.0	13.0	13.4	11.1	13.4	13.5
9/26	9.7	6.4	7.3	7.8	8.2	8.8	12.7	12.8	12.8	13.2	10.8	13.1	13.3
9/27	8.6	6.3	6.8	7.1	7.3	7.9	12.6	12.3	12.3	12.3	9.8	12.8	12.8
9/28	8.3	6.4	6.9	7.1	7.3	7.7	12.4	12.1	12.2	12.3	9.4	12.5	12.6
9/29	8.4	6.5	7.0	7.2	7.5	7.9	12.8	12.5	12.5	12.5	9.5	12.7	12.8
9/30	8.6	6.5	7.1	7.4	7.6	8.1	12.8	12.7	12.7	12.9	9.8	12.8	13.0

		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
10/1	8.9	6.5	7.3	7.6	7.8	8.4	13.0	12.7	12.7	12.9	9.9	13.2	13.3
10/2	8.9	6.5	7.3	7.6	8.0	8.3	13.2	13.0	13.0	12.9	10.0	12.7	12.8
10/3	9.2	6.5	7.6	8.0	8.4	8.9	13.1	13.1	13.1	13.4	10.1	12.8	13.1
10/4	9.0	6.5	7.4	7.7	8.1	8.8	13.4	13.1	13.1	13.0	10.1	12.8	13.0
10/5	9.1	6.5	7.4	7.7	8.1	8.7	13.2	13.1	13.2	13.3	10.3	13.2	13.3
10/6	9.2	6.5	7.4	7.9	8.3	8.8	13.4	13.2	13.3	13.2	10.5	12.8	13.0
10/7	9.6	6.6	7.6	8.1	8.6	9.0	13.3	13.4	13.4	13.6	10.7	12.7	13.1
10/8	10.1	6.8	8.1	8.7	9.3	9.7	13.5	13.5	13.6	13.8	11.3	12.9	13.2
10/9	10.2	6.7	7.9	8.5	9.2	9.8	13.6	13.6	13.7	13.9	11.5	13.3	13.5
10/10	10.6	6.8	9.4	9.7	10.1	10.4	13.0	13.4	13.5	14.0	11.9	13.2	13.4
10/11	9.5	6.5	9.2	9.8	10.3	10.7	12.3	12.5	12.6	13.1	11.3	11.6	11.8
10/12	9.0	6.4	7.2	7.6	8.0	8.5	9.7	11.2	11.2	12.4	11.1	10.9	11.1
10/13	9.6	6.4	7.0	7.3	7.7	8.0	8.1	8.9	9.0	10.0	11.3	11.4	11.5
10/14	8.4	6.3	6.7	7.0	7.2	7.4	7.6	8.4	8.5	9.6	10.2	11.4	11.5
10/15	8.6	6.3	6.7	6.9	7.1	7.2	7.4	8.0	8.0	9.0	10.2	11.1	11.2
10/16	9.1	6.4	6.8	6.9	7.2	7.3	7.5	8.1	8.1	8.9	10.7	11.4	11.4
10/17	9.4	6.5	6.9	7.1	7.4	7.5	7.7	8.3	9.1	9.5	11.1	11.7	11.7
10/18	9.6	6.5	7.0	7.3	7.6	7.8	8.0	8.8	10.0	10.7	11.3	12.2	12.2
10/19	9.7	6.5	7.0	7.3	7.6	7.9	8.4	9.2	10.2	11.0	11.4	12.4	12.4
10/20	9.4	6.4	6.8	7.1	7.4	7.6	7.8	8.8	9.4	10.6	11.1	12.4	12.4
10/21	8.7	6.4	6.8	7.0	7.2	7.3	7.5	8.0	8.0	8.8	10.5	11.5	11.5
10/22	8.9	6.4	6.7	6.9	7.1	7.2	7.4	8.1	8.1	9.0	10.4	11.6	11.6
10/23	7.9	6.4	6.6	6.7	6.9	6.9	7.0	7.4	7.5	8.0	9.4	10.7	10.5
10/24	7.7	6.4	6.6	6.8	6.9	6.9	7.1	7.4	7.4	7.9	9.1	10.0	9.8
10/25	8.5	6.5	6.8	7.0	7.2	7.2	7.4	7.8	7.9	8.6	9.7	10.5	10.4
10/26	8.7	6.5	6.9	7.1	7.3	7.4	7.6	8.1	8.2	8.8	10.0	10.8	10.7
10/27	8.3	6.5	6.8	7.0	7.2	7.3	7.5	8.0	8.1	8.6	9.8	10.8	10.7
10/28	8.3	6.5			7.3	7.3	7.5	7.9	7.9	8.5	10.0	10.4	
10/29	8.6	6.6			7.8	7.9	8.1	8.5	8.5	9.0	10.4	10.6	
10/30	8.9	6.7			8.5	8.6	8.7	9.1	9.1	9.4	10.5	10.4	
10/31	9.0	6.7			9.4	9.5	9.7	10.1	10.1	10.3	10.7	10.2	

		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
11/1	8.2	6.7			8.6	8.8	9.0	9.6	9.7	10.2	10.1	9.4	
11/2	7.7	6.6			8.4	8.6	8.8	9.4	9.7	10.0	9.7	8.9	
11/3	7.1	6.6			7.6	7.8	7.9	8.4	9.7	10.0	8.9	8.6	
11/4	6.5	6.3			7.1	7.2	7.4	7.8	9.7	10.0	8.4	8.2	
11/5	6.7	6.1			7.3	7.3	7.5	7.8	9.7	10.0	8.4	8.1	
11/6	6.7	6.1			7.3	7.4	7.5	7.8	9.6	9.9	8.5	8.0	
11/7	7.3	6.2			7.7	7.8	7.9	8.3	9.7	10.0	9.1	8.5	
11/8	7.3	6.2			8.0	8.1	8.3	8.7	9.5	9.8	8.9	8.6	
11/9	6.8	6.2			7.5	7.6	7.7	8.2	9.4	9.7	8.5	8.3	
11/10	6.3	6.1			7.2	7.3	7.4	7.9	9.2	9.5	8.0	8.0	
11/11	6.2	6.2			7.2	7.2	7.4	7.8	9.0	9.3	7.9	7.8	
11/12	6.0	6.2			7.0	7.0	7.1	7.4	9.0	9.2	7.7	7.3	
11/13	7.0	6.5			8.5	8.4	8.5	8.5	9.0	9.3	8.8	7.6	
11/14	7.0	6.3			8.5	8.5	8.7	8.9	8.9	9.0	8.7	7.8	
11/15	6.0	6.2			7.2	7.4	7.9	7.9	8.2	8.5	7.8	7.4	
11/16	5.4	6.5			6.7	6.8	7.4	7.3	8.1	8.3	7.3	6.5	
11/17	5.8	7.1			7.8	7.8	8.0	8.0	8.2	8.4	8.1	6.7	
11/18	5.8	7.4			8.2	8.1	8.3	8.4	8.4	8.5	7.5	6.6	
11/19	5.3	7.4			8.0	7.9	8.1	8.1	8.1	8.2	7.0	6.6	
11/20	4.7	6.7			7.0	6.9	7.2	7.3	7.6	7.7	6.2	6.1	
11/21	4.3	6.3			5.2	5.6	6.8	6.4	7.5	7.5	5.6	5.3	
11/22	4.3	6.3			4.0	5.1	6.6	6.1	7.4	7.4	5.5	5.2	
11/23	4.5	6.4			4.8	5.4	6.8	6.2	7.5	7.5	5.6	5.4	
11/24	4.6	6.4			5.8	6.0	6.9	6.7	7.5	7.6	5.7	6.0	
11/25	4.1	6.2			5.2	5.1	6.6	6.1	7.2	7.3	4.8	5.6	
11/26	3.5	6.2			4.3	4.2	6.3	5.6	7.0	7.0	4.2	4.3	
11/27	3.2	6.2			4.1	3.8	6.1	5.3	6.8	6.9	4.1	3.9	
11/28	3.0	6.2			3.9	3.5	6.0	5.1	6.7	6.7	3.8	3.6	
11/29	2.8	6.1			3.8	3.3	5.9	5.0	6.6	6.6	3.5	3.3	
11/30	2.6	6.1			3.8	3.4	5.8	4.9	6.5	6.6	3.3	3.2	

		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
12/1	3.3	6.4			4.9	4.5	6.2	5.6	6.7	6.8	4.3	4.3	
12/2	3.8	6.5			5.8	5.5	6.5	6.3	6.8	6.9	5.0	4.5	
12/3	4.4	6.3			6.4	6.3	6.6	6.7	6.8	7.0	6.0	5.2	
12/4	4.6	6.2			6.5	6.5	6.7	6.8	6.8	7.0	6.5	5.7	
12/5	4.8	6.1			6.5	6.5	6.6	6.7	6.7	6.9	6.4	5.6	
12/6	4.9	6.0			6.6	6.6	6.8	6.8	6.7	6.9	6.7	5.8	
12/7	5.2	5.9			7.0	7.0	7.1	7.2	6.8	6.9	7.0	6.1	
12/8	5.6	6.1			7.6	7.6	7.7	7.8	7.3	7.3	7.7	6.3	
12/9	5.5	6.0			7.7	7.8	7.9	8.2	7.5	7.5	7.6	6.2	
12/10	5.3	5.9			6.8	6.8	6.9	7.2	7.0	7.0	7.1	6.2	
12/11	5.2	5.9			6.7	6.7	6.8	7.2	6.9	6.9	6.9	6.1	
12/12	5.0	5.8			6.6	6.6	6.7	7.0	6.6	6.7	6.5	6.4	
12/13	4.4	5.7			6.4	6.4	6.6	7.1	6.5	6.7	6.3	6.8	
12/14	4.0	5.6			5.7	5.6	5.8	6.4	6.2	6.4	5.9	6.4	
12/15	4.1	5.6			5.7	5.7	5.9	6.2	6.2	6.4	5.6	5.9	
12/16	3.6	5.5			5.0	5.0	5.4	5.9	6.1	6.2	5.4	5.3	
12/17	3.0	5.3			4.9	4.9	5.3	5.5	5.8	6.0	5.0	4.3	
12/18	2.7	5.2			5.1	5.2	5.4	5.6	5.8	5.9	5.5	3.4	
12/19	3.5	5.1			5.4	5.5	5.7	6.0	5.9	6.0	5.5	4.3	
12/20	3.4	5.1			5.2	5.3	5.6	6.1	5.9	6.0	5.4	4.8	
12/21	3.1	5.0			4.6	4.7	5.0	5.5	5.7	5.8	5.1	4.4	
12/22	2.7	4.8			4.3	4.3	4.7	4.9	5.4	5.6	4.6	4.0	
12/23	2.0	4.6			3.4	3.4	3.9	4.5	5.3	5.5	3.7	4.0	
12/24	1.3	4.5			2.9	3.1	3.5	4.0	5.0	5.2	3.2	3.3	3.8
12/25	2.2	4.5			4.0	4.2	4.5	4.7	5.2	5.3	3.8	3.9	4.4
12/26	2.5	4.2			4.3	4.4	4.7	4.9	5.2	5.3	3.8	4.2	4.7
12/27	2.6	4.3			4.2	4.2	4.7	4.9	5.1	5.2	3.5	3.9	5.9
12/28	2.6	4.1			4.0	4.1	4.5	4.6	5.0	5.1	3.5	3.8	5.5
12/29	2.7	4.1			4.2	4.2	4.6	4.8	4.9	5.0	3.6	4.1	4.6
12/30	2.1	3.8			3.4	3.3	4.1	4.1	4.7	4.7	2.9	3.3	3.9
12/31	1.4	3.8			2.6	2.3	3.5	3.3	4.5	4.5	2.1	2.0	3.0

