SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Energizing Life in Our Communities

June 22, 2022

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: Jackson Hydroelectric Project, FERC No. 2157
Fish and Habitat Monitoring Plan – 2021 Annual Report
License Article 410

Dear Secretary Bose:

Enclosed is Public Utility District No. 1 of Snohomish County's Fish and Habitat Monitoring Plan Annual Report for 2021 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 I.

If you have any questions on the Fisheries and Habitat Monitoring Plan Annual Report for 2021, please do not hesitate to contact me.

Sincerely,

/s/ Keith Binkley

Keith Binkley
Manager, Natural Resources
KMBinkley@snopud.com
(425) 783-1769

Enclosed: Fish and Habitat Monitoring Plan Annual Report for 2021

cc: Aquatic Resource Committee

CERTIFICATE OF SERVICE

I hereby certify that I have this day served via e-mail a copy of the foregoing filing upon each person on the Project's Aquatic Resource Committee in accordance with ordering paragraph K of the Project license issued by the Federal Energy Regulatory Commission on September 2, 2011.

/s/ Dawn J. Presler

Dawn J. Presler
Sr. Environmental Coordinator
Public Utility District No. 1 of
Snohomish County
2320 California Street
PO Box 1107
Everett, WA 98206-1107
Telephone: (425) 783-1709

Presler, Dawn

From: Presler, Dawn
Sent: Wednesday, June 22, 2022 11:52 AM
To: Anne Savery; Brock Applegate; Jeff Garnett; Jennifer Bailey; Mike Rustay; Monica Kannadaguli; Nate Morgan; Richard Vacirca; Tom O'Keefe; 'elizabeth.babcock@noaa.gov'
Cc: Andrew McDonnell; Keith Binkley
Subject: JHP (FERC No. 2157) - cc Fish & Habitat Monitoring 2021 Annual Report
Attachments: 20220622 to FERC 2021 FHMP Annual Report.pdf

Dear ARC,
Hopefully, last email of the day from me! Attached is your cc: of the Fish & Habitat Monitoring Plan 2021 Annual Report that I will be e-filing with FERC shortly.

Cheers,
Dawn Presler
(she, her, hers)
Sr. Environmental Coordinator
Generation – Natural Resources
Snohomish County PUD No. 1
Everett, WA

(425) 783-1709 (work)

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

License Article 410:
Fisheries and Habitat Monitoring Plan
2021 Annual Report

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Everett, WA

June 2022

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

Public Utility District No. 1 of Snohomish County (Snohomish PUD). 2022. License Article 410: Fisheries and Habitat Monitoring Plan 2021 Annual Report for the Jackson Hydroelectric Project, FERC No. 2157. June 2022.

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Acronyms and Abbreviations

7-DAD Max	seven-day average of the daily maximum water temperature
ARC	Aquatic Resource Committee
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
FHM Plan	Fisheries and Habitat Monitoring Plan
LP	Log Placement
Project	Henry M. Jackson Hydroelectric Project, FERC No. 2157
RM	River Mile
SC	Side channel
Snohomish PUD	Public Utility District No. 1 of Snohomish County
USGS	United States Geological Survey
WDFW	Washington Department of Fish and Wildlife
WY	Water year

1. INTRODUCTION

Public Utility District No. 1 of Snohomish County (Snohomish PUD) 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, Snohomish PUD 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 2021. 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 provides data from the 2021 steelhead trout spawning ground surveys. Appendix E provides data from the 2021 Chinook salmon spawning ground surveys. Appendices F and G contain letters sent to FERC describing two-separate exceedances of the salmon ceiling. Appendix H is the second and final report on fish size related to the DDVPP Supplement. 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 on May 20, 2022; no comments were received. Consultation documentation is included in Appendix I.

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, Snohomish PUD is required to conduct a habitat survey after a high flow event or other major event causing changes in habitat conditions. During 2020, there was a significant spill event that occurred on February 1 that triggered the requirement for riverine habitat monitoring. This spill event occurred as a result of record rainfall in the Sultan Basin during January 2020 and provided the highest peak flow in the Sultan River since 1996. The United States Geological Survey (USGS) stream gage downstream of the Jackson Powerhouse recorded the peak magnitude at 13,900 cubic feet per second (cfs) on February 1, 2020. Snohomish PUD contracted for a complete and detailed habitat survey in the 16 miles downstream of Culmback Dam. Stillwater Sciences conducted detailed quantitative monitoring of physical habitat to document high flow induced changes in the lower, alluvial portion of the Sultan River as well as habitat changes attributable to the large-scale side channel enhancement project and placement of engineered log jams. This work was in addition to prior surveys conducted by Stillwater Sciences in 2016, 2014, and prior to license issuance in 2010 and 2007. The most recent evaluation was provided in the FHMP Annual Report for 2020.

On November 15-16, 2021, a channel maintenance flow occurred on the Sultan River. Per Section 4 of the Process Flow Plan, Snohomish PUD will collect physical habitat measurements under summer low-flow conditions at each of the eight reference transects. These surveys will

commence in August 2022.

2.2. Water Temperature Monitoring

Water temperature was monitored at twelve locations during 2021 (Figure 1). Nine of these locations were continuously monitored throughout the year and three locations were seasonally monitored (April through October).

Monitoring locations, in order from upstream to downstream, include:

- South Fork Sultan River, upstream of Culmback Dam, near river mile (RM) 18.2;
- Sultan River, within the bypass reach immediately downstream of Culmback Dam, at RM 15.8;
- Sultan River, at the base of the Sultan River Canyon Trail, at RM 15.5 (April through October);
- Sultan River, within the bypass reach, near RM 14.3 (April through October);
- Sultan River, within the bypass reach, near RM 11.3 (April through October);
- 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;
- Sultan River, upstream of the Powerhouse, near RM 4.9;
- Sultan River, downstream of the Powerhouse, near RM 4.4;
- Sultan River, near the confluence with the Skykomish River, at RM 0.2;
- Skykomish River, upstream of the confluence with the Sultan River, at RM 14.1; and
- Skykomish River, downstream of the confluence with the Sultan River, at RM 13.2.

Water temperature monitoring at RM 14.3 and 11.3 in the Sultan River is part of the Water Temperature Conditioning Plan monitoring program; the other sites represent requirements under the original FHM Plan or subsequent revisions.

In general, water temperatures in the Sultan Basin during 2021 were slightly warmer than 2020 and were consistent with those collected during 2008 and 2009 by CH2M Hill and presented in the Water Quality Final Technical Report (CH2M Hill 2009). Figures depicting water temperatures during 2021 are presented in Appendix A. A tabulation of all mean daily temperature data for 2021 is presented in Appendix B. The seven-day average of the daily maximum temperature (7- DAD Max) for 2021 is presented in Appendix C.

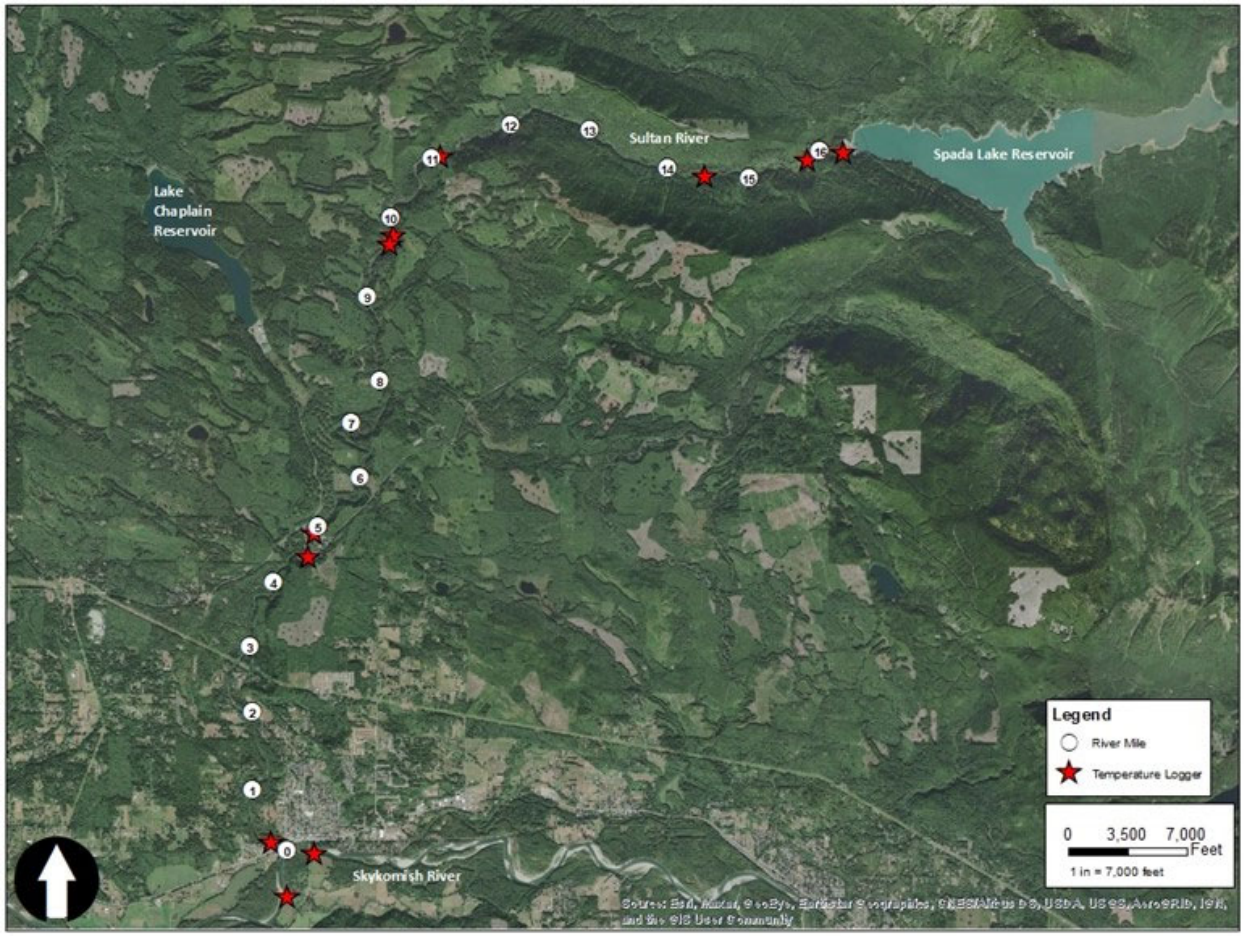


Figure 1. Locations of water temperature monitoring, Sultan watershed.

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 trout and Chinook 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) and one index area located upstream of the Diversion Dam (Figure 2). During the peak of spawning, supplemental surveys are conducted to document redds and account for spawning that occurs between index reaches. During 2021, water visibility and flow conditions were generally favorable during both spring and fall surveys.

Spring surveys occurred from March and extended into June 2021. Winter-run steelhead in the Sultan River typically have a peak spawn timing that occurs in May. During 2021, the first redds were observed on March 30 in Reaches 2 and 3. Based on redd counts in established index areas, peak spawning occurred between May 11 and 24. The last steelhead redd of the season was documented on June 8. The majority of redds were identified in Reach 2 (56%), whereas 36% and 8% of steelhead redds were documented in Reaches 1 and 3, respectively (Table 1). These surveys were used to develop an escapement estimate of 123 steelhead based on the direct observation of 77 redds. Appendix D contains the spawning ground survey field data for the 2021 steelhead trout spawning season.