APPENDIX C

2015 Seven-Day Average of the Daily Maximum (7-DAD Max) Water Temperature in Tabular Format

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
1/1	2.8	5.0	4.2	4.1	3.9	4.0	4.5	4.5	5.2	5.3	4.0	3.9	4.4
1/2	2.9	5.0	4.4	4.3	4.1	4.2	4.6	4.6	5.3	5.4	4.1	3.9	4.4
1/3	3.2	5.1	4.6	4.6	4.5	4.6	5.0	4.9	5.6	5.6	4.4	4.0	4.5
1/4	3.6	5.1	4.9	4.9	4.9	5.0	5.3	5.4	5.7	5.7	4.9	4.4	4.8
1/5	3.9	5.1	5.1	5.2	5.2	5.4	5.6	5.8	5.7	5.7	5.3	4.7	5.1
1/6	4.2	5.1	5.3	5.4	5.4	5.7	5.7	6.0	5.8	5.8	5.6	4.9	5.2
1/7	4.5	5.1	5.4	5.6	5.7	5.9	5.9	6.3	5.8	5.8	6.0	5.1	5.4
1/8	4.8	5.1	5.6	5.8	5.9	6.2	6.1	6.5	5.8	5.8	6.3	5.3	5.5
1/9	4.9	5.0	5.5	5.7	5.8	6.1	6.0	6.5	5.6	5.7	6.3	5.5	5.6
1/10	4.7	4.9	5.3	5.4	5.6	5.9	5.8	6.4	5.3	5.5	6.1	5.4	5.6
1/11	4.6	4.8	5.1	5.2	5.3	5.6	5.5	6.2	5.2	5.4	5.9	5.3	5.5
1/12	4.5	4.8	5.0	5.1	5.2	5.5	5.4	6.0	5.1	5.3	5.8	5.2	5.4
1/13	4.4	4.7	5.0	5.1	5.2	5.4	5.4	6.0	5.1	5.3	5.7	5.0	5.3
1/14	4.3	4.7	4.9	5.0	5.1	5.3	5.3	5.9	5.1	5.2	5.7	4.9	5.2
1/15	4.3	4.8	5.0	5.1	5.2	5.3	5.3	5.8	5.1	5.2	5.7	4.7	5.1
1/16	4.2	4.8	5.0	5.1	5.2	5.3	5.3	5.8	5.1	5.2	5.6	4.7	5.0
1/17	4.2	4.8	5.1	5.2	5.3	5.4	5.4	5.8	5.0	5.2	5.7	4.7	5.0
1/18	4.3	4.8	5.2	5.2	5.4	5.5	5.4	5.8	5.0	5.2	5.7	4.8	5.0
1/19	4.4	4.8	5.2	5.3	5.5	5.7	5.5	6.0	5.0	5.2	5.8	5.0	5.2
1/20	4.5	4.9	5.4	5.6	5.8	5.9	5.7	6.2	5.1	5.3	6.0	5.2	5.4
1/21	4.7	4.9	5.7	5.9	6.1	6.2	6.1	6.5	5.3	5.4	6.2	5.4	5.6
1/22	4.8	5.0	5.8	6.0	6.2	6.4	6.3	6.7	5.4	5.5	6.4	5.6	5.7
1/23	5.0	5.0	5.9	6.1	6.3	6.5	6.5	6.9	5.5	5.5	6.6	5.6	5.8
1/24	5.2	5.0	6.0	6.2	6.4	6.6	6.6	7.0	5.6	5.6	6.8	5.7	5.9
1/25	5.4	5.1	6.2	6.4	6.7	6.9	6.9	7.3	5.7	5.7	7.1	6.0	6.1
1/26	5.4	5.0	6.2	6.4	6.7	6.9	6.9	7.4	5.7	5.8	7.2	6.0	6.2
1/27	5.3	5.0	5.9	6.1	6.3	6.6	6.6	7.3	5.7	5.8	7.1	5.9	6.1
1/28	5.2	4.9	5.6	5.8	6.0	6.3	6.3	6.9	5.5	5.7	6.9	5.8	5.9
1/29	5.1	4.9	5.4	5.5	5.7	6.0	6.0	6.6	5.5	5.7	6.7	5.7	5.8
1/30	5.0	4.9	5.3	5.5	5.6	5.9	5.8	6.4	5.4	5.6	6.5	5.7	5.8
1/31	4.9	5.0	5.4	5.5	5.6	5.9	5.8	6.4	5.4	5.6	6.4	5.7	5.8

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
2/1	4.9	5.0	5.3	5.4	5.6	5.8	5.7	6.3	5.4	5.6	6.3	5.6	5.7
2/2	5.1	5.1	5.6	5.7	5.8	6.0	5.9	6.4	5.4	5.6	6.5	5.7	5.8
2/3	5.3	5.2	6.0	6.1	6.3	6.4	6.3	6.7	5.6	5.7	6.7	5.8	6.0
2/4	5.5	5.2	6.2	6.4	6.6	6.7	6.6	7.0	5.8	5.8	6.9	6.0	6.1
2/5	5.6	5.3	6.5	6.7	6.9	7.0	6.9	7.3	5.9	5.9	7.1	6.2	6.3
2/6	5.7	5.3	6.6	6.9	7.1	7.3	7.1	7.6	6.1	6.1	7.2	6.3	6.4
2/7	5.8	5.4	6.8	7.0	7.3	7.5	7.4	7.8	6.4	6.3	7.4	6.4	6.6
2/8		5.4	7.0	7.2	7.5	7.7	7.6	8.0	6.6	6.5	7.6	6.5	6.7
2/9		5.4	7.0	7.3	7.6	7.7	7.7	8.1	6.7	6.6	7.6	6.7	6.9
2/10		5.4	6.9	7.2	7.5	7.8	7.7	8.2	6.7	6.7	7.7	6.8	7.0
2/11		5.4	6.9	7.2	7.6	7.8	7.7	8.3	6.8	6.7	7.8	7.0	7.2
2/12		5.4	6.8	7.1	7.5	7.8	7.6	8.3	6.8	6.7	7.8	7.1	7.3
2/13		5.3	6.6	6.8	7.2	7.5	7.4	8.1	6.7	6.7	7.6	7.1	7.3
2/14		5.2	6.2	6.5	6.8	7.2	7.1	7.8	6.5	6.7	7.5	7.0	7.2
2/15		5.2	6.0	6.3	6.5	6.9	6.9	7.6	6.4	6.6	7.3	6.9	7.1
2/16	5.8	5.1	5.9	6.1	6.4	6.8	6.7	7.4	6.3	6.6	7.2	6.8	7.0
2/17	5.6	5.1	5.8	6.0	6.2	6.6	6.5	7.2	6.3	6.6	7.0	6.8	6.9
2/18	5.4	5.1	5.6	5.8	6.0	6.4	6.3	7.0	6.3	6.6	6.8	6.7	6.8
2/19	5.2	5.0	5.5	5.6	5.8	6.1	6.2	6.8	6.2	6.6	6.6	6.6	6.7
2/20	5.0	5.0	5.4	5.5	5.6	6.0	6.1	6.6	6.1	6.6	6.4	6.5	6.7
2/21	4.9	5.0	5.4	5.5	5.6	5.9	6.0	6.5	6.1	6.6	6.2	6.4	6.6
2/22	4.9	5.0	5.5	5.5	5.6	6.0	6.0	6.5	6.1	6.7	6.1	6.5	6.7
2/23	4.8	5.0	5.5	5.5	5.6	6.0	6.1	6.5	6.2	6.8	6.0	6.6	6.8
2/24	4.7	5.0	5.4	5.5	5.6	6.0	6.1	6.5	6.2	6.9	5.9	6.6	6.8
2/25	4.7	5.0	5.4	5.4	5.5	5.9	6.0	6.5	6.2	6.9	5.8	6.6	6.8
2/26	4.6	5.0	5.4	5.5	5.5	5.8	6.0	6.4	6.2	6.9	5.8	6.5	6.8
2/27	4.7	5.0	5.5	5.6	5.6	6.0	6.0	6.5	6.2	7.0	5.8	6.6	6.9
2/28	4.6	5.0	5.4	5.5	5.6	5.9	6.0	6.5	6.2	6.9	5.7	6.7	7.0

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
3/1	4.4	5.0	5.3	5.3	5.3	5.7	6.0	6.3	6.1	6.9	5.4	6.7	7.0
3/2	4.2	4.9	5.2	5.2	5.1	5.4	5.8	6.2	6.0	6.8	5.2	6.6	6.8
3/3	4.1	5.0	5.3	5.1	5.0	5.4	5.8	6.0	5.9	6.8	5.0	6.6	6.8
3/4	4.1	5.0	5.3	5.1	5.0	5.5	5.8	6.0	5.9	6.9	4.9	6.7	6.9
3/5	4.2	5.1	5.4	5.2	5.1	5.6	5.9	6.1	6.0	7.1	5.0	7.1	7.2
3/6	4.4	5.1	5.5	5.3	5.2	5.7	6.0	6.2	6.1	7.3	5.1	7.4	7.5
3/7	4.7	5.2	5.7	5.5	5.3	5.9	6.1	6.3	6.2	7.4	5.3	7.6	7.7
3/8	5.1	5.2	5.9	5.7	5.7	6.2	6.3	6.6	6.4	7.5	5.7	7.9	7.9
3/9	5.4	5.3	6.0	6.0	6.0	6.6	6.4	6.9	6.5	7.7	6.0	8.2	8.3
3/10	5.8	5.3	6.2	6.2	6.3	6.9	6.6	7.1	6.8	7.9	6.4	8.5	8.6
3/11	6.1	5.4	6.3	6.4	6.5	7.0	6.8	7.4	7.0	8.0	6.8	8.6	8.7
3/12	6.2	5.4	6.4	6.6	6.7	7.2	6.9	7.5	7.1	7.9	7.1	8.4	8.5
3/13	6.3	5.4	6.5	6.7	7.0	7.3	7.0	7.7	7.3	8.0	7.3	8.2	8.4
3/14	6.4	5.4	6.6	6.9	7.1	7.5	7.2	7.8	7.4	8.1	7.4	8.1	8.3
3/15	6.4	5.3	6.7	7.0	7.2	7.6	7.2	7.9	7.5	8.3	7.5	8.1	8.4
3/16	6.4	5.3	6.7	6.9	7.2	7.6	7.2	7.8	7.5	8.2	7.5	7.9	8.2
3/17	6.3	5.3	6.6	6.9	7.2	7.5	7.2	7.9	7.5	8.1	7.6	7.8	8.1
3/18	6.3	5.3	6.6	6.9	7.2	7.6	7.1	7.8	7.5	8.2	7.5	7.9	8.1
3/19	6.3	5.3	6.5	6.8	7.1	7.5	7.0	7.8	7.4	8.2	7.4	7.9	8.2
3/20	6.3	5.3	6.4	6.7	7.0	7.4	7.0	7.7	7.3	8.1	7.4	7.9	8.2
3/21	6.2	5.3	6.4	6.7	7.0	7.4	7.0	7.6	7.3	8.1	7.3	8.0	8.2
3/22	6.1	5.4	6.4	6.7	7.1	7.4	7.0	7.6	7.3	8.0	7.3	7.8	8.1
3/23	6.2	5.4	6.7	7.0	7.3	7.6	7.3	7.8	7.5	8.3	7.5	8.0	8.2
3/24	6.3	5.5	6.9	7.2	7.5	7.8	7.5	8.0	7.7	8.5	7.6	8.1	8.4
3/25	6.4	5.5	7.0	7.3	7.6	7.9	7.7	8.2	7.8	8.5	7.7	8.0	8.3
3/26	6.5	5.5	7.2	7.5	7.8	8.1	7.9	8.4	8.0	8.7	7.8	8.1	8.3
3/27	6.7	5.6	7.4	7.7	8.1	8.4	8.1	8.7	8.2	9.0	8.0	8.3	8.6
3/28	6.9	5.8	7.5	7.9	8.2	8.5	8.3	9.0	8.4	9.0	8.3	8.5	8.8
3/29	6.8	5.9	7.6	7.9	8.3	8.6	8.3	9.2	8.5	9.1	8.2	8.5	8.8
3/30	6.6	6.1	7.4	7.8	8.1	8.4	8.1	9.0	8.4	9.1	8.0	8.4	8.7
3/31	6.4	6.2	7.3	7.6	7.9	8.1	8.0	8.8	8.3	8.9	7.7	8.2	8.5

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
4/1	6.2	6.4	7.2	7.5	7.8	8.1	7.9	8.6	8.2	9.0	7.4	8.1	8.5
4/2	6.2	6.6	7.3	7.5	7.7	7.9	7.8	8.5	8.2	9.0	7.2	8.1	8.5
4/3	5.9	6.8	7.2	7.3	7.5	7.6	7.7	8.3	8.0	8.8	6.9	7.9	8.3
4/4	5.8	6.8	7.2	7.3	7.4	7.5	7.6	8.1	7.9	8.8	6.7	7.7	8.1
4/5	6.0	6.9	7.3	7.4	7.5	7.7	7.7	8.2	7.9	8.9	6.7	7.9	8.3
4/6	6.1	7.0	7.3	7.5	7.6	7.9	7.8	8.2	8.0	8.9	6.7	8.1	8.5
4/7	6.2	7.0	7.4	7.6	7.7	8.1	7.8	8.3	8.0	9.0	6.7	8.3	8.7
4/8	6.2	6.9	7.4	7.6	7.7	8.0	7.8	8.3	8.0	9.0	6.8	8.3	8.6
4/9	6.1	6.8	7.3	7.5	7.7	8.0	7.8	8.3	8.0	8.8	6.7	8.1	8.5
4/10	6.0	6.8	7.3	7.5	7.6	8.0	7.8	8.2	8.0	8.8	6.7	8.1	8.5
4/11	5.7	6.7	7.1	7.2	7.4	7.7	7.6	8.1	7.9	8.7	6.6	8.1	8.4
4/12	5.6	6.6	7.1	7.2	7.3	7.5	7.5	7.9	7.8	8.7	6.5	8.0	8.4
4/13	5.6	6.7	7.2	7.2	7.2	7.4	7.5	7.9	7.7	8.6	6.5	8.1	8.4
4/14	5.7	6.8	7.4	7.4	7.5	7.7	7.6	8.0	7.8	8.9	6.5	8.3	8.6
4/15	5.9	7.0	7.8	7.8	7.8	8.1	7.8	8.2	7.9	9.1	6.6	8.7	9.0
4/16	6.4	7.2	8.3	8.3	8.3	8.6	8.1	8.5	8.1	9.5	6.9	9.2	9.5
4/17	6.8	7.4	8.7	8.8	8.9	9.3	8.4	9.0	8.3	9.7	7.1	9.9	10.1
4/18	7.4	7.6	9.2	9.3	9.5	9.9	8.8	9.4	8.5	9.9	7.5	10.4	10.5
4/19	7.4	7.8	9.3	9.5	9.7	10.2	8.9	9.6	8.6	9.9	7.7	10.6	10.7
4/20	7.4	7.9	9.2	9.4	9.7	10.2	8.9	9.6	8.7	9.8	7.7	10.5	10.6
4/21	7.2	7.9	9.0	9.2	9.5	10.0	8.8	9.5	8.7	9.6	7.6	10.2	10.3
4/22	6.9	7.9	8.7	8.9	9.1	9.6	8.7	9.3	8.6	9.3	7.4	9.9	10.1
4/23	6.7	7.9	8.6	8.7	8.9	9.3	8.6	9.2	8.5	9.1	7.3	9.7	9.8
4/24	6.8	8.2	8.6	8.7	8.9	9.5	8.7	9.3	8.5	9.3	7.2	9.8	9.9
4/25	6.7	8.6	8.7	8.7	8.9	9.4	8.8	9.3	8.8	9.4	7.3	9.8	9.9
4/26	6.8	8.6	8.9	8.9	9.0	9.5	8.9	9.5	9.0	9.7	7.4	9.8	10.0
4/27	7.1	8.6	9.1	9.2	9.4	10.0	9.1	9.8	9.2	10.1	7.5	10.1	10.4
4/28	7.5	8.7	9.4	9.5	9.8	10.4	9.3	10.2	9.4	10.5	7.7	10.7	10.9
4/29	8.0	8.8	9.8	10.0	10.4	11.0	9.6	10.5	9.6	11.0	7.9	11.2	11.4
4/30	8.4	8.8	10.0	10.3	10.8	11.4	9.9	10.7	9.8	11.2	8.1	11.7	11.8

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
5/1	8.4	8.6	9.9	10.3	10.7	11.3	9.9	10.7	9.9	11.4	8.0	11.7	11.9
5/2	8.4	8.3	9.7	10.2	10.7	11.3	9.8	10.7	9.8	11.3	8.0	11.7	11.9
5/3	8.4	8.4	9.7	10.2	10.7	11.3	9.8	10.6	9.7	11.2	7.9	11.7	11.8
5/4	8.6	8.3	9.8	10.2	10.6	11.2	9.9	10.5	9.7	11.2	7.8	11.8	11.9
5/5	8.7	8.5	10.1	10.5	10.8	11.3	10.0	10.6	9.8	11.4	7.8	12.0	12.1
5/6	8.9	8.6	10.3	10.7	11.1	11.6	10.2	10.8	9.9	11.6	8.0	12.2	12.3
5/7	9.0	8.6	10.3	10.7	11.2	11.7	10.3	11.0	10.1	11.8	8.2	12.3	12.5
5/8	9.0	8.7	10.2	10.6	11.1	11.6	10.2	11.0	10.1	11.5	8.4	12.3	12.4
5/9	9.2	8.8	10.4	10.7	11.1	11.5	10.2	11.0	10.1	11.6	8.6	12.3	12.4
5/10	9.4	8.8	10.4	10.8	11.2	11.5	10.3	11.1	10.2	11.6	8.8	12.5	12.6
5/11	9.4	9.0	10.5	10.8	11.1	11.5	10.3	11.2	10.2	11.5	9.0	12.4	12.5
5/12	9.2	9.0	10.2	10.5	10.9	11.2	10.2	11.1	10.2	11.3	9.1	12.1	12.2
5/13	8.9	9.1	9.9	10.1	10.5	10.8	10.0	11.0	10.1	11.0	9.1	11.7	11.8
5/14	8.9	9.3	9.8	10.0	10.4	10.5	9.9	10.8	10.0	10.7	9.1	11.4	11.5
5/15	9.2	9.4	10.2	10.4	10.8	11.0	10.2	11.1	10.2	11.3	9.2	11.8	11.9
5/16	9.6	9.5	10.5	10.7	11.2	11.6	10.4	11.5	10.4	11.7	9.4	12.3	12.5
5/17	10.2	9.8	11.0	11.3	11.8	12.3	10.7	11.9	10.7	12.1	9.7	12.9	13.1
5/18	10.8	10.0	11.3	11.8	12.5	13.1	11.0	12.4	11.1	12.6	10.0	13.6	13.7
5/19	11.1	10.2	11.5	12.1	12.8	13.5	11.2	12.7	11.4	12.7	10.3	13.9	14.0
5/20	11.4	10.2	11.5	12.2	13.0	13.7	11.3	12.8	11.5	12.8	10.5	14.1	14.2
5/21	11.3	10.2	11.6	12.3	13.1	13.8	11.4	12.8	11.6	12.9	10.6	14.3	14.4
5/22	11.2	10.2	11.3	12.0	12.7	13.3	11.3	12.6	11.6	12.6	10.7	13.9	14.0
5/23	10.9	10.2	11.2	11.8	12.5	13.0	11.3	12.4	11.6	12.4	10.6	13.7	13.8
5/24	10.9	10.2	11.2	11.7	12.4	12.9	11.2	12.4	11.6	12.5	10.6	13.7	13.8
5/25	11.3	10.2	11.2	11.8	12.5	13.0	11.0	12.2	11.4	12.4	10.7	14.0	13.9
5/26	12.0	10.3	11.8	12.3	12.9	13.4	10.9	12.3	11.4	12.7	10.8	14.6	14.5
5/27	12.7	10.5	12.3	12.9	13.6	14.1	10.9	12.6	11.5	13.0	10.9	15.4	15.2
5/28	13.4	10.6	12.7	13.4	14.1	14.8	10.9	12.8	11.5	13.2	11.1	16.0	15.8
5/29	13.6	10.9	13.0	13.7	14.5	15.2	10.8	12.7	11.4	13.1	11.3	16.5	16.2
5/30	13.7	11.2	13.1	13.8	14.6	15.2	10.7	12.6	11.2	12.8	11.4	16.5	16.1
5/31	13.4	11.3	12.9	13.6	14.4	15.0	10.5	12.3	11.1	12.4	11.4	16.3	15.9

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
6/1	12.8	11.6	12.8	13.3	14.0	14.6	10.5	12.2	11.0	12.2	11.3	16.0	15.6
6/2	12.7	11.7	13.0	13.5	14.1	14.6	10.5	12.1	11.0	12.2	11.2	15.9	15.5
6/3	12.7	12.1	13.3	13.7	14.3	14.8	10.6	12.2	11.0	12.3	11.3	16.2	15.7
6/4	13.0	12.3	13.7	14.2	14.8	15.2	10.7	12.5	11.2	12.5	11.4	16.6	16.1
6/5	13.7	12.5	14.5	14.9	15.5	16.0	10.8	13.0	11.5	13.1	11.7	17.4	16.7
6/6	14.7	12.8	15.3	15.8	16.4	17.1	11.1	13.6	11.9	13.6	11.9	18.4	17.7
6/7	15.5	13.1	16.0	16.6	17.3	18.1	11.2	14.0	12.2	14.1	12.2	19.3	18.5
6/8	16.3	13.4	16.6	17.3	18.0	18.8	11.4	14.3	12.4	14.4	12.4	19.9	19.0
6/9	16.2	13.6	16.4	17.1	17.9	18.8	11.6	14.4	12.5	14.3	12.5	20.0	19.1
6/10	16.1	13.1	16.1	16.9	17.7	18.7	11.6	14.3	12.5	14.2	12.3	19.9	18.9
6/11	16.0	12.7	15.7	16.5	17.5	18.5	11.6	14.3	12.5	14.2	12.1	19.8	18.8
6/12	15.8	12.3	15.2	16.1	17.1	18.2	11.6	14.2	12.5	14.2	11.9	19.8	18.7
6/13	15.7	11.7	14.8	15.8	16.8	17.9	11.7	14.2	12.3	14.2	11.8	19.7	18.6
6/14	15.6	11.0	14.2	15.3	16.5	17.6	11.9	14.2	12.2	14.3	11.6	19.8	18.6
6/15	15.4	10.2	13.4	14.6	15.8	17.0	12.0	14.1	12.0	14.2	11.5	19.7	18.4
6/16	15.4	9.2	12.7	14.1	15.4	16.7	12.1	14.2	12.0	14.3	11.5	19.7	18.4
6/17	15.5	8.9	12.4	13.8	15.1	16.4	12.2	14.2	11.9	14.5	11.5	19.9	18.5
6/18	15.4	8.5	12.1	13.4	14.7	16.0	12.4	14.2	11.8	14.5	11.6	19.8	18.5
6/19	15.3	8.1	11.7	13.0	14.4	15.7	12.5	14.2	11.7	14.6	11.5	19.8	18.5
6/20	15.2	7.8	11.4	12.8	14.2	15.4	12.6	14.3	11.7	14.7	11.5	19.8	18.5
6/21	14.9	7.7	11.1	12.4	13.7	15.0	12.5	14.1	11.9	14.6	11.5	19.7	18.4
6/22	15.1	7.6	11.2	12.5	13.9	15.1	12.7	14.3	11.9	14.9	11.6	20.1	18.7
6/23	15.6	7.7	11.5	12.9	14.3	15.4	12.8	14.6	12.0	15.2	11.8	20.6	19.1
6/24	15.9	7.9	11.6	13.0	14.4	15.6	13.0	14.9	12.2	15.3	12.1	21.1	19.5
6/25	16.0	7.9	11.5	12.9	14.4	15.6	13.0	14.9	12.3	15.1	12.4	21.5	19.6
6/26	16.4	8.1	11.7	13.1	14.7	15.8	13.2	15.1	12.4	15.4	12.8	22.0	20.1
6/27	16.9	8.1	11.8	13.2	14.8	16.0	13.4	15.3	12.6	15.5	13.2	22.6	20.5
6/28	17.5	8.2	12.1	13.6	15.2	16.4	13.7	15.7	12.8	16.0	13.5	23.2	21.1
6/29	17.9	8.2	12.1	13.6	15.3	16.5	13.9	16.0	13.1	16.2	13.8	23.7	21.4
6/30	18.2	8.2	12.1	13.6	15.2	16.4	14.0	16.2	13.3	16.4	14.0	23.9	21.6

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
7/1	18.3	8.1	12.1	13.6	15.2	16.4	14.1	16.3	13.5	16.5	14.1	24.0	21.7
7/2	18.6	8.1	12.2	13.8	15.4	16.5	14.3	16.6	13.8	17.1	14.2	24.3	22.0
7/3	18.6	8.0	12.1	13.6	15.2	16.3	14.3	16.7	14.0	17.1	14.2	24.2	22.0
7/4	18.6	8.0	11.9	13.4	14.9	16.0	14.3	16.6	14.1	17.0	14.2	24.0	21.8
7/5	18.6	8.0	11.9	13.3	14.8	15.9	14.3	16.6	14.2	17.0	14.1	23.9	21.7
7/6	18.6	8.0	11.8	13.2	14.7	15.8	14.3	16.6	14.3	17.0	14.0	23.8	21.5
7/7	18.3	7.9	11.3	12.7	14.2	15.3	14.2	16.3	14.3	16.7	13.9	23.4	21.2
7/8	17.8	7.8	10.8	12.2	13.5	14.7	14.0	15.9	14.2	16.3	13.7	22.8	20.6
7/9	17.3	7.7	10.5	11.7	13.0	14.2	13.8	15.6	14.2	16.2	13.5	22.3	20.2
7/10	16.8	7.7	10.1	11.3	12.6	13.8	13.7	15.2	14.1	16.1	13.3	21.8	19.9
7/11	16.6	7.6	10.1	11.3	12.6	13.7	13.7	15.1	14.1	16.2	13.2	21.6	19.8
7/12	16.2	7.5	9.9	11.1	12.3	13.4	13.6	14.9	14.0	16.2	13.0	21.3	19.6
7/13	15.8	7.4	9.6	10.8	12.0	13.1	13.4	14.7	14.0	16.0	12.8	20.9	19.3
7/14	15.7	7.4	9.8	10.9	12.1	13.2	13.5	14.8	14.0	16.4	12.6	20.8	19.3
7/15	16.0	7.5	10.2	11.4	12.7	13.7	13.8	15.1	14.1	16.9	12.5	21.2	19.7
7/16	16.4	7.6	10.5	11.8	13.1	14.2	14.1	15.4	14.3	17.3	12.5	21.7	20.2
7/17	16.8	7.6	10.8	12.1	13.4	14.5	14.3	15.8	14.5	17.6	12.6	22.2	20.6
7/18	16.8	7.6	10.6	11.9	13.2	14.4	14.3	15.9	14.6	17.4	12.6	22.2	
7/19	16.8	7.6	10.6	11.7	13.0	14.2	14.3	15.8	14.7	17.4	12.6	22.2	
7/20	16.8	7.6	10.5	11.6	12.8	14.1	14.3	15.8	14.7	17.5	12.6	22.2	
7/21	16.5	7.5	10.2	11.3	12.4	13.7	14.1	15.5	14.8	17.2	12.6	21.9	
7/22	16.0	7.4	9.8	10.8	11.9	13.2	13.9	15.2	14.8	16.8	12.6	21.4	
7/23	15.3	7.3	9.4	10.3	11.3	12.5	13.6	14.7	14.7	16.3	12.4	20.5	
7/24	14.7	7.2	9.1	9.9	10.8	11.9	13.3	14.3	14.5	15.9	12.3	19.8	
7/25	14.5	7.2	9.3	10.0	10.9	12.0	13.4	14.3	14.5	16.2	12.2	19.7	
7/26	14.5	7.2	9.4	10.2	11.2	12.3	13.5	14.4	14.7	16.4	12.2	19.8	
7/27	14.7	7.2	9.6	10.5	11.5	12.5	13.7	14.7	14.8	16.6	12.3	20.0	
7/28	15.0	7.1	9.9	10.9	12.0	13.0	13.9	15.1	15.0	17.1	12.4	20.5	
7/29	15.5	7.1	10.2	11.3	12.4	13.5	14.2	15.5	15.2	17.6	12.5	21.1	
7/30	16.0	7.1	10.4	11.6	12.7	13.9	14.4	15.9	15.4	18.1	12.7	21.7	
7/31	16.4	7.1	10.6	11.8	13.0	14.3	14.7	16.2	15.6	18.4	12.8	22.2	