Table 1. Number, spatial distribution, and density of steelhead trout redds by Operational Reach of the Sultan River for the 2021 spawning season.

Steelhead	Reach 1	Reach 2	Reach 3
Redds	28	43	6
Percent of total redds	36	56	8
Redds/mile	6	8	1

Fall surveys began in August and extended into November 2021. Chinook salmon spawning in the Sultan River typically peaks between September 15 and October 15. During even years, Chinook prefer spawning in Reaches 1 and 2. During odd years, when pink salmon are present on the spawning grounds, the bulk of Chinook spawning occurs in Reaches 2 and 3. During 2021, Chinook redds were first documented on September 14, in Reaches 1 and 2. Chinook spawning reached a peak near September 30 and the last Chinook redd was observed on November 2. The majority (79%) of Chinook redds were observed in Reaches 2 and 3, and these Reaches each had a standardized 12-redds per mile compared with 7-redds per mile in Reach 1 (Table 2). These surveys were used to generate an escapement estimate of 375 Chinook based on field observations of 150 redds. Appendix E contains the spawning ground survey field data for the 2021 Chinook salmon spawning season.

Table 2. Number, spatial distribution, and density of Chinook salmon redds by Operational Reach of the Sultan River for the 2021 spawning season.

Chinook	Reach 1	Reach 2	Reach 3
Redds	31	64	55
Percent of total redds	21	42	37
Redds/mile	7	12	12

Both the steelhead and Chinook escapement estimates were developed cooperatively with WDFW.

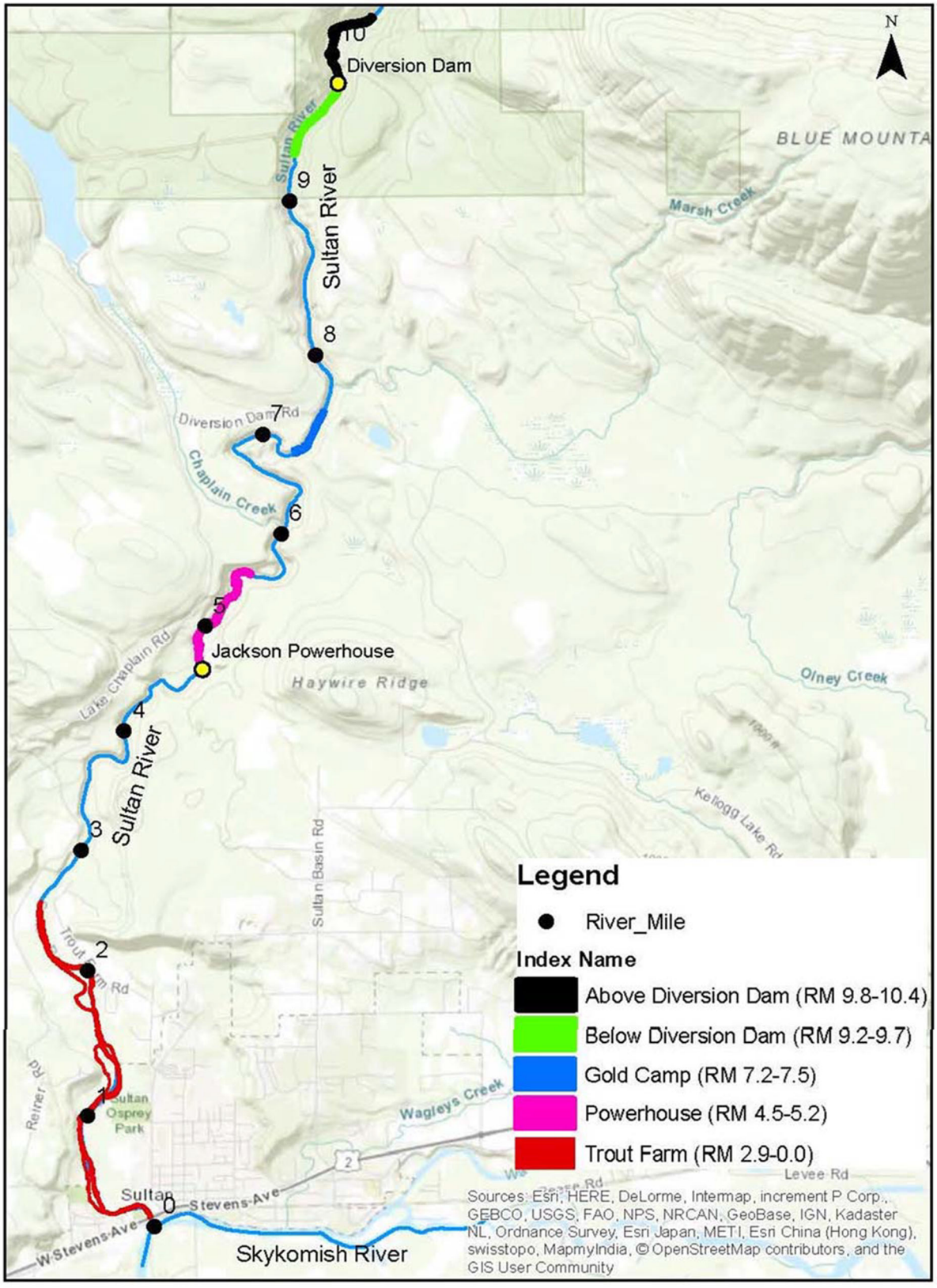


Figure 2. Locations of index areas used for escapement surveys, Sultan River.

3.2. Flow Ceiling Implemented for Chinook Salmon

An operational flow ceiling of a 550 cfs mean daily discharge is implemented annually between September 15 and October 15 in Reach 1 of the Sultan River, located downstream of the Powerhouse (RM 4.5). This ceiling ensures that areas used by spawning Chinook salmon remain wetted through the incubation and emergence periods should flows from the Project approach the minimum instream flow of 300 cfs. In 2021, Snohomish PUD filed with FERC a request to amend Aquatic License Article 5 (Ramping Salmon Ceiling). The requested amendment added language exempting artificial process flow releases and related increases in generation during the month of September provided the duration when flows are greater than 550 cfs (mean daily discharge at the Powerhouse gage) is less than 36 hours, and the overall magnitude is no greater than 850 cfs (mean daily discharge at the Powerhouse gage). During 2021, mean daily discharge downstream of the Powerhouse averaged 534 cfs during the ceiling period (Figure 3). On September 26, 2021, a combined flow release for upstream migration, flushing, and whitewater boating was conducted in the Sultan River. Beginning on September 26 and extending through October 1, 2021, several storms were documented at the Project. These storms produced a total rainfall of 4.33 inches over six successive days resulting in a substantial increase in inflows throughout the Sultan Basin as indexed by the gage on the South Fork Sultan River. During this period, mean daily discharge[1] at the Powerhouse gage exceeded the applicable salmon ceiling on four occasions with the magnitude of the exceedance ranging between 5 and 28 cfs. On October 8, 2021, Snohomish PUD filed a letter with FERC describing the excursions (Appendix F). Beginning on October 10 and extending through October 15, 2021, several storms were documented at the Project. These storms produced a total rainfall of 3.34 inches over 6 successive days resulting in a substantial increase in inflows throughout the Sultan Basin. During this period, mean daily discharge at the Powerhouse gage exceeded the applicable salmon ceiling on four occasions with the magnitude of the exceedance ranging between 9 and 26 cfs. Subsequent to those exceedances, flows in the lower Sultan River provided sufficient water elevation above redds and flows remained well above the minimum instream flow throughout spawning and incubation seasons. On October 22, 2021, Snohomish PUD filed a letter with FERC describing the excursions (Appendix G).

[1] mean daily discharge computed based on 15-minute unit values recorded at USGS Gaging Station 12138160, Sultan River downstream of Powerplant, near Sultan, WA.

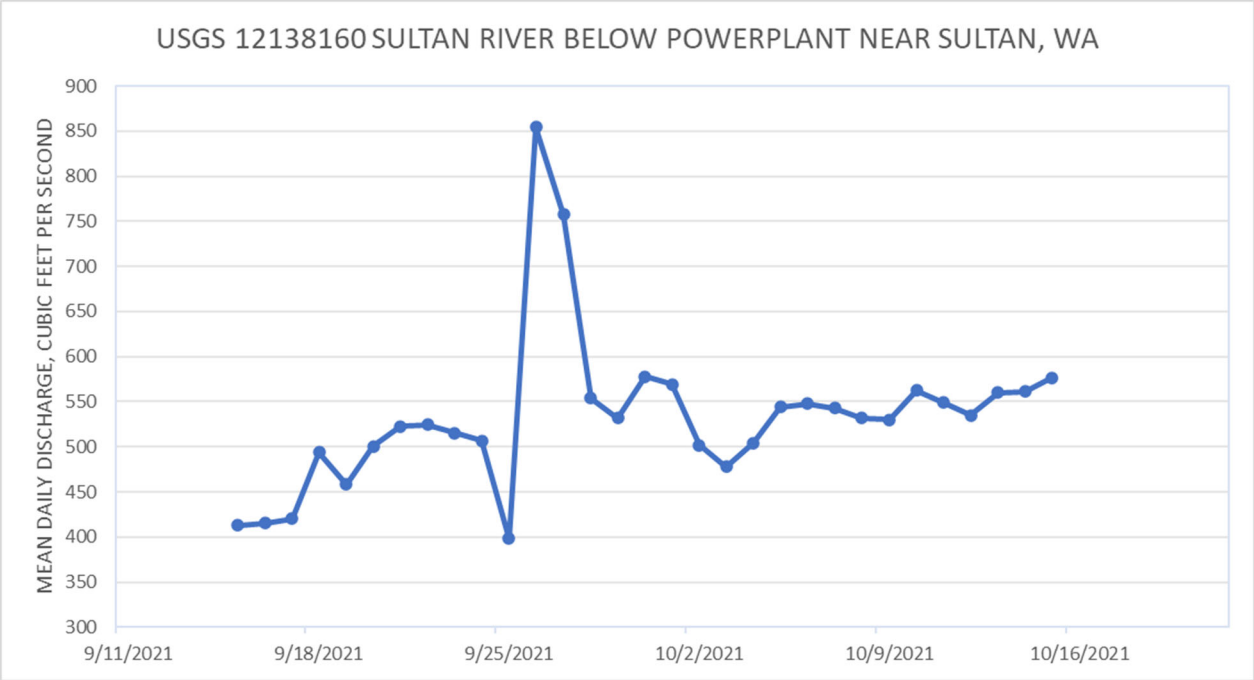


Figure 3. Mean Daily Discharge in the Sultan River downstream of the Powerhouse between September 15 and October 15, 2021.

3.3. Juvenile Production in the Sultan River

The purpose of deploying a rotary screw trap (smolt trap) is to assess juvenile salmonid production and to evaluate reproductive success relative to habitat restoration and enhancement efforts. The lower Sultan River smolt trap (RM 0.2) is required to operate for two years over the six-year period between 2018 and 2024. The trap was operated in 2019; the ARC did not select 2021 as a year of operation. The second year of operation during this time period will be determined by the ARC.

4. SIDE CHANNEL MAINTENANCE AND MONITORING

Snohomish PUD has completed a series of detailed flow and aquatic habitat surveys in the constructed side channels in the lower Sultan River. These side channels (SC) – SC1, SC2, SC3, and SC4 – had each undergone varying degrees of construction during summer 2012 to restore and/or enhance salmonid habitat. The primary objective of Snohomish PUD's surveys was to assess flow behavior and distribution and to determine whether additional downramping rate restrictions were necessary to prevent juvenile fish stranding in these side channels.

In addition to the survey effort, 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 and has been conducted annually.

Geomorphic processes associated with the Channel Forming flow event in February 2020 resulted in the transport of a significant volume of gravel and wood including the racking of large woody debris in portions of SC2, SC3, and SC4. A large volume of sediment was transported to and deposited in the redundant inlet to SC1 resulting in gravel aggradation to that

section of the side channel. To date, Snohomish PUD has applied for and is awaiting approval of a U.S. Army Corps of Engineers dredging permit in order to restore baseflow and provide connectivity to this section of the SC1 dendritic network.

5. FUTURE MONITORING

The 2021 calendar year marked the tenth calendar year under the License. Monitoring methodologies employed in 2021 were consistent with those identified in the FHM Plan. Monitoring of physical habitat and water quality conditions will continue in 2022. Monitoring of spawner abundance, distribution, and timing will take place per the FHM Plan. Future monitoring of juvenile outmigration will occur in 2023 or 2024.

6. REFERENCES

FERC. 2011. Order Issuing New License, Project No. 2157-188. 136 FERC ¶ 62,188. September 2, 2011. Available at: 20110902LICENSE.pdf (snopud.com)

APPENDIX A

2021 Water Temperature Figures

Figure A-1. Mean Daily Water Temperature in the South Fork Sultan (RM 18.2), and the mainstem Sultan River immediately downstream of Culmback Dam (RM 15.8) during 2021

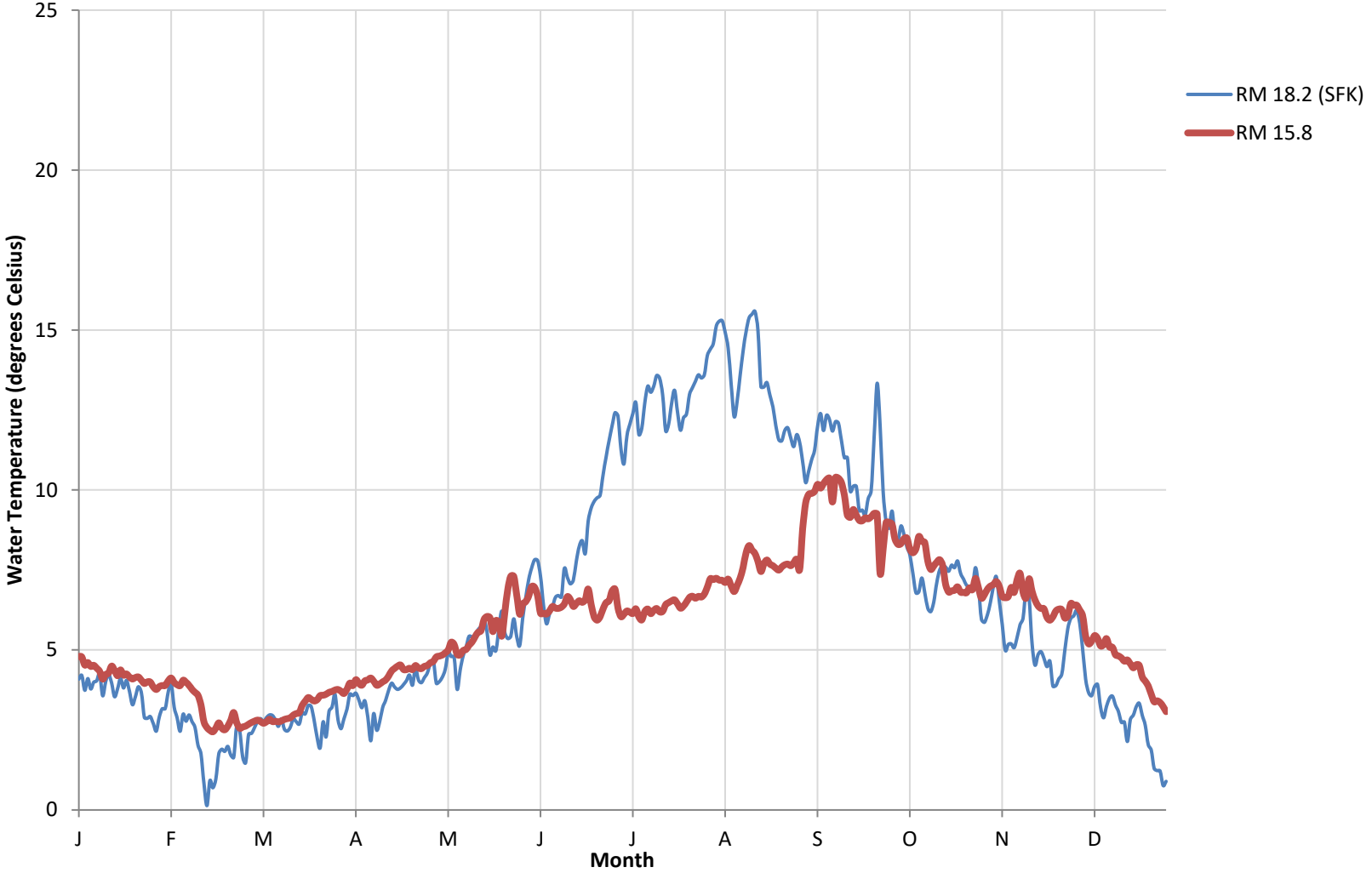


Figure A-2. Longitudinal Depiction of Mean Daily Water Temperature in the Bypass Reach (Reach 3) of the Sultan River during 2021

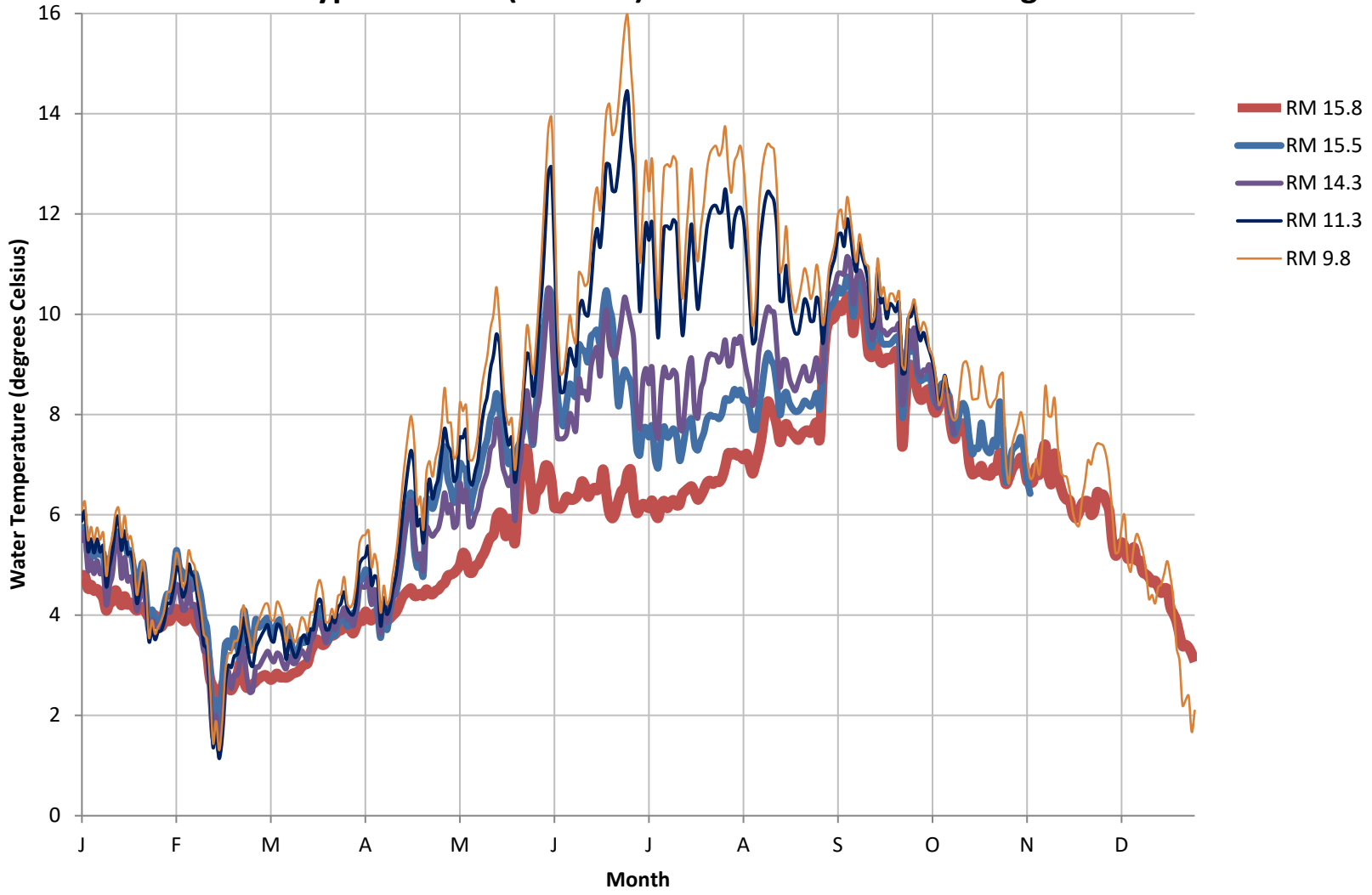


Figure A-3. Longitudinal Depiction of Mean Daily Water Temperature, Sultan River downstream of Culmback Dam during 2021