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
8/1	16.6	7.1	10.4	11.7	12.9	14.3	14.7	16.3	15.7	18.5	12.9	22.3	
8/2	16.4	7.0	10.1	11.2	12.5	13.8	14.6	16.1	15.7	18.2	12.9	22.0	
8/3	16.1	7.0	9.8	10.9	12.1	13.4	14.4	15.9	15.6	17.9	12.8	21.7	
8/4	15.9	7.0	9.7	10.8	11.9	13.2	14.4	15.8	15.5	17.9	12.7	21.4	
8/5	15.6	6.9	9.5	10.6	11.6	12.9	14.4	15.6	15.4	17.8	12.6	21.1	
8/6	15.6	6.9	9.6	10.6	11.7	12.9	14.5	15.6	15.5	17.9	12.5	21.1	
8/7	15.6	6.9	9.5	10.6	11.7	12.9	14.5	15.6	15.5	18.0	12.4	21.1	
8/8	15.5	7.0	9.6	10.6	11.7	12.9	14.5	15.6	15.6	18.0	12.4	21.2	
8/9	15.6	7.1	9.7	10.7	11.8	13.0	14.6	15.7	15.7	18.2	12.5	21.3	
8/10	16.0	7.2	9.9	11.0	12.2	13.3	14.7	15.9	15.7	18.3	12.6	21.6	
8/11	16.0	7.2	9.9	10.8	12.0	13.1	14.5	15.7	15.6	17.8	12.8	21.6	
8/12	15.8	7.1	9.8	10.8	11.8	13.0	14.3	15.4	15.3	17.3	13.0	21.2	
8/13	15.5	7.1	9.7	10.5	11.6	12.7	14.0	15.1	15.0	17.0	13.1	20.8	
8/14	15.3	7.1	9.7	10.5	11.5	12.6	13.9	14.9	14.8	16.9	13.2	20.6	
8/15	15.3	7.1	9.8	10.6	11.6	12.7	13.8	14.9	14.7	16.8	13.2	20.6	
8/16	15.4	7.1	10.0	10.8	11.8	13.0	13.9	14.9	14.6	17.0	13.2	20.9	
8/17	15.0	7.0	9.7	10.5	11.5	12.6	13.8	14.8	14.7	16.7	13.2	20.7	
8/18	14.8	7.0	9.6	10.4	11.3	12.4	13.8	14.8	14.7	16.9	13.1	20.4	
8/19	15.0	7.0	9.6	10.4	11.3	12.5	14.0	15.0	14.9	17.2	13.0	20.7	
8/20	15.0	7.0	9.6	10.4	11.3	12.5	14.3	15.1	15.0	17.2	13.0	20.6	
8/21	14.9	6.9	9.4	10.3	11.2	12.3	14.4	15.2	15.2	17.1	13.0	20.5	
8/22	14.8	6.9	9.3	10.1	11.0	12.1	14.6	15.3	15.3	17.0	12.8	20.2	
8/23	14.6	6.8	9.2	9.9	10.7	11.8	14.7	15.3	15.4	16.9	12.6	19.8	
8/24	14.6	6.8	9.3	10.0	10.8	12.0	14.9	15.5	15.6	17.2	12.5	19.7	
8/25	14.6	6.9	9.2	10.0	10.8	12.0	15.2	15.7	15.7	17.3	12.4	19.7	19.1
8/26	14.4	6.9	9.2	9.9	10.6	11.7	15.4	15.8	15.8	17.2	12.5	19.6	19.1
8/27	14.2	6.9	9.3	9.9	10.7	11.7	15.3	15.8	15.8	16.9	12.5	19.3	18.9
8/28	13.7	6.9	9.3	9.9	10.5	11.5	15.2	15.6	15.6	16.6	12.5	18.8	18.5
8/29	13.1	6.8	9.4	9.9	10.5	11.3	15.0	15.3	15.3	16.2	12.6	18.0	17.7
8/30	12.5	6.8	9.4	9.9	10.6	11.2	14.6	14.9	15.0	15.9	12.6	17.2	16.9
8/31	11.7	6.7	9.3	9.8	10.4	10.9	14.3	14.5	14.6	15.3	12.5	16.2	15.9

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
9/1	11.1	6.7	9.3	9.7	10.3	10.8	13.9	14.1	14.2	14.9	12.4	15.2	15.2
9/2	10.6	6.6	9.2	9.6	10.2	10.7	13.5	13.7	13.8	14.5	12.1	14.6	14.6
9/3	10.1	6.6	8.9	9.4	10.0	10.5	13.2	13.5	13.6	14.3	11.8	14.0	14.1
9/4	10.1	6.6	8.8	9.4	10.0	10.6	12.9	13.2	13.4	14.3	11.7	13.9	14.1
9/5	10.1	6.6	8.6	9.2	9.9	10.6	12.7	13.1	13.3	14.4	11.6	14.1	14.3
9/6	10.2	6.7	8.5	9.1	9.8	10.6	12.7	13.1	13.3	14.5	11.6	14.5	14.7
9/7	10.5	6.8	8.5	9.2	9.9	10.7	12.7	13.1	13.3	14.8	11.6	15.1	15.3
9/8	10.9	7.0	8.7	9.4	10.0	11.0	12.7	13.2	13.5	15.1	11.9	15.8	15.9
9/9	11.4	7.0	8.7	9.4	10.1	11.0	12.6	13.2	13.6	15.3	12.2	16.5	16.4
9/10	11.7	7.1	8.8	9.4	10.1	11.0	12.6	13.3	13.6	15.4	12.5	17.1	16.8
9/11	11.8	7.0	8.7	9.3	9.9	10.9	12.7	13.4	13.7	15.2	12.6	17.2	16.8
9/12	11.8	7.0	8.6	9.1	9.7	10.7	12.8	13.4	13.7	15.1	12.5	17.1	16.7
9/13	11.6	6.9	8.4	8.9	9.5	10.4	12.9	13.3	13.7	14.9	12.4	16.9	16.5
9/14	11.3	6.8	8.2	8.7	9.2	10.1	13.0	13.4	13.7	14.6	12.2	16.4	16.0
9/15	11.1	6.7	8.1	8.6	9.1	9.9	13.0	13.3	13.6	14.4	11.9	15.9	15.5
9/16	10.7	6.6	8.0	8.5	8.9	9.8	13.2	13.3	13.6	14.2	11.7	15.3	15.1
9/17	10.6	6.6	8.1	8.5	9.0	9.8	13.3	13.4	13.6	14.4	11.6	14.9	15.0
9/18	10.5	6.7	8.2	8.6	9.1	10.0	13.3	13.4	13.6	14.5	11.5	14.8	15.0
9/19	10.5	6.7	8.2	8.6	9.2	10.0	13.3	13.5	13.5	14.5	11.5	14.7	14.9
9/20	10.4	6.7	8.1	8.6	9.2	10.0	13.3	13.4	13.5	14.4	11.4	14.6	14.8
9/21	10.4	6.7	8.2	8.7	9.2	10.1	13.3	13.4	13.5	14.5	11.4	14.6	14.9
9/22	10.3	6.7	8.1	8.6	9.2	9.9	13.2	13.4	13.4	14.4	11.3	14.5	14.8
9/23	10.3	6.7	8.1	8.6	9.2	10.0	13.2	13.3	13.4	14.4	11.3	14.5	14.8
9/24	10.0	6.6	7.9	8.4	8.9	9.8	13.2	13.2	13.3	14.2	11.0	14.3	14.5
9/25	9.8	6.6	7.8	8.2	8.6	9.4	13.1	13.1	13.2	14.0	10.7	14.1	14.4
9/26	9.7	6.7	7.8	8.1	8.5	9.3	13.1	13.1	13.2	13.9	10.5	14.1	14.3
9/27	9.6	6.7	7.7	8.0	8.4	9.2	13.0	13.1	13.2	13.9	10.4	14.0	14.3
9/28	9.5	6.7	7.7	8.0	8.3	9.2	13.1	13.1	13.2	13.8	10.3	14.0	14.3
9/29	9.4	6.7	7.7	7.9	8.2	9.0	13.1	13.1	13.2	13.7	10.1	14.0	14.2
9/30	9.4	6.7	7.8	8.0	8.2	9.0	13.2	13.2	13.2	13.7	10.0	13.9	14.2

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
10/1	9.4	6.7	7.8	8.0	8.3	9.2	13.2	13.3	13.3	13.8	10.0	14.0	14.3
10/2	9.5	6.7	7.9	8.1	8.4	9.3	13.3	13.4	13.4	14.0	10.2	14.0	14.4
10/3	9.6	6.7	7.9	8.2	8.5	9.4	13.4	13.5	13.5	14.0	10.3	14.0	14.3
10/4	9.7	6.7	7.9	8.2	8.6	9.4	13.5	13.5	13.5	13.9	10.4	13.8	14.1
10/5	9.8	6.7	8.0	8.4	8.8	9.6	13.5	13.6	13.6	14.0	10.6	13.7	14.0
10/6	10.0	6.7	8.1	8.5	8.9	9.8	13.5	13.7	13.7	14.2	10.8	13.7	14.0
10/7	10.2	6.8	8.4	8.8	9.2	10.0	13.6	13.7	13.8	14.2	11.1	13.7	14.0
10/8	10.2	6.8	8.7	9.1	9.6	10.2	13.4	13.6	13.7	14.1	11.3	13.4	13.7
10/9	10.1	6.7	8.7	9.2	9.7	10.2	13.4	13.5	13.5	13.9	11.4	13.0	13.2
10/10	10.2	6.7	8.7	9.1	9.7	10.1	12.7	12.8	12.9	13.4	11.5	12.8	13.0
10/11	10.0	6.7	8.5	9.0	9.5	9.9	11.9	12.2	12.2	12.9	11.5	12.6	12.8
10/12	9.8	6.6	8.3	8.7	9.1	9.5	11.1	11.4	11.4	12.2	11.4	12.4	12.6
10/13	9.7	6.6	8.1	8.5	8.9	9.1	10.2	10.6	10.7	11.6	11.3	12.2	12.4
10/14	9.6	6.5	7.7	8.0	8.4	8.6	9.5	9.9	10.1	11.0	11.2	12.1	12.2
10/15	9.5	6.5	7.2	7.6	7.9	8.2	8.8	9.3	9.7	10.6	11.1	12.1	12.1
10/16	9.6	6.5	7.1	7.4	7.7	7.9	8.3	9.0	9.4	10.5	11.2	12.3	12.4
10/17	9.6	6.5	7.0	7.3	7.6	7.8	8.3	9.0	9.5	10.5	11.2	12.5	12.5
10/18	9.6	6.5	7.0	7.3	7.6	7.8	8.2	8.9	9.5	10.5	11.2	12.5	12.5
10/19	9.6	6.5	7.0	7.3	7.6	7.8	8.3	8.9	9.5	10.5	11.2	12.5	12.6
10/20	9.5	6.5	7.0	7.3	7.6	7.8	8.2	8.8	9.4	10.3	11.0	12.4	12.4
10/21	9.2	6.5	6.9	7.2	7.5	7.7	8.1	8.6	9.1	10.0	10.7	12.0	12.1
10/22	9.1	6.5	6.9	7.2	7.5	7.7	8.1	8.5	8.8	9.7	10.5	11.9	11.9
10/23	9.0	6.5	6.9	7.1	7.4	7.6	7.8	8.3	8.5	9.3	10.3	11.6	11.5
10/24	8.8	6.5	6.9	7.1	7.4	7.5	7.7	8.1	8.2	9.0	10.1	11.4	11.3
10/25	8.7	6.5			7.4	7.5	7.7	8.1	8.1	8.9	10.0	11.2	
10/26	8.7	6.6			7.5	7.6	7.8	8.2	8.2	8.9	10.0	10.9	
10/27	8.8	6.6			7.8	7.9	8.0	8.5	8.5	9.1	10.1	10.9	
10/28	9.0	6.6			8.2	8.3	8.5	8.9	8.9	9.4	10.3	10.9	
10/29	9.0	6.7			8.4	8.5	8.7	9.2	9.2	9.6	10.4	10.7	
10/30	8.8	6.7			8.6	8.7	8.9	9.3	9.4	9.8	10.4	10.4	
10/31	8.6	6.7			8.6	8.8	9.0	9.4	9.7	10.0	10.3	10.0	

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
11/1	8.4	6.7			8.6	8.8	9.0	9.4	9.9	10.2	10.1	9.7	
11/2	8.1	6.6			8.5	8.7	8.9	9.3	10.0	10.3	9.8	9.4	
11/3	7.8	6.6			8.3	8.5	8.7	9.1	10.0	10.3	9.5	9.0	
11/4	7.5	6.5			8.0	8.1	8.3	8.8	9.9	10.2	9.3	8.8	
11/5	7.3	6.4			7.9	8.0	8.2	8.6	9.8	10.1	9.1	8.6	
11/6	7.1	6.4			7.8	7.9	8.0	8.4	9.7	10.1	8.9	8.5	
11/7	7.1	6.3			7.7	7.8	7.9	8.3	9.6	10.0	8.8	8.4	
11/8	7.0	6.2			7.7	7.7	7.9	8.3	9.6	9.9	8.7	8.4	
11/9	6.9	6.3			7.6	7.7	7.8	8.2	9.5	9.8	8.6	8.3	
11/10	7.0	6.3			7.9	7.9	8.0	8.4	9.4	9.7	8.7	8.2	
11/11	6.9	6.4			8.0	8.0	8.2	8.5	9.3	9.6	8.6	8.1	
11/12	6.8	6.4			7.9	8.0	8.2	8.5	9.2	9.4	8.5	8.0	
11/13	6.6	6.4			7.8	7.9	8.1	8.3	9.0	9.2	8.4	7.8	
11/14	6.7	6.6			8.1	8.1	8.3	8.5	8.9	9.1	8.4	7.6	
11/15	6.6	6.8			8.2	8.2	8.4	8.5	8.8	8.9	8.4	7.5	
11/16	6.5	7.0			8.3	8.3	8.6	8.6	8.7	8.8	8.3	7.4	
11/17	6.2	7.0			8.1	8.1	8.3	8.4	8.5	8.6	7.9	7.1	
11/18	5.8	7.0			7.7	7.7	8.0	8.0	8.3	8.3	7.5	6.8	
11/19	5.4	7.0			7.2	7.3	7.8	7.7	8.1	8.1	7.1	6.5	
11/20	5.3	7.0			7.0	7.1	7.7	7.6	8.0	8.0	6.8	6.3	
11/21	5.0	6.9			6.7	6.8	7.4	7.3	7.8	7.9	6.4	6.1	
11/22	4.8	6.7			6.3	6.4	7.2	7.0	7.7	7.7	6.1	6.0	
11/23	4.5	6.5			5.8	5.9	7.0	6.7	7.5	7.6	5.7	5.7	
11/24	4.3	6.4			5.3	5.4	6.7	6.3	7.4	7.5	5.3	5.4	
11/25	4.1	6.3			5.0	5.0	6.6	6.1	7.3	7.4	5.0	5.2	
11/26	3.9	6.3			4.9	4.8	6.5	6.0	7.1	7.2	4.8	5.0	
11/27	3.6	6.3			4.7	4.5	6.4	5.8	7.0	7.1	4.4	4.7	
11/28	3.4	6.3			4.6	4.3	6.3	5.7	6.9	7.0	4.3	4.5	
11/29	3.4	6.3			4.6	4.3	6.3	5.6	6.8	7.0	4.3	4.3	
11/30	3.5	6.4			4.9	4.6	6.3	5.8	6.8	7.0	4.6	4.4	

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 14.3 7 Day Avg Max	RM 12.8 7 Day Avg Max	RM 11.3 7 Day Avg Max	RM 9.8 7 Day Avg Max	RM 9.6 7 Day Avg Max	RM 4.9 7 Day Avg Max	RM 4.4 7 Day Avg Max	RM 0.2 7 Day Avg Max	Big Four 7 Day Avg Max	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
12/1	3.7	6.4			5.2	5.0	6.4	6.0	6.8	7.0	4.9	4.7	
12/2	4.0	6.4			5.6	5.4	6.5	6.2	6.8	7.0	5.3	4.9	
12/3	4.3	6.4			6.0	5.9	6.6	6.5	6.8	7.0	5.7	5.2	
12/4	4.7	6.3			6.4	6.4	6.8	6.8	6.8	7.0	6.2	5.6	
12/5	5.0	6.3			6.9	6.8	7.1	7.1	7.0	7.1	6.7	5.9	
12/6	5.3	6.2			7.1	7.2	7.3	7.4	7.2	7.2	7.1	6.1	
12/7	5.4	6.2			7.2	7.3	7.4	7.5	7.2	7.2	7.2	6.2	
12/8	5.4	6.1			7.2	7.3	7.4	7.6	7.3	7.2	7.3	6.2	
12/9	5.5	6.1			7.3	7.3	7.4	7.7	7.2	7.2	7.3	6.4	
12/10	5.5	6.0			7.2	7.2	7.4	7.7	7.2	7.2	7.2	6.5	
12/11	5.3	6.0			7.1	7.1	7.2	7.6	7.1	7.1	7.1	6.6	
12/12	5.1	5.9			6.7	6.7	6.9	7.3	6.9	6.9	6.8	6.5	
12/13	4.7	5.8			6.3	6.3	6.5	7.0	6.6	6.7	6.4	6.4	
12/14	4.4	5.7			6.0	6.0	6.2	6.6	6.4	6.6	6.1	6.2	
12/15	4.1	5.6			5.8	5.8	6.0	6.4	6.3	6.4	5.9	5.8	
12/16	3.9	5.5			5.6	5.7	5.9	6.3	6.2	6.3	5.8	5.5	
12/17	3.7	5.4			5.5	5.5	5.8	6.1	6.1	6.2	5.6	5.2	
12/18	3.6	5.4			5.3	5.4	5.7	6.0	6.0	6.1	5.6	4.9	
12/19	3.4	5.3			5.2	5.2	5.5	5.8	5.9	6.0	5.4	4.7	
12/20	3.3	5.1			5.0	5.1	5.4	5.7	5.8	5.9	5.2	4.4	
12/21	3.0	5.0			4.8	4.9	5.2	5.5	5.6	5.8	5.0	4.3	
12/22	2.9	4.9			4.7	4.7	5.1	5.4	5.6	5.8	4.8	4.4	
12/23	2.7	4.8			4.5	4.6	4.9	5.2	5.5	5.7	4.5	4.3	
12/24	2.6	4.6			4.3	4.4	4.8	5.0	5.3	5.5	4.3	4.2	
12/25	2.5	4.5			4.2	4.3	4.7	4.9	5.2	5.4	4.0	4.1	
12/26	2.5	4.4			4.2	4.3	4.7	4.9	5.2	5.4	3.8	4.1	
12/27	2.4	4.3			4.1	4.3	4.6	4.8	5.1	5.3	3.7	4.1	5.2
12/28	2.5	4.2			4.1	4.2	4.6	4.7	5.0	5.1	3.5	3.9	5.1
12/29	2.4	4.1			3.8	3.8	4.4	4.5	4.9	5.0	3.3	3.6	4.8
12/30	2.2	4.0			3.5	3.5	4.2	4.2	4.8	4.9	3.0	3.3	4.6
12/31	2.1	3.9			3.3	3.2	4.0	4.0	4.6	4.7	2.8	3.0	4.1

APPENDIX D

Smolt Outmigration Report, Sultan River

Smolt Outmigration Report
Sultan River

Annual Monitoring Report 2015

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

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1. Introduction

In 2012, Public Utility District No. 1 of Snohomish County (the District) began monitoring the outmigration of juvenile salmonids (smolts) as a measure (index) of reproductive success in the Sultan River near Sultan, Washington. 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 fourth year (Year 4) of operation of the rotary screw trap (smolt trap) located on the lower Sultan River. Year 4 is the fourth of six consecutive years of initial operation, as outlined in the FHMP. Beginning in 2018 and extending to the end of the 45-year License term, the District will continue to operate the smolt trap for 2 out of every 6 years, as determined by the Aquatic Resource Committee (ARC).

The FHMP also stipulates that, subject to the results of monitoring, the District will commence operation of the smolt trap on February 1 and continue operations through June 30 of each sampling year. The District will operate the trap between 30 and 40 percent of the hours in any given week during the sampling year, except during severe flow events; and scheduled to fish for four day and four night periods per week, with each fishing period lasting a minimum of six hours. During periods when few fish are emigrating, trapping frequency can be reduced to fewer days per week. The FHMP also stipulates that the trap will be located in the lower mile of the Sultan River and that the District will collect, compile, analyze and report the following trap data by species and life stage: number captured, size distribution, timing (diel and seasonal), fish population estimates and trap efficiency.

2. Methods

Trap description, location, and operation

The Sultan River smolt trap, manufactured by E.G. Solutions, is 5 feet in diameter and designed to sample outmigrating fish over a range of flow conditions (discharge, depth, and velocity). The trap is seasonally positioned in the Sultan River at a location approximately 0.2 miles upstream of the confluence with the Skykomish River (Figure 1).

Figure 1. Aerial photograph depicting the location of the Sultan River smolt trap at River Mile 0.2 on the Sultan River.

During 2015, the trap was operated from January 13 to June 29, fishing 66 percent of the total hours during that time period (68 percent of the day hours and 64 percent of the night hours). Table 1 summarizes total hours and percentage of time fished, by week.

Table 1. Number and percentage of hours operated by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Sample Block Start Date	Hours Operated	Percent Hours Operated
1	13-Jan	67	40
2	20-Jan	72	43
3	25-Jan	119	71
4	1-Feb	97	57
5	9_Feb	93	55
6	16-Feb	145	86
7	22-Feb	168	100
8	1-Mar	93	55
9	9-Mar	97	57
10	15-Mar	120	71
11	22-Mar	127	76
12	29-Mar	126	75
13	5-Apr	127	76
14	12-Apr	129	76
15	19-Apr	168	100
16	26-Apr	122	73
17	3-May	122	73
18	12-May	81	48
19	17-May	78	46
20	25-May	101	60
21	31-May	126	75
22	7-Jun	129	77
23	14-Jun	123	73
24	21-Jun	126	75
25	28-Jun	22	13

During operation, the trap was constantly monitored for cone revolutions and directly observed through video surveillance. Site visits occurred at a minimum of once per day and more frequently depending on operating conditions. The number of cone revolutions per minute was recorded at the beginning and end of each trapping period (set). Discharge information from upstream of the trapping site was obtained from the U.S. Geological Survey Gaging Station No. 12138160 (Sultan River below Power Plant; River Mile 4.5).

At the end of each set, captured fish were enumerated and sorted by species and life history stage. Steelhead/rainbow trout were classified as smolt, pre-smolt, or non-smolt based on the following criteria:

- Smolts were greater than 130 mm (fork length), silvery in appearance with deciduous scales and a dark pigmentation on the outer margin of the caudal fin,
- Pre-smolts were greater than 130 mm (fork length), silvery in appearance, and lacked deciduous scales with no dark pigmentation on the outer margin of the caudal fin and,
- Non-smolts lacked the characteristic of smolts or pre-smolts (i.e., no silvery coloration, no dark coloration on outer margin of caudal fin).

Throughout the sampling season, on a weekly basis, a subsample of fish were measured (fork length, mm). Prior to measurement, fish were anesthetized with Tricaine Methanesulfonate (MS-222).

Trap Efficiency

In order to estimate total outmigration, the capture efficiency (percentage of out-migrating fishcaptured) of the trap was determined through a series of tests over a range of operating conditions. Capture efficiency tests were performed by releasing marked groups of Chinook (wild and hatchery) and chum salmon. Wild Chinook and chum were captured at the trap, anesthetized with MS-222, and marked with Bismarck Brown dye. Hatchery Chinook were used to increase our sample size and confidence in test results. A total of three thousand (3,000) hatchery Chinook, obtained from the Wallace River Hatchery, were released in batches of 750 fish on four separate nights during weeks 10, 12, 14, and 15. These fish were approximately 75 mm in length, slightly larger than wild Chinook (Table 15). Hatchery Chinook were also marked with Bismarck Brown dye.

Efficiency trials were conducted at various discharges in order to determine efficiency under varied conditions. All efficiency releases were made at Reese Park, approximately 0.3 miles upstream of the trap. This distance was great enough to allow for mixing of fish across the stream channel and within the water column, but short enough to reduce the likelihood of predation that would result in the loss of fish before they have an opportunity to arrive at the trap. In order to be assured that marked fish and unmarked fish have the same probability of capture, the trap fished continuously for a minimum of 72 hours after each release to allow all marked fish to migrate past the trap.

Estimating Total Migration

A modified Peterson mark-recapture approach was used to estimate total migration for the season (Volkhardt 2007).

The following 5 assumptions must be met in order to achieve an estimate:

1) The population is closed;
2) All fish (marked and unmarked) have an equal opportunity of capture;
3) Marking does not affect catchability;
4) Marked fish mix at random with unmarked fish; and
5) All marks are detected and reported.

Peterson's equation is slightly biased. Therefore, we used Seber's adjustment (Seber 1982) to Peterson's equation because it assumes that the second sampling is done without replacement. Because we did not sample all hours during the season, we've modified Seber's equation to adjust for our sampling effort. Our modified Seber's estimator is as follows:

$$U_{2015} = \left(\frac{u_{2015} + 1}{p_{2015}}\right)\left(\frac{M_{2015} + 1}{m_{2015} + 1}\right)$$

Where

U_{2015} = Estimated number of fish migrating past the trap including hours not fished
u_{2015} = Number of fish captured at the trap
p_{2015} = Percent of hours fished
M_{2015} = Number of fish marked and released during efficiency trials
m_{2015} = Number of marked fish captured during efficiency trials
An approximate variance estimate of U_{2015} is as follows:

$$\widehat{Var}(U_{2015}) = \frac{(u_{2015}+1)(M_{2015}+1)(u_{2015}-m_{2015})(M_{2015}-m_{2015})}{{p_{2015}}^2(m_{2015}+1)^2(m_{2015}+2)}$$

and an approximate 95% confidence interval is

$$U_{2015} \pm 1.96\sqrt{\widehat{Var}(U_{2015})}$$

3. Results and Discussion

Catch

A total of 71,177 fish and 1 salamander were captured during the 2015 sampling year (Table 2). Although scales were not collected, all Chinook were age 0+ based on size and identification keys.

Throughout the season, flows were lower than normal due to low snow pack and lack of rainfall. The water velocities associated with these low flows caused slower than normal cone rotation speed, and may have resulted in lower catch rates for larger fish (i.e., steelhead/rainbow trout, yearling coho, cutthroat trout) compared to smaller fish (i.e., chinook, chum, sub-yearling coho). Larger fish possess greater swimming capability than smaller fish and are therefore more likely able to avoid the trap when it is spinning at a slower speed.

Table 2. Total fish captured by species and life stage, Sultan River smolt trap, 2015.

Species	Total
Chum Salmon	58,474
Chinook Salmon	8,831
Coho (0+) Salmon	2,515
Coho (1+) Salmon	643
Dace unident	266
Lamprey unident	243
Steelhead/Rainbow Trout	103
Sculpin unident	88
Cutthroat Trout	7
Salish Sucker	3
Pink Salmon	2
Northwestern Salamander	1

Three spine Stickleback	1
Channel Catfish	1

Trap Efficiency

In order to estimate total migration, groups of wild Chinook and chum, as well as 3,000 hatchery Chinook were used to assess capture efficiency throughout the season. Table 3 summarizes results of efficiency trials by species.