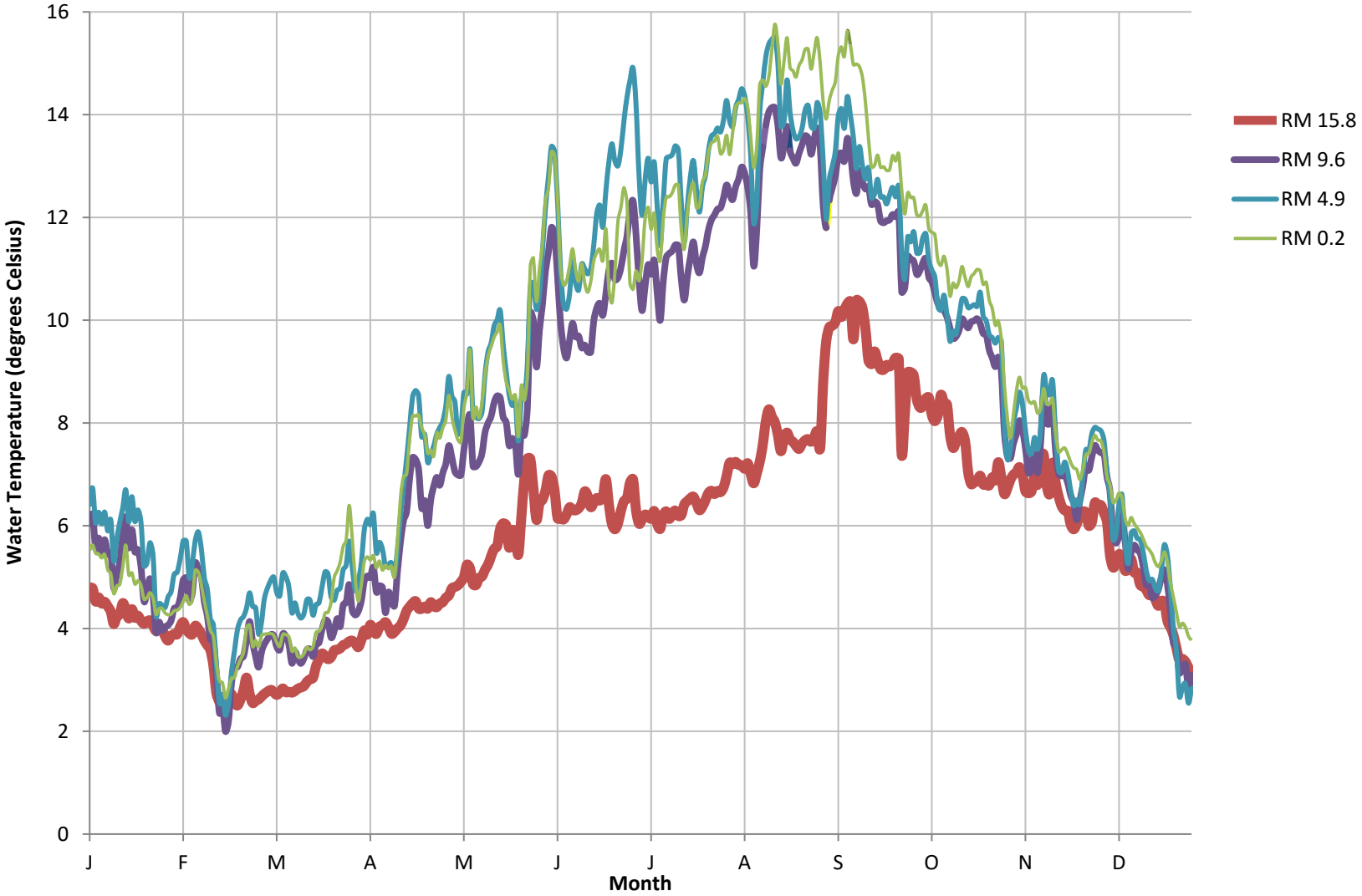
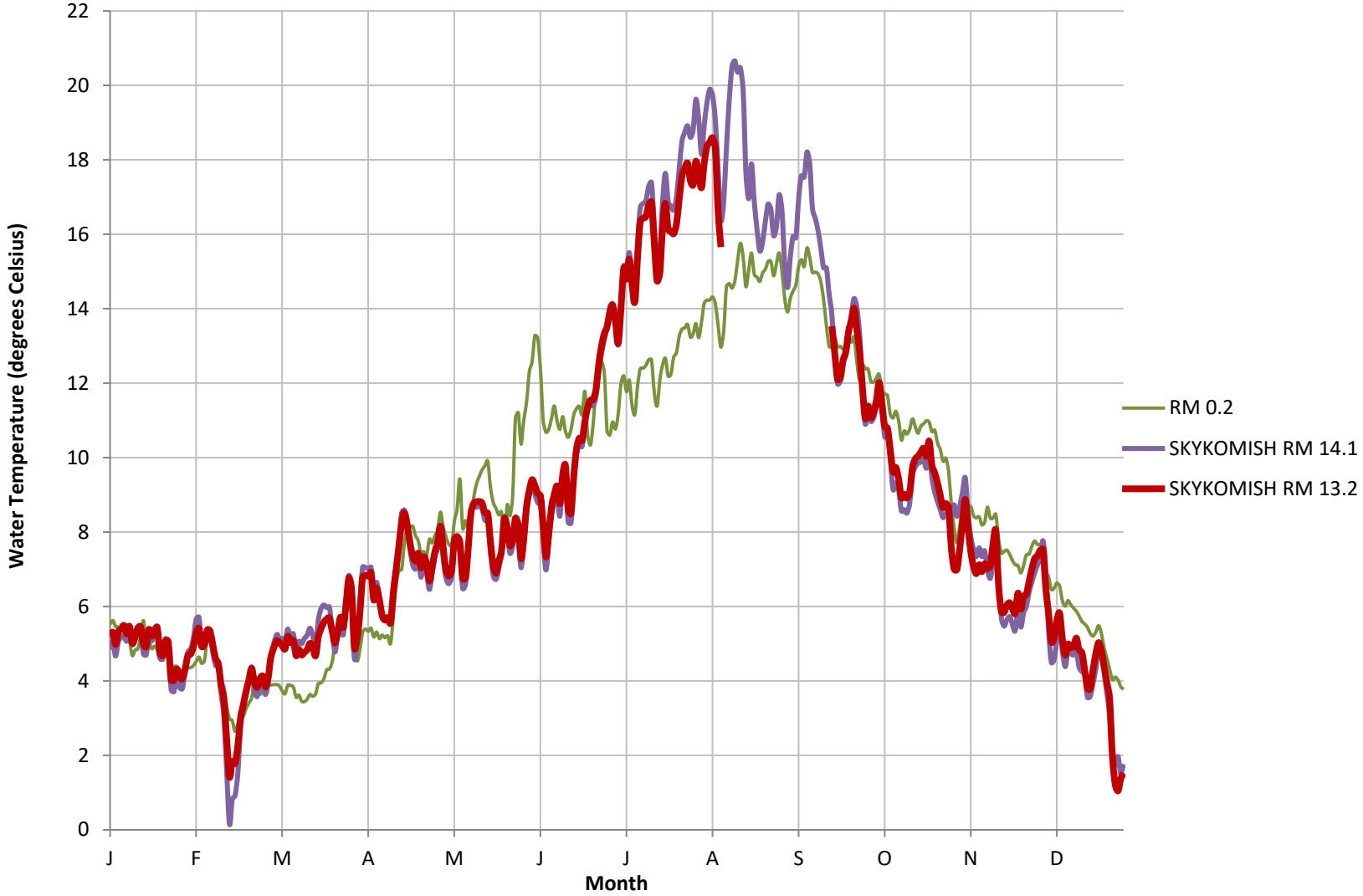


Figure A-4. Mean Daily Water Temperature near confluence of Sultan and Skykomish rivers during 2021



APPENDIX B

2021 Mean Daily Water Temperature Data in Tabular Format

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
1/1	4.1	4.8				6.1	6.0	6.4	5.5	5.5	4.9	5.2
1/2	4.2	4.8				6.3	6.2	6.7	5.7	5.6	5.1	5.3
1/3	3.7	4.5				5.5	5.6	6.1	5.5	5.5	4.7	5.0
1/4	4.1	4.6				5.8	5.8	6.3	5.4	5.5	5.1	5.3
1/5	3.8	4.5				5.5	5.5	6.0	5.3	5.4	5.2	5.4
1/6	4.0	4.5				5.7	5.7	6.3	5.4	5.4	5.2	5.5
1/7	4.0	4.4				5.5	5.4	5.9	5.1	5.1	5.1	5.3
1/8	4.3	4.3				5.6	5.5	6.1	5.0	5.1	5.3	5.5
1/9	3.6	4.1				4.8	4.8	5.3	4.6	4.7	5.0	5.0
1/10	4.0	4.2				5.3	5.1	5.7	4.7	4.8	5.1	5.2
1/11	4.2	4.3				5.6	5.3	6.1	4.8	4.9	5.4	5.4
1/12	4.0	4.5				6.0	5.8	6.4	5.2	5.2	5.3	5.5
1/13	3.5	4.4				6.1	6.2	6.7	5.9	5.6	4.7	5.0
1/14	3.8	4.2				5.6	5.6	6.1	5.0	5.0	4.7	4.9
1/15	4.1	4.4				6.0	5.9	6.6	5.0	5.1	5.2	5.4
1/16	3.8	4.2				5.5	5.5	6.1	4.8	4.9	5.1	5.2
1/17	4.1	4.3				5.6	5.5	6.3	4.8	4.9	5.3	5.4
1/18	3.7	4.2				5.2	5.2	6.1	4.8	4.8	5.4	5.4
1/19	3.3	4.1				4.4	4.5	5.2	4.6	4.6	4.6	4.7
1/20	3.5	4.1				4.7	4.7	5.3	4.5	4.6	4.6	4.7
1/21	3.9	4.2				5.1	5.0	5.7	4.6	4.7	5.1	5.1
1/22	3.7	4.1				4.6	4.6	5.4	4.6	4.6	5.1	5.0
1/23	2.9	4.0				3.6	3.9	4.2	4.3	4.3	3.8	4.0
1/24	2.9	4.0				3.9	4.1	4.5	4.3	4.4	3.7	4.0
1/25	2.9	4.0				3.6	4.0	4.5	4.3	4.4	4.1	4.3
1/26	2.7	3.8				3.8	4.0	4.4	4.3	4.3	3.8	4.1
1/27	2.5	3.8				3.9	4.1	4.6	4.2	4.3	3.8	4.1
1/28	2.9	3.9				4.1	4.2	4.7	4.2	4.3	4.2	4.3
1/29	3.2	3.9				4.5	4.4	5.1	4.3	4.3	4.8	4.7
1/30	3.2	3.9				4.5	4.4	5.1	4.3	4.4	4.8	4.7
1/31	3.7	4.0				4.8	4.6	5.4	4.3	4.4	5.1	4.9

	Sultan River										Skykomish River	
DATE	**RM 18.2 (SFK)**	**RM 15.8**	**RM 15.5**	**RM 14.3**	**RM 11.3**	**RM 9.8**	**RM 9.6**	**RM 4.9**	**RM 4.4**	**RM 0.2**	**RM 14.1**	**RM 13.2**
2/1	4.0	4.1				5.2	4.9	5.7	4.4	4.5	5.7	5.3
2/2	3.2	4.0				5.0	5.0	5.7	4.6	4.6	5.7	5.4
2/3	2.9	3.9				4.6	4.5	5.0	4.4	4.5	5.0	4.9
2/4	2.5	3.9				4.7	4.7	5.3	4.5	4.5	5.0	5.0
2/5	3.0	4.1				5.3	5.3	5.7	5.5	5.1	5.3	5.4
2/6	2.8	4.0				5.1	5.1	5.9	5.3	5.1	5.1	5.3
2/7	3.0	3.9				5.0	5.0	5.5	5.0	4.9	4.8	5.0
2/8	2.8	3.8				4.5	4.5	5.0	4.5	4.5	4.4	4.6
2/9	2.6	3.7				4.1	4.2	4.8	4.2	4.2	4.4	4.5
2/10	2.0	3.6				3.6	3.8	4.2	3.9	4.0	3.6	3.9
2/11	1.8	3.3				3.5	3.7	4.1	3.9	3.8	3.1	3.5
2/12	0.8	2.7				2.7	3.1	3.3	3.4	3.3	1.6	2.4
2/13	0.1	2.6				1.4	2.4	2.5	3.1	3.0	0.2	1.4
2/14	0.9	2.5				1.9	2.5	2.7	3.0	2.9	0.8	1.8
2/15	0.7	2.4				1.3	2.0	2.3	2.6	2.7	0.9	1.8
2/16	1.0	2.6				1.8	2.2	2.5	2.7	2.8	1.5	2.2
2/17	1.8	2.7				2.8	2.9	3.2	3.0	3.0	2.7	3.0
2/18	1.9	2.6				3.2	3.2	3.6	3.0	3.0	3.4	3.4
2/19	1.8	2.5				3.2	3.3	4.0	3.3	3.3	3.6	3.7
2/20	2.0	2.6				3.5	3.4	4.2	3.5	3.4	4.0	4.0
2/21	1.7	2.8				3.5	3.5	4.2	3.7	3.6	4.4	4.3
2/22	1.6	3.0				3.8	3.8	4.4	4.3	4.0	3.7	4.0
2/23	2.6	2.7				4.2	4.1	4.7	4.4	4.1	3.6	3.8
2/24	2.5	2.6				3.8	3.7	4.4	3.9	3.7	4.0	4.1
2/25	1.7	2.6				3.5	3.5	4.4	4.0	3.8	4.0	4.1
2/26	1.5	2.6				3.3	3.2	3.9	3.7	3.6	3.6	3.8
2/27	2.4	2.7				3.7	3.6	4.1	3.9	3.9	4.0	4.1
2/28	2.4	2.7				3.9	3.7	4.6	4.1	3.9	4.7	4.7

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
3/1	2.8	2.8				4.2	3.9	4.9	4.2	3.9	5.2	5.1
3/2	2.9	2.8				4.2	3.9	5.0	4.2	3.9	5.1	5.0
3/3	2.8	2.7				3.9	3.6	4.7	4.0	3.7	5.1	4.9
3/4	2.9	2.8				3.9	3.6	4.6	3.9	3.7	5.0	4.9
3/5	3.0	2.8				4.3	3.9	5.1	4.2	3.9	5.4	5.2
3/6	3.0	2.8				4.2	3.8	5.0	4.2	3.9	5.2	5.0
3/7	2.8	2.8				3.9	3.7	4.8	4.0	3.8	5.3	5.1
3/8	2.6	2.8				3.4	3.3	4.3	3.7	3.6	4.8	4.7
3/9	2.8	2.8				3.8	3.6	4.5	3.7	3.6	5.1	4.8
3/10	2.5	2.8				3.6	3.4	4.3	3.5	3.5	5.0	4.7
3/11	2.5	2.9				3.5	3.3	4.2	3.5	3.4	5.1	4.8
3/12	2.6	2.9				3.7	3.4	4.3	3.5	3.5	5.2	4.8
3/13	2.9	3.0				3.9	3.6	4.6	3.7	3.6	5.4	5.0
3/14	2.8	3.0				3.9	3.6	4.6	3.7	3.6	5.2	4.9
3/15	2.7	3.0				3.7	3.5	4.3	3.7	3.6	4.9	4.7
3/16	3.0	3.3				4.1	3.7	4.5	3.9	3.9	5.6	5.2
3/17	3.0	3.4				4.1	3.7	4.5	3.9	3.9	5.9	5.4
3/18	3.3	3.5				4.5	4.0	4.8	4.1	4.1	6.0	5.6
3/19	3.2	3.5				4.7	4.2	5.1	4.4	4.3	6.0	5.7
3/20	2.8	3.4				4.4	4.1	5.1	4.4	4.3	6.0	5.7
3/21	2.3	3.4				3.9	3.8	4.6	4.4	4.5	5.4	5.3
3/22	1.9	3.6				3.9	3.9	4.6	4.6	5.0	4.8	5.0
3/23	2.8	3.6				4.1	4.2	4.7	4.8	5.1	5.3	5.3
3/24	2.3	3.6				3.9	4.0	4.8	4.8	5.3	5.6	5.7
3/25	3.1	3.7				4.4	4.5	5.1	5.2	5.6	5.2	5.4
3/26	3.2	3.7				4.4	4.5	5.2	5.3	5.7	6.0	6.1
3/27	3.6	3.8				4.8	4.9	5.7	5.8	6.4	6.8	6.8
3/28	2.8	3.8				4.2	4.4	5.2	5.2	5.8	6.3	6.5
3/29	2.5	3.7				4.2	4.3	4.7	4.7	5.0	4.6	4.9
3/30	2.9	3.6				4.3	4.3	4.9	4.5	4.5	5.2	5.1
3/31	3.2	3.8				4.7	4.5	5.3	4.8	4.9	6.1	5.9

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
4/1	3.6	4.0	4.6	4.6	5.0	5.4	4.9	5.9	5.0	5.3	7.1	6.8
4/2	3.6	3.9	4.7	4.6	5.1	5.6	5.0	6.1	5.0	5.4	7.0	6.8
4/3	3.7	4.1	4.9	4.6	5.2	5.6	5.0	6.0	4.9	5.3	7.0	6.8
4/4	3.4	4.0	4.8	4.7	5.4	5.7	5.2	6.2	5.1	5.4	7.1	6.9
4/5	3.2	3.9	4.3	4.2	4.6	5.0	4.7	5.5	4.8	5.2	6.2	6.2
4/6	3.4	4.0	4.5	4.5	4.8	5.2	4.8	5.7	4.9	5.3	6.7	6.5
4/7	2.9	4.1	4.1	4.2	4.7	4.9	4.8	5.5	5.0	5.1	6.2	6.2
4/8	2.2	4.1	3.6	3.6	3.8	4.1	4.3	5.2	4.9	5.2	5.7	5.8
4/9	3.0	4.0	4.2	4.1	4.3	4.6	4.7	5.2	5.0	5.2	5.6	5.6
4/10	2.5	3.9	3.7	3.9	4.0	4.2	4.5	5.3	4.8	5.2	5.7	5.7
4/11	2.8	3.9	4.1	4.1	4.2	4.4	4.4	5.1	4.7	5.0	5.6	5.6
4/12	3.2	4.0	4.4	4.3	4.5	4.8	5.1	5.6	5.5	5.7	6.5	6.3
4/13	3.4	4.1	4.5	4.6	4.8	5.2	5.7	6.2	6.2	6.6	7.1	7.0
4/14	3.7	4.2	4.8	4.9	5.3	5.8	6.1	6.8	6.5	7.0	7.7	7.6
4/15	4.0	4.3	5.2	5.3	5.9	6.5	6.3	7.3	6.5	7.0	8.5	8.3
4/16	3.8	4.4	5.8	5.7	6.4	7.1	6.9	7.9	7.2	7.7	8.6	8.5
4/17	3.8	4.5	6.1	6.1	6.9	7.6	7.3	8.5	7.4	8.1	8.1	8.2
4/18	3.8	4.5	6.4	6.3	7.3	8.0	7.3	8.6	7.6	8.1	7.5	7.7
4/19	3.9	4.4	5.3	5.6	7.0	7.5	7.1	8.5	7.7	8.2	7.1	7.4
4/20	4.0	4.4	5.0	5.1	5.8	6.2	6.3	7.7	7.2	7.9	7.0	7.2
4/21	4.2	4.4	5.1	5.2	5.9	6.4	6.5	7.8	7.2	7.8	7.3	7.4
4/22	3.9	4.4	4.8	4.9	5.4	5.7	6.0	7.2	7.0	7.4	6.8	7.0
4/23	4.4	4.5	6.3	5.8	6.2	6.9	6.5	7.4	6.9	7.5	7.3	7.3
4/24	4.1	4.4	6.3	5.7	6.7	7.1	6.8	7.6	7.1	7.4	6.9	7.2
4/25	4.0	4.4	6.1	5.6	6.3	6.8	6.9	7.8	7.5	7.8	6.5	6.7
4/26	4.1	4.5	6.3	5.7	6.6	7.1	6.8	7.9	7.2	7.7	6.9	7.1
4/27	4.3	4.5	6.6	5.8	6.7	7.4	7.0	8.0	7.6	7.9	7.4	7.5
4/28	4.6	4.6	7.1	6.0	7.2	7.8	7.2	8.3	7.8	8.1	7.6	7.7
4/29	4.7	4.6	7.4	6.4	7.7	8.5	7.6	8.9	8.2	8.5	8.1	8.2
4/30	4.0	4.8	6.7	6.0	7.4	7.8	7.3	8.5	8.0	8.1	7.3	7.6

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
5/1	4.0	4.8	6.5	6.2	7.3	7.8	7.1	8.4	7.7	7.9	6.8	7.0
5/2	4.1	4.8	6.2	5.8	6.7	7.1	7.0	7.8	7.5	7.7	6.6	6.8
5/3	4.4	4.9	6.4	5.8	6.8	7.2	7.0	7.9	7.5	7.6	6.8	7.0
5/4	4.9	5.0	7.0	6.6	7.5	8.2	7.5	8.6	7.7	8.3	7.8	7.8
5/5	4.8	5.2	6.9	6.3	7.5	8.1	7.9	8.6	8.4	8.6	7.7	7.9
5/6	4.8	5.2	6.9	6.5	7.7	8.2	8.1	9.4	8.6	9.4	7.5	7.7
5/7	3.8	4.9	6.1	5.8	6.7	7.1	7.2	8.1	7.7	8.1	6.5	6.7
5/8	4.4	4.8	6.3	5.8	6.6	7.1	7.2	8.1	7.6	8.3	6.6	6.8
5/9	4.8	5.0	6.6	6.0	6.9	7.3	7.2	8.1	7.6	8.1	7.5	7.6
5/10	5.1	5.0	6.8	6.2	7.1	7.7	7.4	8.2	7.7	8.4	8.6	8.5
5/11	5.4	5.1	7.0	6.5	7.7	8.4	7.8	9.0	8.3	8.9	8.7	8.8
5/12	5.4	5.2	7.3	6.7	8.1	8.9	8.0	9.4	8.5	9.3	8.7	8.8
5/13	5.4	5.4	7.5	6.9	8.4	9.2	8.1	9.6	8.6	9.5	8.7	8.8
5/14	5.6	5.6	7.9	7.3	8.9	9.7	8.4	9.9	8.9	9.7	8.6	8.8
5/15	5.7	5.6	8.1	7.4	9.2	10.0	8.5	10.0	9.1	9.8	8.3	8.5
5/16	6.0	5.9	8.4	7.9	9.6	10.5	8.5	10.2	9.2	9.9	8.3	8.5
5/17	5.6	6.0	8.1	7.6	9.4	9.8	8.1	9.5	8.7	9.2	7.5	7.8
5/18	4.8	6.0	7.5	7.0	8.3	8.8	8.0	9.0	8.5	8.8	6.8	7.1
5/19	5.1	5.6	7.3	6.8	7.7	8.1	7.6	8.5	8.0	8.6	6.7	6.9
5/20	5.0	5.9	7.0	6.6	7.4	7.8	7.7	8.3	8.0	8.5	7.0	7.2
5/21	5.6	5.9	7.2	6.8	7.5	7.9	7.6	8.4	8.0	8.5	7.4	7.5
5/22	6.2	5.4	6.1	5.9	6.7	6.9	7.0	7.6	7.5	7.7	8.4	8.4
5/23	5.5	6.2	7.3	6.8	7.1	7.5	7.9	8.5	8.2	8.7	8.0	8.1
5/24	5.4	6.9	7.5	7.2	7.8	8.0	7.8	8.5	8.1	8.4	7.4	7.6
5/25	5.4	7.3	7.8	8.1	8.6	8.8	8.3	9.1	8.6	8.9	7.6	7.8
5/26	6.0	7.3	8.3	8.5	9.2	9.8	10.1	10.7	10.2	11.1	8.3	8.4
5/27	5.4	6.7	7.7	8.0	9.1	9.4	10.0	10.7	10.5	11.2	7.8	8.2
5/28	5.1	6.1	7.4	7.4	8.4	8.8	9.1	10.2	9.8	10.4	7.0	7.3
5/29	6.0	6.4	8.2	8.0	8.9	9.5	9.8	10.5	10.2	11.0	7.7	7.8
5/30	6.6	6.5	8.9	8.3	9.8	10.4	10.3	11.4	10.8	11.5	8.5	8.7
5/31	7.2	6.7	9.5	9.0	10.6	11.5	11.0	12.2	11.3	12.3	9.0	9.1