Table 3. Summary of mark-recapture tests of trap capture efficiency of wild Chinook, hatchery Chinook, and chum salmon, Sultan River smolt trap, 2015.

Fish Used	Total Marked and Released	Total Recaptured	% Trap Efficiency
Wild Chinook	1,587	70	4.4
Hatchery Chinook	3,000	195	6.5
Chum	12,555	355	2.8
All Species Combined	17,142	620	3.6

Estimating Total Migration

A modified Peterson mark-recapture approach was used to estimate total migration of Chinook, chum, and yearling coho salmon. This method accounts for hours not fished during the season. The District did not stratify mark and recapture rates into discrete time periods, but rather used a mark-recapture rate for the entire season. Table 4 presents total migration by species using efficiency rates for wild Chinook only, hatchery Chinook only, wild and hatchery Chinook combined, chum only, or all species combined.

Table 4. Total migration of Chinook, chum, and yearling coho salmon using wild Chinook only, wild and hatchery Chinook combined, chum only, or all species combined efficiency rates, Sultan River smolt trap, 2015.

Fish used for efficiency test	Chinook Migration	Chum Migration	Yearling coho Migration
Wild Chinook (4.4%)	303,077	na	22,068
Hatchery Chinook (6.5%)	205,656	na	14,959
Wild and Hatchery Chinook (5.8 %)	231,397	na	16,848
Chum (2.8 %)	n/a	3,130,515	n/a
All Species Combined (3.6 %)	369,610	2,447,356	26,912

Tables 5, 6, and 7 summarize migration for Chinook, chum, and yearling coho salmon using various efficiencies.

Table 5. Chinook migration estimate, 95% confidence level, and migration variance using wild Chinook only (2.4%) efficiency and wild and hatchery Chinook combined (3.3 %) efficiency, Sultan River smolt trap, 2015.

Fish Used for Efficiency Test	Chinook Migration Estimate	95 % Confidence Level		Migration Variance
		High	Low	
Wild Chinook (4.4%)	303,077	366,270	231,792	1.18E+09

Wild and Hatchery Chinook (5.8 %)	231,397	257,043	204,164	1.82E+08

Table 6. Chum salmon migration estimate, 95% confidence level, and migration variance using chum salmon only (1.5 %) efficiency and all fish combined (3.1%) efficiency, Sultan River smolt trap, 2015.

Fish Used for Efficiency Test	Chum Migration Estimate	95 % Confidence Level High	Low	Migration Variance
Chum (2.8 %)	3,130,515	3,440,286	2,803,760	2.64E+10
All Species Combined (3.6%)	2,447,356	2,631,279	2,256,205	9.16E+09

Table 7. Yearling coho salmon migration estimate, 95% confidence level, and migration variance using all fish combined (3.1%) efficiency, Sultan River smolt trap, 2015.

Fish Used for Efficiency Test	Yearling Coho Migration Estimate	95 % Confidence Level High	Low	Migration Variance
All Species Combined (3.6 %)	26,912	27,306	17,161	4.01E+04

The Peterson mark-recapture approach is based on 5 assumptions. These assumptions must be met, or accommodated, in order to ensure an unbiased abundance estimate. We determined that we satisfied all 5 assumptions.

1. The population is closed with no immigration or emigration.
We satisfied this assumption because all fish that passed the trap were migrating from only the Sultan River. Because we were far enough upstream (0.2 miles) from the mouth, we do not believe any fish that passed the trap were emigrating from the Skykomish River.

2. All fish (marked and unmarked) have an equal opportunity of capture.
In order to be assured that marked fish and unmarked fish have the same probability of capture, we fished continuously for a minimum of 72 hours after each release. All efficiency releases were at a site 0.3 miles upstream of the trap. This distance was great enough to allow for mixing of fish across the stream channel and within the water column, but short enough to reduce the likelihood of predation that would result in the loss of fish before they have an opportunity to arrive at the trap. Also, in order to avoid predation, all releases occurred approximately 1 hour after sunset.

3. Marking does not affect catchability.

After marking with Bismarck Brown, fish were held in aerated totes for a minimum of one hour prior to release. The fish showed no unusual behavior or stress as a result of marking.

4. The fish do not lose their marks.
The use of Bismarck Brown satisfied this assumption.

5. All recovered marks are detected and reported.

Bismarck Brown marked fish were easily detected and recorded immediately.
After four seasons of operation, we have not collected sufficient data to stratify mark and recapture rates into discrete time periods. Therefore, we pooled all mark-recapture data and used

one trap efficiency rate for the entire season. As we collect more data in future years we will be able to determine efficiency as a function of environmental variables such as flow and turbidity and will be able to apply different efficiency rates depending on these variables.

Migration Timing

Migration timing was determined using weekly catch data (Table 8). Weekly estimates of total outmigration for Chinook, yearling coho, and chum were generated using trap efficiency and the number of hour's fished by week (Figure 2).

Table 8. Chinook, chum, coho (1+), coho (0+) salmon and steelhead/rainbow and cutthroat trout caught by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Sample Block Start Date	Chinook	Coho (1+)	Coho (0+)	Chum	Steelhead/ Rainbow	Cutthroat
1	13-Jan	24	0	0	5	2	0
2	20-Jan	53	2	0	6	4	0
3	25-Jan	222	1	0	5	3	0
4	1-Feb	101	0	0	4	1	0
5	9_Feb	337	1	2	72	0	2
6	16-Feb	334	13	34	335	7	2
7	22-Feb	596	12	31	2477	3	0
8	1-Mar	184	4	11	1815	2	0
9	9-Mar	405	2	126	9793	0	0
10	15-Mar	1367	3	490	20683	1	0
11	22-Mar	759	8	412	11133	2	0
12	29-Mar	1134	5	401	5165	0	0
13	5-Apr	1634	6	465	4468	0	0
14	12-Apr	697	8	226	1808	2	0
15	19-Apr	444	78	119	610	27	2
16	26-Apr	39	69	15	50	6	0
17	3-May	20	142	21	33	15	1
18	12-May	6	38	6	2	4	0
19	17-May	8	48	12	6	7	0
20	25-May	28	98	18	1	4	0
21	31-May	46	74	41	2	7	0
22	7-Jun	268	26	6	1	1	0
23	14-Jun	88	5	25	0	4	0

24	21-Jun	35	0	47	0	1	0
25	28-Jun	2	0	7	0	0	0
Season Total		8,831	643	2,515	58,474	103	7

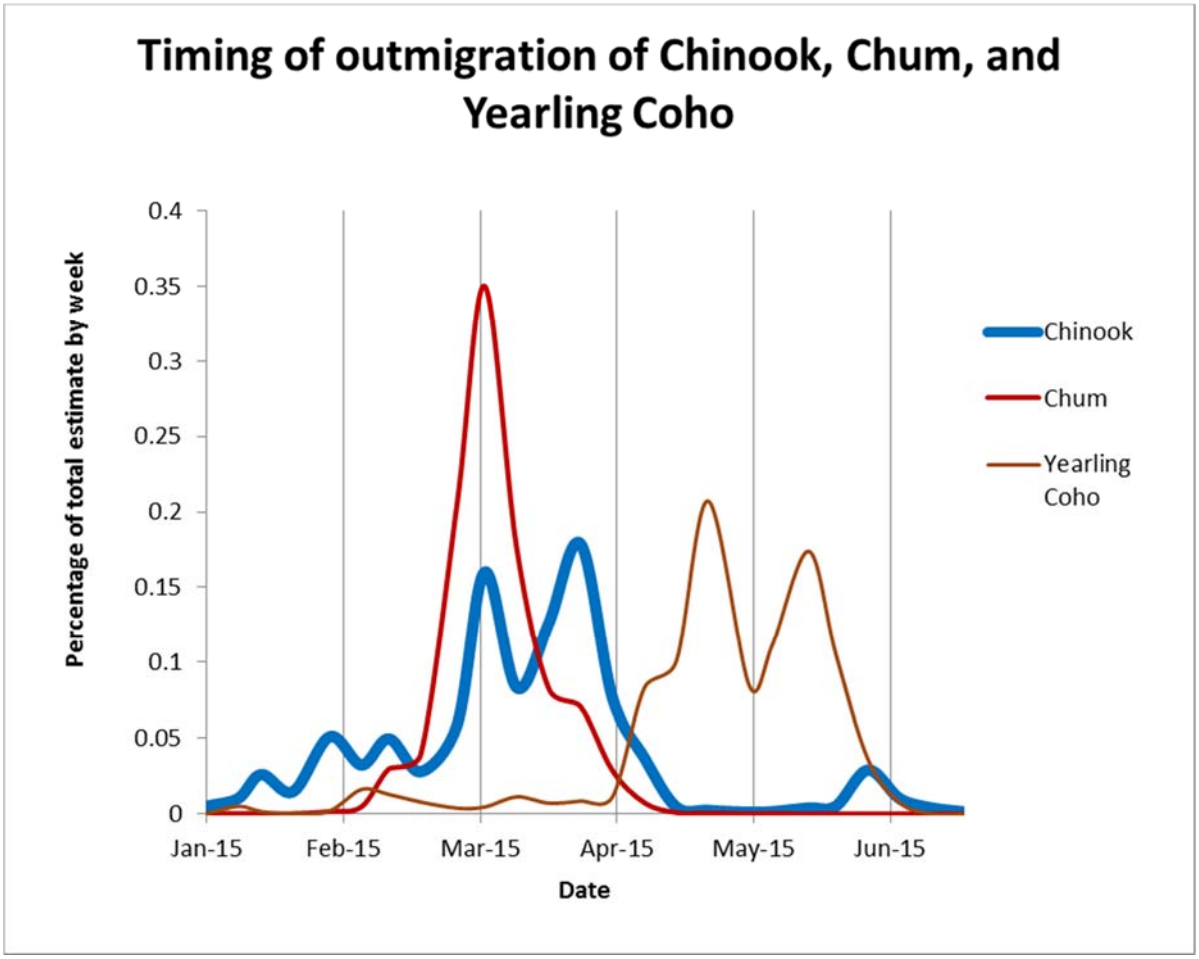


Figure 2. Timing of outmigration for Chinook, chum, and yearling coho (1+) salmon, Sultan River smolt trap, 2015.

Fish Size

Chinook

Chinook lengths averaged 40.3 mm between weeks 1 and 16. Beginning in Week 17, Chinook lengths increased rapidly, averaging 64.9 mm during the last nine weeks of the season (Table 9, Figure 3).

Table 9. Mean fork length (mm), standard deviation (s.d.), minimum and maximum length, number sampled, number captured, and percent sampled of Chinook salmon by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Mean	s.d.	Min	Max	Sampled	Captured	Percent Sampled
1	38.4	1.0	37	40	7	24	29
2	39.0	1.3	36	41	23	53	43
3	39.2	1.3	37	43	71	222	32
4	40.2	2.2	35	44	18	101	18
5	40.2	1.7	36	44	38	337	11
6	40.2	1.9	36	44	26	334	8
7	41.1	1.8	37	47	90	596	15
8	40.9	2.6	38	49	19	184	10
9	41.4	1.2	38	44	37	405	9
10	41.2	1.7	38	45	87	1367	6
11	40.5	1.9	37	52	119	759	16
12	39.8	1.6	36	43	129	1134	11
13	40.5	1.5	37	45	133	1634	8
14	39.7	1.7	37	45	54	697	8
15	40.4	1.6	37	43	32	444	7
16	41.3	1.6	39	44	9	39	23
17	49.4	6.6	41	61	16	20	80
18	55.3	7.0	42	62	6	6	100
19	57.8	6.7	42	63	8	8	100
20	58.8	6.2	48	69	20	28	71
21	67.2	10.2	45	93	46	46	100
22	71.1	8.6	57	101	150	268	56
23	74.5	12.4	52	100	75	88	85
24	83.4	10.0	60	102	31	35	89
25	66.5	2.1	65	68	2	2	100
Season Summary	48.7	15.0	35	102	1,246	8,831	14

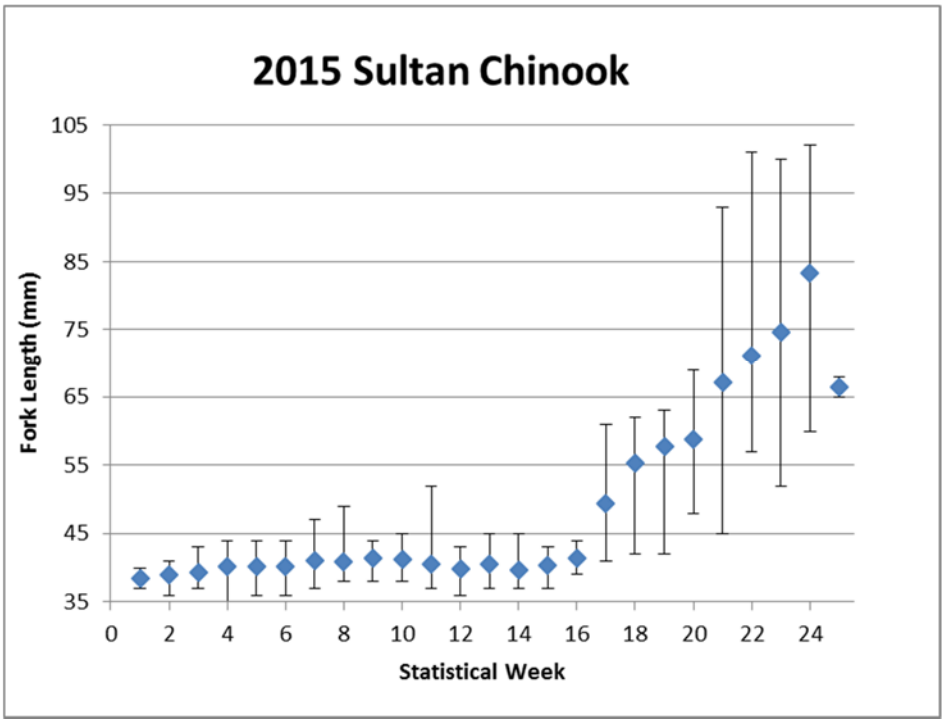


Figure 3. Range (mean, minimum, and maximum) of Chinook salmon fork lengths (mm), by statistical week, Sultan River smolt trap, 2015.