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
6/1	7.6	7.0	9.9	9.7	11.7	12.6	11.3	12.8	11.5	12.6	9.2	9.4
6/2	7.8	7.0	10.5	10.5	12.8	13.7	11.8	13.4	12.2	13.3	9.0	9.3
6/3	7.8	6.7	10.4	9.8	12.9	13.9	11.7	13.3	12.2	13.2	8.8	9.0
6/4	7.3	6.1	9.5	8.5	11.3	12.2	10.8	12.3	11.5	12.4	8.7	
6/5	6.4	6.1	8.4	7.5	9.3	9.8	10.0	11.0	10.6	11.0	7.8	
6/6	5.8	6.1	8.0	7.5	8.5	8.8	9.5	10.3	10.2	10.7	7.0	
6/7	6.1	6.2	7.8	7.5	8.5	8.9	9.3	10.2	10.1	10.8	7.8	
6/8	6.3	6.4	8.2	7.6	8.8	9.3	9.6	10.5	10.3	11.1	8.4	
6/9	6.6	6.3	8.6	8.0	9.3	10.0	9.9	11.2	10.6	11.4	8.8	
6/10	6.7	6.3	8.4	7.9	9.1	9.6	9.7	10.7	10.3	11.0	9.0	
6/11	6.7	6.3	8.4	7.7	9.0	9.4	9.7	10.6	10.2	10.8	8.4	
6/12	7.6	6.4	9.4	8.7	10.0	10.8	9.5	11.1	10.2	11.1	9.5	
6/13	7.3	6.7	9.3	8.4	10.3	10.8	9.5	11.0	10.2	10.7	9.5	
6/14	7.1	6.6	9.3	8.5	10.0	10.6	9.4	10.9	10.0	10.5	8.3	
6/15	7.2	6.4	9.0	8.3	10.0	10.7	9.4	11.0	10.1	10.8	8.2	
6/16	7.8	6.5	9.6	9.0	10.6	11.4	10.0	11.5	10.3	11.2	9.4	
6/17	8.2	6.5	9.6	9.2	11.4	12.2	10.2	12.1	10.6	11.3	10.1	
6/18	8.4	6.5	9.7	9.3	11.7	12.5	10.3	12.2	10.7	11.4	10.4	
6/19	8.0	6.6	9.4	8.8	11.3	12.1	10.1	11.8	10.4	11.2	10.3	
6/20	9.0	6.9	10.1	9.7	12.0	13.1	10.5	12.5	10.8	11.8	10.9	
6/21	9.4	6.4	10.5	10.1	13.0	14.0	11.0	13.1	9.9	10.6	11.3	
6/22	9.6	6.0	10.1	9.4	13.0	14.2	11.1	13.4	10.1	10.3	11.4	
6/23	9.8	5.9	9.9	9.2	12.5	13.6	10.8	13.1	11.0	10.9	11.4	
6/24	9.8	6.0	8.9	9.2	12.5	13.7	10.8	13.0	11.5	11.9	11.6	
6/25	10.5	6.3	8.2	9.5	12.9	14.2	11.0	13.3	11.8	12.2	12.3	
6/26	11.0	6.5	8.6	9.9	13.6	15.0	11.4	13.9	12.1	12.6	12.8	
6/27	11.5	6.5	8.9	10.3	14.2	15.7	11.6	14.3	11.5	12.3	13.2	
6/28	12.0	6.8	8.8	10.1	14.4	16.0	12.1	14.7	10.3	10.7	13.5	
6/29	12.4	6.9	8.6	9.8	13.5	15.0	12.3	14.9	10.3	10.6	14.0	
6/30	12.3	6.3	8.2	9.5	12.9	14.1	11.7	14.2	10.9	11.0	14.1	

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
7/1	8.0	6.0	7.3	8.0	11.4	12.5	10.8	12.8	10.8	10.8	13.7	
7/2	7.8	6.1	7.2	7.7	10.1	11.0	10.2	12.0	10.9	11.2	13.0	
7/3	7.8	6.2	7.7	8.7	10.9	12.1	10.7	12.7	11.4	12.0	14.0	
7/4	8.5	6.2	7.7	8.9	11.8	13.1	11.1	13.2	11.7	12.2	15.2	
7/5	9.1	6.1	7.6	8.6	11.5	12.5	10.9	12.7	11.5	11.8	14.9	
7/6	9.2	6.3	7.8	8.9	11.8	13.1	11.2	13.1	11.7	12.1	15.5	
7/7	8.8	6.0	7.1	7.8	10.6	11.5	10.5	12.2	11.2	11.4		
7/8	8.8	5.9	6.9	7.5	9.5	10.3	10.0	11.5	10.7	11.2		
7/9	9.0	6.2	7.5	8.5	10.7	11.8	10.7	12.3	11.3	12.0		
7/10	9.9	6.3	7.8	8.9	11.7	12.9	11.2	13.1	11.9	12.4		
7/11	9.7	6.1	7.5	8.7	11.8	13.0	11.3	13.2	11.9	12.4		
7/12	9.6	6.2	7.6	8.8	11.7	12.9	11.3	13.2	12.0	12.5		
7/13	9.4	6.3	7.7	8.9	11.9	13.2	11.5	13.4	12.1	12.6		
7/14	10.0	6.2	7.6	8.8	11.8	13.0	11.5	13.3	12.1	12.6		
7/15	10.6	6.2	7.1	7.7	10.5	11.3	10.8	12.3	11.4	11.8		
7/16	11.0	6.4	7.3	7.7	9.6	10.3	10.4		11.0	11.4		
7/17	10.7	6.5	7.7	8.3	10.2	11.3	10.9		11.4	12.1		
7/18	11.1	6.5	7.9	9.0	11.1	12.2	11.2		11.9	12.5		
7/19	11.6	6.6	7.9	9.1	11.8	12.9	11.5		12.1	12.7		
7/20	12.4	6.4	7.4	8.1	10.9	11.7	11.1		11.4	12.2		
7/21	12.8	6.3	7.3	7.9	10.1	11.1	10.9		11.2	12.2		
7/22	12.5	6.4	7.5	8.5	10.6	11.7	11.2		11.5	12.7		
7/23	11.6	6.5	7.6	8.7	11.2	12.2	11.4		11.6	12.8		
7/24	11.1	6.6	7.9	9.1	11.7	12.9	11.8		11.9	13.3		
7/25	11.1	6.7	8.0	9.2	12.0	13.2	12.0		12.1	13.4		
7/26	12.0	6.6	8.0	9.2	12.2	13.3	12.1		12.2	13.5		
7/27	12.9	6.7	8.0	9.2	12.2	13.4	12.2		12.3	13.6		
7/28	13.3	6.7	7.9	9.0	12.0	13.2	12.2		12.3	13.2		
7/29	13.4	6.7	8.0	9.2	12.1	13.3	12.4	13.9	12.4	13.3	18.8	17.3
7/30	13.8	7.0	8.3	9.5	12.5	13.7	12.6	14.3	12.7	13.6	19.6	18.0
7/31	14.3	7.2	8.3	9.0	12.0	12.9	12.5	13.9	12.6	13.2	19.1	17.6

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
8/1	14.6	7.2	8.3	9.0	11.3	12.4	12.3	13.8	12.7	13.6	18.1	17.3
8/2	15.1	7.2	8.5	9.5	11.9	13.0	12.6	14.1	12.9	14.2	18.9	17.9
8/3	15.3	7.2	8.4	9.4	12.1	13.2	12.8	14.3	13.1	14.2	19.5	18.4
8/4	15.3	7.2	8.5	9.6	12.1	13.4	13.0	14.5	13.2	14.2	19.9	18.5
8/5	14.9	7.1	8.3	9.2	11.9	13.0	12.9	14.4	13.3	14.3	19.7	18.6
8/6	14.4	7.2	8.3	8.9	11.2	12.1	12.6	13.9	13.1	14.1	19.1	18.3
8/7	13.3	7.0	8.1	8.6	10.3	10.9	12.1	13.2	12.9	13.5	17.7	16.6
8/8	12.3	6.8	7.7	8.2	9.4	9.8	11.1	11.9	12.1	13.0	16.4	15.7
8/9	12.8	7.0	7.7	8.5	9.5	10.3	11.8	12.3	12.7	13.4	16.9	
8/10	13.6	7.2	8.1	9.2	11.1	12.0	12.9	14.0	13.6	14.6	18.3	
8/11	14.3	7.6	8.5	9.6	11.8	12.8	13.4	14.6	13.9	14.7	19.6	
8/12	15.0	8.0	9.0	9.9	12.2	13.2	13.8	15.1	14.1	14.6	20.5	
8/13	15.4	8.3	9.2	10.1	12.5	13.4	14.1	15.4	14.5	14.7	20.7	
8/14	15.5	8.1	9.1	10.1	12.4	13.3	14.1	15.5	14.9	15.3	20.4	
8/15	15.6	8.0	9.0	10.0	12.3	13.3	14.1	15.5	15.1	15.8	20.5	
8/16	15.0	7.8	8.5	9.3	11.7	12.4	13.8	15.0	14.8	15.4	19.8	
8/17	13.2	7.5	8.0	8.5	10.3	10.8	13.2	13.8	14.1	14.6	17.7	
8/18	13.2	7.7	8.3	9.1	10.3	11.0	13.4	13.8	14.3	15.0	17.0	
8/19	13.4	7.8	8.4	9.1	11.0	11.8	13.8	14.7	14.8	15.5	17.9	
8/20	13.0	7.7	8.2	8.7	10.3	10.8	13.3	14.1	14.4	14.9	16.9	
8/21	12.6	7.6	8.1	8.6	9.8	10.3	13.2	13.7	14.2	14.9	16.2	
8/22	12.0	7.6	8.1	8.5	9.6	10.0	13.1	13.5	14.1	14.7	15.6	
8/23	11.6	7.5	8.1	8.7	9.6	10.3	13.3	13.6	14.2	15.0	15.8	
8/24	11.5	7.6	8.1	8.8	9.9	10.6	13.4	13.7	14.3	15.1	16.4	
8/25	11.9	7.7	8.3	9.0	10.3	10.9	13.6	14.1	14.6	15.3	16.8	
8/26	11.9	7.7	8.2	8.7	10.2	10.7	13.5	14.2	14.7	15.3	16.7	
8/27	11.6	7.6	8.2	8.7	9.9	10.3	13.2	13.8	14.5	14.9	16.0	
8/28	11.4	7.7	8.3	8.9	9.9	10.5	13.5	13.7	14.6	15.2	16.2	
8/29	11.7	7.8	8.4	9.1	10.3	11.0	13.7	14.2	14.9	15.5	17.1	
8/30	11.5	7.5	8.1	8.6	10.1	10.6	13.4	14.0	14.5	15.0	16.6	
8/31	10.9	8.8	8.7	8.7	9.4	9.8	12.2	13.1	13.8	14.3	15.2	

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
9/1	10.2	9.6	9.8	10.0	10.0	10.2	11.8	12.0	13.3	13.9	14.6	
9/2	10.6	9.9	10.1	10.4	10.7	10.9	12.3	12.7	13.7	14.3	15.4	
9/3	10.9	9.9	10.2	10.4	10.9	11.2	12.6	13.0	13.9	14.5	15.9	
9/4	11.2	10.0	10.3	10.6	11.2	11.4	12.8	13.3	14.1	14.6	15.9	
9/5	12.0	10.2	10.5	10.8	11.6	12.0	13.2	14.0	14.5	15.2	17.0	
9/6	12.4	10.1	10.4	10.8	11.6	12.1	13.3	14.1	14.6	15.3	17.6	
9/7	11.9	10.2	10.5	10.8	11.4	11.7	13.1	13.7	14.5	15.1	17.5	
9/8	12.3	10.3	10.7	11.2	11.9	12.3	13.5	14.4	14.9	15.6	18.2	
9/9	12.2	10.4	10.7	11.0	11.6	12.0	13.3	14.0	14.7	15.4	17.9	
9/10	11.8	9.6	10.0	10.2	11.1	11.5	12.7	13.6	14.4	15.0	16.7	
9/11	12.1	10.4	10.6	10.7	10.9	11.0	12.5	13.0	14.2	15.0	16.4	
9/12	12.1	10.4	10.7	10.9	11.4	11.6	12.9	13.4	14.4	14.9	16.1	
9/13	11.6	10.2	10.5	10.7	11.1	11.3	12.7	13.0	14.2	14.7	15.6	
9/14	11.0	9.8	10.2	10.4	10.9	11.0	12.6	12.7	13.7	14.2	15.1	
9/15	11.0	9.2	9.6	9.9	10.6	10.9	12.6	13.0	13.1	13.5	15.1	
9/16	10.0	9.1	9.3	9.5	9.7	9.9	12.3	12.4	12.7	13.0	14.4	
9/17	10.1	9.4	9.6	9.7	9.9	10.0	12.3	12.5	12.8	13.0	13.8	13.5
9/18	10.1	9.2	9.9	10.3	10.9	11.1	12.3	12.7	12.9	13.2	12.7	12.8
9/19	9.4	9.1	9.5	9.7	10.2	10.4	11.9	12.4	12.6	13.0	12.0	12.1
9/20	9.4	9.0	9.4	9.7	10.3	10.5	11.9	12.4	12.6	13.0	12.1	12.1
9/21	9.2	9.1	9.4	9.6	9.9	10.1	11.9	12.3	12.7	12.9	12.5	12.6
9/22	9.7	9.1	9.4	9.6	10.2	10.4	12.0	12.4	12.6	12.9	12.8	12.8
9/23	10.0	9.2	9.5	9.7	10.2	10.4	12.1	12.6	12.8	13.2	13.4	13.4
9/24	11.7	9.3	9.5	9.7	10.1	10.3	12.0	12.4	12.9	13.1	13.9	13.7
9/25	13.3	9.2	9.6	9.8	10.2	10.4	12.1	12.6	12.9	13.2	14.3	14.0
9/26	12.0	7.4	8.0	8.2	8.8	9.0	10.6	11.3	12.8	12.5	14.0	13.4
9/27	10.0	8.1	8.5	8.6	8.8	8.9	10.6	10.8	12.7	12.1	13.2	12.8
9/28	9.0	9.0	9.5	9.7	9.9	9.9	11.2	11.6	12.7	12.5	11.7	11.8
9/29	8.8	9.0	9.3	9.3	10.0	10.1	11.2	11.5	12.5	12.4	10.9	11.1
9/30	9.3	8.9	9.5	9.7	10.2	10.3	11.2	11.7	12.3	12.4	11.2	11.4

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
10/1	8.5	8.5	8.9	8.9	9.7	9.9	10.9	11.3	12.1	12.0	11.0	11.1
10/2	8.4	8.3	8.7	8.8	9.5	9.7	11.0	11.3	12.0	12.0	11.1	11.2
10/3	8.9	8.3	8.7	8.9	9.6	9.8	11.1	11.6	11.9	12.1	11.4	11.5
10/4	8.6	8.5	8.7	8.9	9.5	9.7	11.2	11.7	12.0	12.2	11.9	12.0
10/5	8.2	8.5	8.8	9.0	9.3	9.3	10.8	11.2	11.8	11.8	11.2	11.4
10/6	8.0	8.2	8.4	8.6		9.2	10.7	11.0	11.9	11.7	10.6	10.8
10/7	7.4	8.0	8.2	8.3		8.8	10.5	10.8	11.7	11.7	10.6	10.8
10/8	6.8	8.2	8.2	8.1		8.2	10.3	10.3	11.6	11.2	9.9	10.2
10/9	6.8	8.5	8.6	8.5		8.3	10.3	10.2	11.5	11.1	9.1	9.6
10/10	7.2	8.4	8.6	8.6		8.8	10.2	10.5	11.3	11.2	9.3	9.7
10/11	6.8	8.4	8.4	8.4		8.4	10.1	10.1	11.3	11.0	9.1	9.4
10/12	6.3	7.8	8.0	8.0		8.0	9.8	9.6	11.0	10.5	8.6	8.9
10/13	6.2	7.5	7.6	7.6		7.9	9.7	9.8	11.0	10.7	8.6	9.0
10/14	6.5	7.6	7.8			8.0	9.7	9.7	11.0	10.6	8.5	8.9
10/15	7.1	7.7	8.1			8.5	9.8	10.1	10.8	10.8	8.8	9.1
10/16	7.5	7.8	8.2			9.0	10.0	10.4	10.9	11.0	9.5	9.7
10/17	7.6	7.6	8.1			9.1	9.9	10.4	10.5	10.8	9.8	10.0
10/18	7.6	7.0	7.6			8.8	9.9	10.2	10.4	10.7	9.8	10.0
10/19	7.5	6.8	7.2			8.3	10.0	10.3	10.7	10.8	9.9	10.1
10/20	7.7	6.8	7.3			8.3	10.0	10.3	10.7	10.9	10.0	10.3
10/21	7.6	6.9	7.3			8.3	10.0	10.3	10.8	11.0	9.7	10.0
10/22	7.8	7.0	7.8			9.0	9.9	10.5	10.6	11.0	10.1	10.4
10/23	7.4	6.8	7.4			8.6	9.7	10.1	10.6	10.7	9.5	9.8
10/24	7.2	6.8	7.3			8.3	9.7	10.0	10.6	10.7	9.1	9.6
10/25	7.0	6.8	7.2			8.1	9.4	9.7	10.2	10.4	8.8	9.3
10/26	7.0	6.9	7.5			8.3	9.3	9.7	10.0	10.2	8.6	9.0
10/27	6.9	6.9	7.4			8.4	9.1	9.6	9.6	9.9	8.4	8.7
10/28	7.6	7.2	8.3			8.8	9.3	9.7	9.6	10.0	8.5	8.8
10/29	7.0	6.9	7.7			8.8	9.0	9.6	9.2	9.6	8.6	8.7
10/30	6.0	6.6	6.7			7.1	7.8	8.0	8.9	8.8	8.5	7.6
10/31	5.9	6.7	6.8			6.6	7.4	7.3	8.5	8.1	8.7	7.0

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
11/1	6.1	6.9				7.3	7.3	7.5	7.4	7.7	8.4	7.0
11/2	6.5	7.0				7.6	7.6	8.0	7.7	8.2	8.7	7.6
11/3	7.0	7.0				7.8	7.8	8.3	8.1	8.6	9.1	8.2
11/4	7.3	7.1				8.1	8.0	8.6	8.4	8.9	9.5	8.9
11/5	6.5	7.0				7.7	7.9	8.4	8.3	8.7	8.5	8.1
11/6	5.8	6.7				7.2	7.5	7.9	8.5	8.7	7.9	7.5
11/7	5.0	6.6				6.7	7.0	7.5	8.2	8.4	7.5	7.1
11/8	5.2	6.7				6.8	7.1	7.4	8.2	8.4	7.3	6.9
11/9	5.2	7.0				7.1	7.4	7.7	8.1	8.4	7.6	7.1
11/10	5.1	6.8				6.8	7.0	7.5	7.9	8.2	7.3	6.9
11/11	5.4	7.2				7.4	7.6	7.8	7.9	8.3	7.5	7.1
11/12	5.8	7.4				8.6	8.6	8.9	8.2	8.7	7.0	7.0
11/13	6.0	6.8				8.0	8.0	8.6	7.9	8.4	6.8	7.1
11/14	6.9	6.6				8.0	8.0	8.5	7.7	8.4	7.2	7.7
11/15	6.6	7.2				8.3	8.3	8.8	7.9	8.5	7.7	8.0
11/16	5.2	6.8				7.5	7.4	7.8	7.4	7.8	6.8	6.6
11/17	4.5	6.6				6.9	7.0	7.1	7.3	7.4	5.7	5.9
11/18	4.8	6.4				6.8	7.0	7.0	7.3	7.5	5.5	5.8
11/19	4.9	6.3				6.8	7.0	7.2	7.2	7.5	5.6	6.0
11/20	4.7	6.3				6.5	6.8	7.0	7.1	7.4	5.7	6.1
11/21	4.5	6.0				6.1	6.6	6.7	7.0	7.2	5.5	5.9
11/22	4.6	5.9				5.8	6.4	6.4	7.0	7.1	5.4	5.8
11/23	3.9	6.0				5.8	6.1	6.5	6.8	7.1	5.9	6.4
11/24	3.9	6.2				6.3	6.5	6.4	6.7	6.9	5.4	5.9
11/25	4.1	6.3				6.6	6.8	7.0	6.8	7.1	5.8	6.3
11/26	4.2	6.3				7.1	7.2	7.5	6.9	7.4	6.0	6.3
11/27	5.0	6.0				7.0	7.1	7.5	6.9	7.4	6.4	6.7
11/28	5.7	6.1				7.3	7.3	7.8	6.9	7.6	6.7	7.0
11/29	6.0	6.4				7.4	7.6	7.9	6.9	7.8	6.9	7.3
11/30	6.1	6.4				7.4	7.5	7.9	6.8	7.7	7.1	7.4