Yearling coho (1+)

Fork length averaged 82.6 mm through week 11. Beginning in week 12 through the end of the season, lengths averaged 98.8 mm. Average fork length for the entire season was 97 mm (Table 10, Figure 4).

Table 10. Mean fork length (mm), standard deviation (s.d.), minimum and maximum length, number sampled, number captured, and percent sampled of yearling coho (1+) salmon by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Mean	s.d.	Min	Max	Sampled	Captured	Percent Sampled
1						0	
2	78.0	8.5	72	84	2	2	100
3	86.0		86	86	1	1	100
4						0	
5	85.0		85	85	1	1	100
6	79.1	7.9	68	94	13	13	100
7	80.2	7.2	71	93	12	12	100
8	87.0	12.2	75	104	4	4	100
9	85.0	2.8	83	87	2	2	100
10	83.3	30.0	54	114	3	3	100
11	89.6	12.0	71	112	8	8	100
12	110.8	26.8	88	142	5	5	100
13	102.2	15.8	85	126	6	6	100

14	101.4	14.5	84	120	8	8	100
15	103.7	14.6	61	126	78	78	100
16	104.0	16.1	87	132	69	69	100
17	97.4	10.3	65	130	141	142	99
18	96.6	9.2	81	115	38	38	100
19	95.2	7.2	85	112	48	48	100
20	94.4	6.8	81	113	98	98	100
21	98.7	10.2	84	125	74	74	100
22	97.6	6.2	88	111	21	26	81
23	101.0	7.5	90	110	5	5	100
24						0	
25						0	
Season Summary	97.6	12.3	54	142	637	643	99

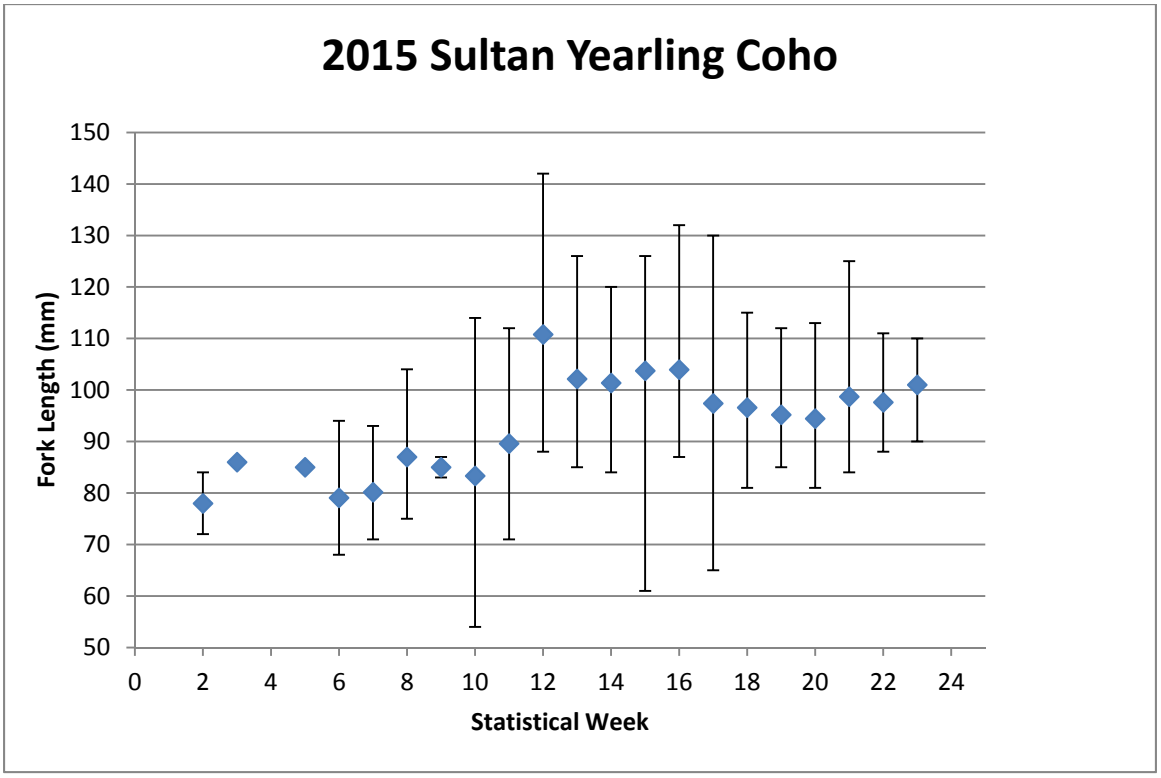


Figure 4. Range (mean, minimum, and maximum) of yearling (1+) coho salmon fork lengths (mm) by statistical week, Sultan River smolt trap, 2015.

Chum

Chum lengths averaged 40.0 mm and showed little variation throughout the season (Table 11, Figure 5). This small variation in length is an indicator that the vast majority of chum spend minimal time in the river and migrate past the trap soon after emergence.

Table 11. Mean fork length (mm), standard deviation (s.d.), minimum and maximum length, number sampled, number captured, and percent sampled of chum salmon by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Mean	s.d.	Min	Max	Sampled	Captured	Percent Sampled
1	38.8	1.0	38	40	4	5	80
2	38.8	1.0	38	40	4	6	67
3	37.5	0.7	37	38	2	5	40
4	39.0		39	39	1	4	25
5	37.2	1.0	36	38	6	72	8
6	37.7	1.5	35	40	21	335	6
7	39.3	1.7	25	43	265	2477	11
8	40.4	1.2	37	43	218	1815	12
9	40.2	1.5	28	43	165	9793	2
10	40.5	1.1	37	44	126	20683	1
11	40.2	1.0	37	43	139	11133	1
12	39.7	1.6	36	43	129	5165	2
13	40.0	1.1	37	42	73	4468	2
14	39.8	1.3	36	42	127	1808	7
15	39.4	1.5	37	44	47	610	8
16	40.4	1.0	39	42	16	50	32
17	41.9	1.3	40	44	20	33	61
18	41.5	0.7	41	42	2	2	100
19	41.0	2.0	38	44	6	6	100
20	44.0		44	44	1	1	100
21	42.5	0.7	42	43	2	2	100
22	55.0		55	55	1	1	100
23						0	
24						0	
25						0	
Season Summary	40.0	1.6	28	55	1,375	58,474	2

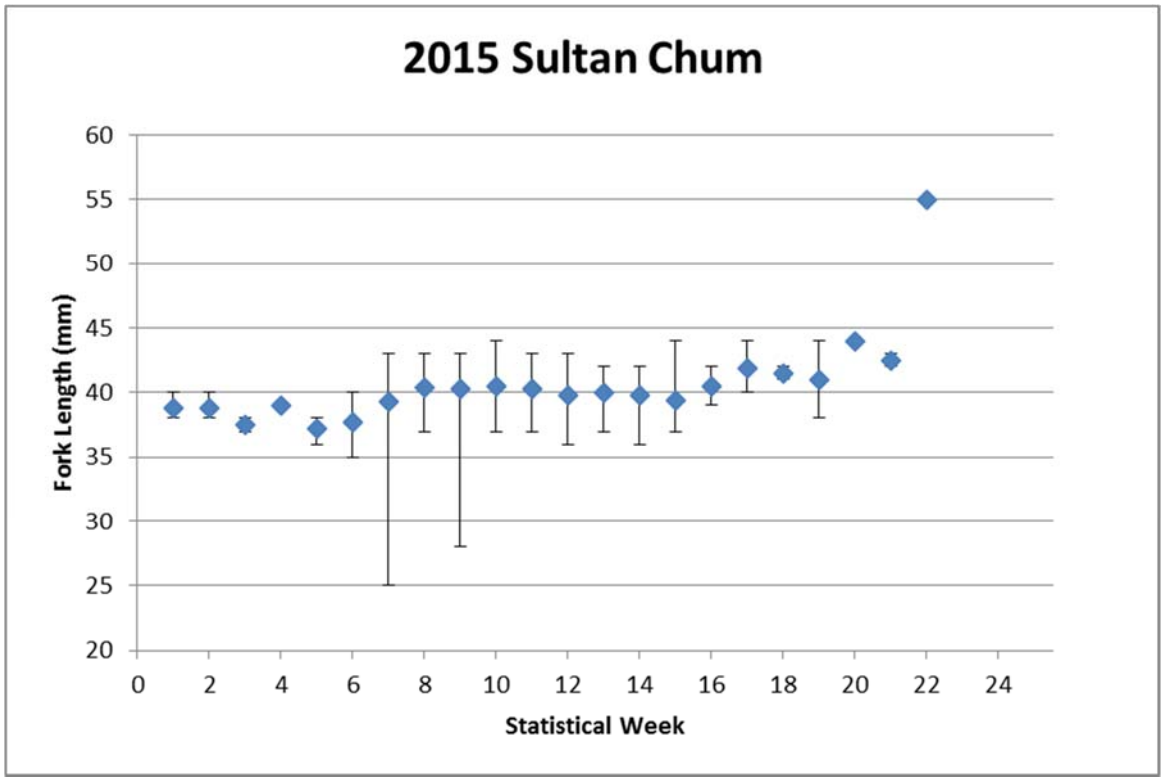


Figure 5. Range (mean, minimum, and maximum) of chum salmon fork lengths (mm) by statistical week, Sultan River smolt trap, 2015.

Steelhead/Rainbow Trout

Table 12 and Figure 6 summarize lengths of steelhead/rainbow trout throughout the season. The vast majority of pre-smolts and smolts were captured in weeks 15 through 21. Table 13 includes individual fork lengths (mm) of steelhead/rainbow trout smolt, pre-smolt, and non-smolt captured throughout the season.

Table 12. Mean fork length (mm), standard deviation (s.d.), minimum and maximum length, number sampled, number captured, and percent of steelhead/rainbow trout sampled by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Mean	s.d.	Min	Max	Sampled	Captured	Percent Sampled
1	78.0		78	78	2	2	100
2	88.0	12.0	81	106	4	4	100
3	98.7	12.2	88	112	3	3	100
4	92.0		92	92	1	1	100
5						0	
6	88.4	33.1	66	158	7	7	100
7	85.0	11.5	76	98	3	3	100
8	123.0	80.6	66	180	2	2	100
9						0	
10	78.0		78	78	1	1	100

11	103.5	20.5	89	118	2	2	100
12						0	
13						0	
14	114.0	53.7	76	152	2	2	100
15	132.6	48.1	67	239	27	27	100
16	110.0	36.5	70	163	6	6	100
17	171.1	17.9	141	204	15	15	100
18	144.3	2.9	141	148	4	4	100
19	145.1	2.8	140	148	7	7	100
20	139.5	39.7	80	160	4	4	100
21	125.7	50.4	56	182	7	7	100
22	98.0		98	98	1	1	100
23	87.8	14.7	65	102	5	4	80
24	30.0		30	30	1	1	100
25						0	
Season Summary	124.4	43.7	30	239	104	103	99

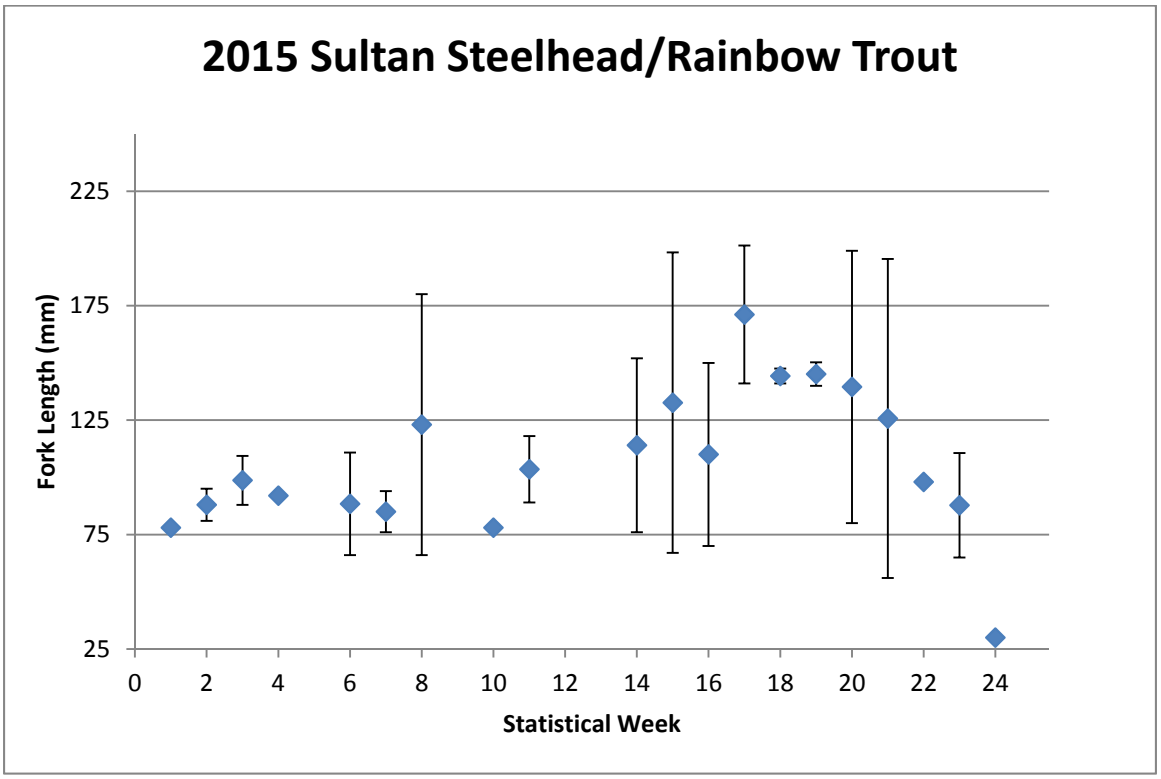


Figure 6. Range (mean, minimum, and maximum) of steelhead/rainbow trout fork lengths (mm) by statistical week, Sultan River smolt trap, 2015.

Table 13. Fork length (mm) of steelhead/rainbow trout smolt, pre-smolt, and non-smolt by statistical week, Sultan River smolt trap, 2015.

Statistical week	Smolt length (mm)	Pre-Smolt length (mm)	Non-Smolt length (mm)
1			78,78
2			81,82,83,88,106
3			96,112
4			92
5			
6		158	66,68,69,77,78,103
7			76,81,98
8		180	66
9			
10			78
11			89,118
12			
13			
14		152	76
15	148,156,159,162,170,172,180,188, 192	132,140,146, 184,190	67,74,78,79,80,80,84,88,89,93, 98,113,239
16	145,163		70,81,98,103
17	141,142,143,164,165,169,170,179, 179,179,181,182,182,187,204		
18	141,144,144,148		
19	140,143,145,146,147,147,148		
20	159,159,160		80
21	174,175,182		56,89,102,102
22			98
23			65,83,91,98,102
24			30
25			

Cutthroat Trout

Table 14 summarizes cutthroat trout fork lengths caught throughout the season.

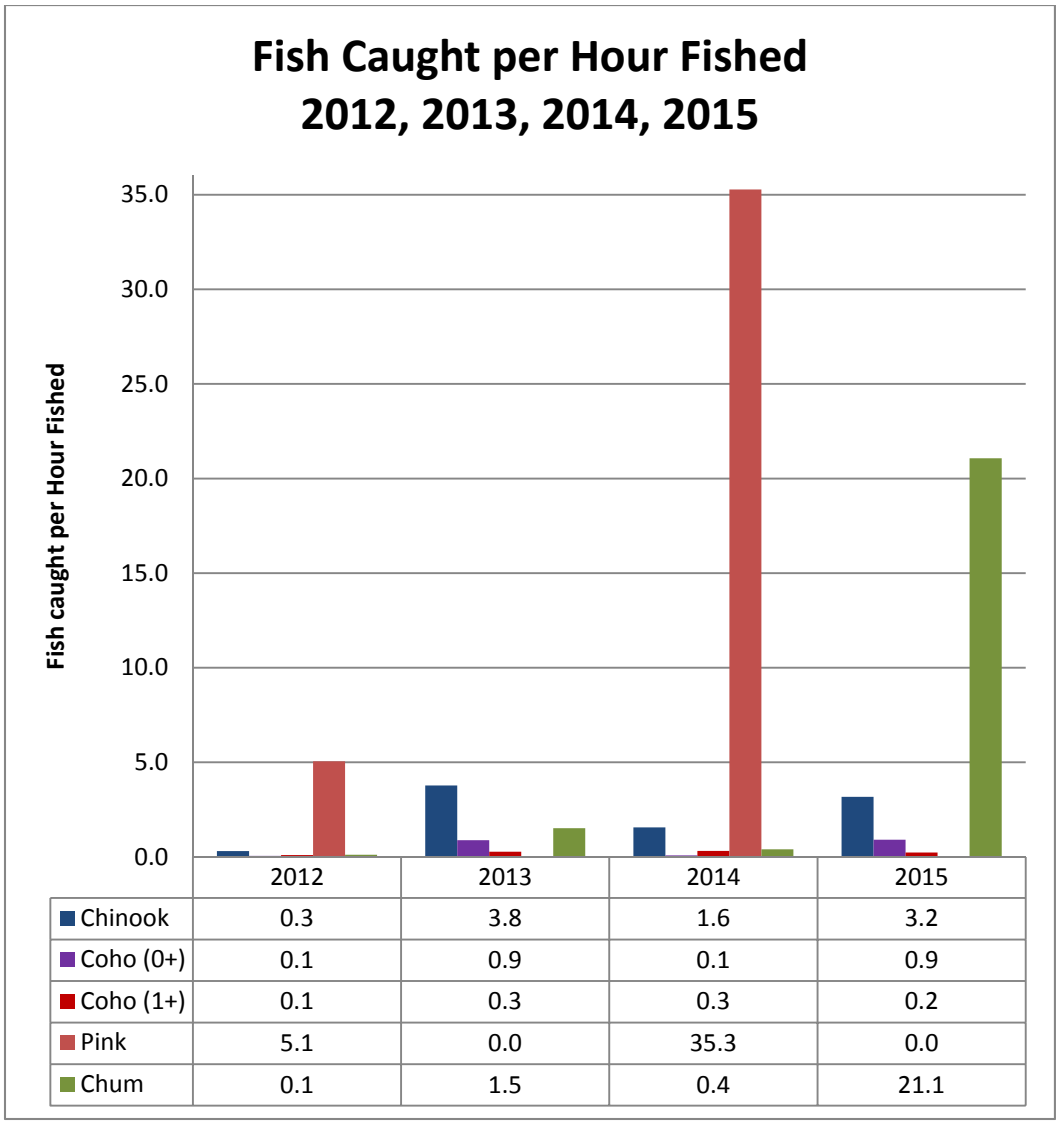
Table 14. Mean fork length (mm), standard deviation (s.d.), minimum and maximum length, number sampled, number captured, and percent sampled of cutthroat trout by statistical week, Sultan River smolt trap, 2015.

Statistical Week	Mean	s.d.	Min	Max	Sampled	Captured	Percent Sampled
5	132.0	5.7	128	136	2	2	100
6	66.0	17.0	54	78	2	2	100
15	165.0	9.9	158	172	2	2	100
17	130.0		130	130	1	1	100
Season Summary	122.3	42.1	54	172	7	7	100

Catch Per Unit Effort for 2012, 2013, 2014, and 2015

The smolt trap has been in the same location during the first four years of operation and in all likelihood will continue to be operated in the same location in future years. Figure 7 summarizes catch per unit effort (CPUE in hours fished) for Chinook, sub-yearling coho (0+), yearling coho (1+), pink, and chum salmon for 2012-2015.

Catch per unit effort (catch per hour) of chum salmon was vastly higher (21.1 fish/hour) in 2015 than in the three previous years of operation. Inadequate visibility and poor river conditions prevented formal chum spawning surveys in 2014. However, observations by Snohomish County PUD employees indicated abnormally large numbers of spawning chum in their usual spawning areas and also spawning fish in areas where they are not normally seen. The large number of spawning adult chum and the fact that no scouring events occurred during incubation, resulted in this robust juvenile chum cohort.



	2012	2013	2014	2015
Chinook	0.3	3.8	1.6	3.2
Coho (0+)	0.1	0.9	0.1	0.9
Coho (1+)	0.1	0.3	0.3	0.2
Pink	5.1	0.0	35.3	0.0
Chum	0.1	1.5	0.4	21.1

Figure 7. Chinook, sub-yearling coho (0+), yearling coho (1+), pink, and chum salmon captured per hour fished during 2012-2015, Sultan River smolt trap.

4. Summary

This report presents the results of the fourth year of operation of the rotary screw trap located on the Sultan River. In 2015, the trap was operated from January 13 to June 29 and fished 66 % of the total hours during that time period.

High flows prevented fishing on February 10 and 11. Sampling in recent years indicates that this is typically a time when catch rates are low. Also, catch rates were very low prior to and immediately after this high water event in 2015. Therefore, no adjustments were made to account for these lost fishing days when total migration was estimated. Beginning in mid-February and continuing through the end of the season flows were lower than normal due to low snow pack and record drought conditions. These low flows caused slower than normal cone rotation speed

and therefore may have resulted in lower catch rates of larger fish (i.e., steelhead/rainbow trout, yearling coho, cutthroat trout) than smaller fish (i.e., chinook, chum, sub-yearling coho).

Catch per hour of chum salmon was vastly higher (21.1 fish/hour) in 2015 than the three previous years of operation. Large numbers of spawning adult chum in 2014 and the fact that no scouring events occurred during incubation, resulted in this robust juvenile chum cohort. Chinook, yearling coho, and chum salmon production estimates were made using a modified Peterson mark-recapture approach. An estimated 231,397 Chinook, 26,912 yearling coho, and 3,130,515 chum salmon migrated during the trapping period.

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APPENDIX E

Side Channel Supplemental Assessments

Jackson - Sultan River, Results of Snorkel Survey Summer 2015

Site			Date	Discharge (cfs)		Coho	Avg Size	Trout	Avg Size
				Mainstem	Side Channel	Number		Number	
Side Channel #1 (historic)	Just upstream of confluence with redundant	VISUAL SURFACE (too shallow)	17-Aug	216	≈ 2	119	75	5	120
Side Channel #1 (historic)	u/s of middle bridge	VISUAL SURFACE (too shallow)	17-Aug	216	≈ 2	53	75	5	120
Side Channel #1 (historic)	below middle bridge, start u/s of jam	VISUAL SURFACE (too shallow)	17-Aug	216	≈ 2	49	75	4	120
Side Channel #1 (redundant)	entire channel	VISUAL SURFACE (too shallow)	17-Aug	216	≈ 2	182	75	3	120
Side Channel #2	u/s of fjord	Snorkel	19-Aug	219	≈ 6	76	75	2	120
Side Channel #2	further upstream	Snorkel	19-Aug	219	≈ 6	51	75	5	120
Side Channel #2	further but before RB inflow	Snorkel	19-Aug	219	≈ 6	26	75	4	120
Side Channel #3	d/s of "s" near lower boulder placement	Snorkel	19-Aug	219	≈ 10	20	75	1	120
Side Channel #3	u/s of "s"	Snorkel	19-Aug	219	≈ 10	7	75	2	120
Side Channel #3	near LWD on LB	Snorkel	19-Aug	219	≈ 10	24	75	0	
Side Channel #4		Snorkel	21-Aug	225	≈ 12	37	75	3	120

Jackson - Sultan River, Results of 2015 Minnowing Trapping Efforts

Trap #	Site	Date Deployed	Date Checked and Removed	Description	Number Fish Captured				
					coho	rainbow	cutthroat	sculpin	dace
Trap 1	Side channel #1 (historic)	17-Aug	19-Aug	20' downstream inlet	2			11	
Trap 2	Side channel #1 (redundent)	17-Aug	19-Aug	15' downstream inlet	5	1		2	
Trap 3	Side channel #1 (historic)	17-Aug	19-Aug	50' upstream middle bridge	2	1		5	
Trap 4	Side channel #1 (historic)	17-Aug	19-Aug	30' downstream middle bridge		1		1	
Trap 5	Side channel #1 (extension)	17-Aug	19-Aug	250' upstream outlet	4				
TOTAL					**13**	**3**	**0**	**19**	**0**
Trap 6	Side channel #2	19-Aug	21-Aug	80' downstream inlet	3			2	
Trap 7	Side channel #2	19-Aug	21-Aug	150' downstream inlet	2	2	1	3	1
Trap 8	Side channel #2	17-Aug	19-Aug	300' downstream inlet	5			3	
Trap 9	Side channel #2	17-Aug	19-Aug	200' upstream outlet	6	1		3	2
Trap 10	Side channel #2	17-Aug	19-Aug	100' upstream outlet	2				
TOTAL					**18**	**3**	**1**	**11**	**3**
Trap 11	Side channel #3	19-Aug	21-Aug	150' downstream inlet	1			2	
Trap 12	Side channel #3	19-Aug	21-Aug	250' downstream inlet	4			3	
Trap 13	Side channel #3	19-Aug	21-Aug	300' upstream outlet		1			1
Trap 14	Side channel #3	19-Aug	21-Aug	200' upstream outlet	6			2	
Trap 15	Side channel #3	19-Aug	21-Aug	40' upstream outlet	2	2		1	
TOTAL					**13**	**3**	**0**	**8**	**1**
coho ~ 75 mm									
all rainbow and cutthroat > 100 mm				**Total All Side Channels**	**44**	**9**	**1**	**38**	**4**

APPENDIX F

Consultation Documentation Regarding Draft Report

Presler, Dawn

From: Presler, Dawn
Sent: Tuesday, May 10, 2016 3:41 PM
To: 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); 'Anne Savery'; 'Bryden, Andy -FS'; 'James (ECY) Pacheco' (JPAC461@ECY.WA.GOV); 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Rustay, Michael'; 'Jim Miller (JMiller@everettwa.gov)'; 'Mick Matheson'; 'okeefe@americanwhitewater.org'
Cc: Binkley, Keith
Subject: Jackson Hydro (FERC No. 2157) - draft FHMP Annual Report for your 30-day review
Attachments: 2015 FHMP Annual Report_DRAFT.pdf

Dear ARC,
Attached is the draft Fisheries and Habitat Monitoring Plan 2015 Annual Report for your 30-day review and comment. Please provide comments, if any, back to me by June 10, 2016. If you have any questions on the draft report, please contact Keith directly. Thanks.

Dawn Presler
Sr. Environmental Coordinator
(425) 783-1709

PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107