	Sultan River										Skykomish River	
DATE	RM 18.2 (SFK)	RM 15.8	RM 15.5	RM 14.3	RM 11.3	RM 9.8	RM 9.6	RM 4.9	RM 4.4	RM 0.2	RM 14.1	RM 13.2
12/1	6.2	6.4				7.4	7.4	7.8	6.8	7.7	7.3	7.5
12/2	5.8	6.2				7.2	7.4	7.7	6.8	7.4	7.8	7.5
12/3	5.0	6.1				6.7	6.9	7.0	6.6	6.9	7.0	6.5
12/4	4.1	5.4				6.0	6.7	6.6	6.5	6.8	5.4	5.8
12/5	3.7	5.2				5.2	5.8	5.7	6.3	6.5	4.5	5.0
12/6	3.6	5.3				5.3	5.7	5.8	6.3	6.5	4.6	5.1
12/7	3.9	5.4				5.8	5.8	6.4	6.3	6.6	5.1	5.6
12/8	3.9	5.4				6.0	6.2	6.6	6.2	6.5	5.4	5.8
12/9	3.2	5.1				5.1	5.7	5.7	5.9	6.1	4.8	5.1
12/10	2.9	5.2				4.9	5.2	5.3	5.9	6.0	4.4	4.7
12/11	3.2	5.4				5.4	5.5	5.9	6.0	6.2	4.8	5.0
12/12	3.5	5.1				5.6	5.6	5.9	6.0	6.0	4.7	4.9
12/13	3.6	5.1				5.5	5.5	5.8	5.9	6.0	4.7	4.9
12/14	3.3	4.9				5.3	5.5	5.7	5.8	5.9	4.8	5.2
12/15	3.1	4.8				4.9	5.2	5.5	5.7	5.7	4.4	4.8
12/16	2.7	4.8				4.3	4.8	5.1	5.5	5.6	4.3	4.8
12/17	2.7	4.6				4.4	4.9	4.9	5.4	5.5	4.2	4.3
12/18	2.1	4.7				4.2	4.6	5.0	5.3	5.4	3.6	3.8
12/19	2.8	4.6				4.6	4.6	4.8	5.2	5.3	3.6	3.8
12/20	3.0	4.4				4.6	4.8	4.7	5.1	5.2	3.9	4.3
12/21	3.2	4.5				4.8	5.0	5.1	5.2	5.3	4.3	4.7
12/22	3.3	4.5				5.1	5.1	5.6	5.4	5.5	4.8	5.0
12/23	3.0	4.2				4.8	4.9	5.4	5.2	5.3	4.7	4.8
12/24	2.6	4.0				4.3	4.3	4.8	4.8	4.9	4.2	4.4
12/25	2.0	3.9				3.4	3.7	4.0	4.5	4.6	3.7	3.9
12/26	1.9	3.6				3.1	3.6	3.6	4.3	4.3	3.0	3.5
12/27	1.3	3.4				2.2	3.1	2.7	4.1	4.0	2.0	2.0
12/28	1.2	3.4				2.3	3.2	2.9	4.1	4.1	1.7	1.2
12/29	1.2	3.4				2.4	3.3	2.9	4.1	4.0	2.0	1.0
12/30	0.8	3.2				1.7	2.8	2.5	3.8	3.8	1.5	1.4
12/31	0.9	3.1				2.1	3.1	2.8	3.8	3.8	1.8	1.5

APPENDIX C

2021 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 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
1/1	4.0	4.7				5.7	5.7	6.1	5.5	5.4	4.8	5.1
1/2	4.1	4.7				5.9	5.9	6.3	5.6	5.5	4.9	5.2
1/3	4.2	4.7				6.0	6.0	6.5	5.6	5.6	5.1	5.4
1/4	4.2	4.7				6.0	6.0	6.5	5.6	5.5	5.2	5.5
1/5	4.2	4.6				5.9	5.9	6.4	5.5	5.5	5.3	5.5
1/6	4.2	4.5				5.8	5.7	6.3	5.3	5.3	5.3	5.5
1/7	4.2	4.5				5.8	5.6	6.2	5.2	5.3	5.4	5.5
1/8	4.2	4.4				5.7	5.6	6.2	5.1	5.2	5.4	5.5
1/9	4.2	4.4				5.9	5.7	6.3	5.1	5.2	5.4	5.5
1/10	4.2	4.5				6.0	5.8	6.4	5.3	5.2	5.4	5.5
1/11	4.2	4.4				6.0	5.8	6.4	5.3	5.2	5.4	5.5
1/12	4.2	4.4				6.1	5.9	6.5	5.3	5.2	5.4	5.5
1/13	4.2	4.5				6.1	6.0	6.6	5.3	5.3	5.3	5.5
1/14	4.2	4.5				6.1	6.0	6.6	5.3	5.3	5.3	5.5
1/15	4.2	4.5				6.1	6.0	6.7	5.3	5.3	5.3	5.5
1/16	4.1	4.4				5.8	5.8	6.5	5.2	5.2	5.3	5.4
1/17	4.0	4.3				5.6	5.5	6.3	4.9	5.0	5.2	5.3
1/18	4.0	4.3				5.5	5.5	6.2	4.8	4.9	5.3	5.4
1/19	4.0	4.2				5.3	5.3	6.1	4.8	4.9	5.3	5.3
1/20	3.8	4.2				5.0	5.0	5.9	4.7	4.8	5.1	5.2
1/21	3.7	4.2				4.8	4.9	5.6	4.6	4.7	4.9	5.0
1/22	3.5	4.1				4.6	4.6	5.4	4.5	4.7	4.8	4.9
1/23	3.4	4.1				4.5	4.6	5.2	4.5	4.6	4.7	4.7
1/24	3.3	4.0				4.4	4.5	5.0	4.4	4.6	4.6	4.7
1/25	3.1	4.0				4.2	4.3	4.9	4.4	4.5	4.5	4.6
1/26	3.1	4.0				4.2	4.3	4.8	4.3	4.5	4.4	4.5
1/27	3.2	4.0				4.4	4.4	4.9	4.3	4.5	4.6	4.6
1/28	3.3	4.0				4.5	4.4	5.0	4.3	4.5	4.8	4.7
1/29	3.4	4.0				4.7	4.6	5.2	4.3	4.5	5.0	4.8
1/30	3.6	4.0				4.9	4.7	5.4	4.4	4.5	5.2	5.0
1/31	3.6	4.0				5.0	4.8	5.5	4.4	4.6	5.4	5.1

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
2/1	3.6	4.0				5.1	4.9	5.5	4.5	4.6	5.5	5.2
2/2	3.5	4.1				5.2	5.0	5.7	4.7	4.7	5.5	5.3
2/3	3.5	4.1				5.3	5.2	5.8	4.9	4.8	5.5	5.4
2/4	3.4	4.1				5.3	5.2	5.8	5.0	4.9	5.5	5.4
2/5	3.2	4.0				5.2	5.2	5.8	5.0	5.0	5.3	5.3
2/6	3.1	4.0				5.1	5.1	5.6	5.0	4.9	5.1	5.2
2/7	3.0	3.9				5.0	5.0	5.5	4.9	4.8	4.9	5.0
2/8	2.9	3.9				4.9	4.9	5.4	4.8	4.7	4.7	4.8
2/9	2.6	3.7				4.5	4.5	5.0	4.5	4.5	4.2	4.5
2/10	2.2	3.5				3.9	4.1	4.5	4.2	4.2	3.5	3.9
2/11	1.9	3.3				3.5	3.8	4.1	3.8	3.9	3.0	3.5
2/12	1.6	3.1				3.1	3.4	3.7	3.6	3.6	2.5	3.1
2/13	1.4	2.9				2.7	3.1	3.4	3.4	3.4	2.1	2.8
2/14	1.4	2.8				2.6	3.0	3.3	3.2	3.3	2.1	2.8
2/15	1.4	2.7				2.6	2.9	3.2	3.1	3.2	2.2	2.7
2/16	1.6	2.6				2.6	2.9	3.3	3.1	3.2	2.5	2.9
2/17	1.8	2.7				2.9	3.1	3.6	3.2	3.3	3.1	3.3
2/18	1.9	2.7				3.2	3.2	3.8	3.3	3.4	3.5	3.7
2/19	2.1	2.8				3.5	3.5	4.0	3.5	3.6	4.0	4.0
2/20	2.3	2.8				3.8	3.8	4.3	3.8	3.8	4.3	4.3
2/21	2.4	2.8				3.9	3.9	4.5	3.9	3.8	4.4	4.4
2/22	2.5	2.8				4.0	3.9	4.6	4.1	3.9	4.5	4.5
2/23	2.4	2.8				4.0	3.9	4.6	4.1	3.9	4.4	4.4
2/24	2.5	2.8				4.0	3.9	4.6	4.2	4.0	4.4	4.4
2/25	2.6	2.8				4.1	4.0	4.7	4.3	4.1	4.5	4.5
2/26	2.7	2.8				4.2	4.0	4.8	4.3	4.1	4.7	4.7
2/27	2.8	2.8				4.2	4.0	4.9	4.2	4.1	4.9	4.8
2/28	2.9	2.8				4.3	4.0	5.0	4.3	4.1	5.1	5.0

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
3/1	3.0	2.8				4.4	4.1	5.1	4.3	4.2	5.3	5.1
3/2	3.1	2.9				4.5	4.1	5.2	4.3	4.2	5.5	5.3
3/3	3.2	2.9				4.6	4.2	5.3	4.3	4.2	5.7	5.4
3/4	3.2	2.9				4.6	4.2	5.3	4.3	4.2	5.8	5.5
3/5	3.2	2.9				4.5	4.1	5.2	4.2	4.2	5.7	5.5
3/6	3.3	2.9				4.5	4.1	5.1	4.2	4.2	5.8	5.5
3/7	3.2	2.9				4.5	4.1	5.1	4.1	4.2	5.8	5.5
3/8	3.2	2.9				4.5	4.1	5.0	4.0	4.2	5.9	5.5
3/9	3.2	2.9				4.5	4.1	5.0	4.0	4.2	6.0	5.6
3/10	3.3	3.0				4.6	4.1	5.0	3.9	4.2	6.1	5.7
3/11	3.3	3.0				4.6	4.1	5.0	3.9	4.2	6.1	5.6
3/12	3.3	3.1				4.6	4.1	4.9	3.9	4.1	6.1	5.6
3/13	3.3	3.1				4.7	4.1	4.9	3.9	4.2	6.3	5.7
3/14	3.5	3.3				4.8	4.1	5.0	4.0	4.3	6.4	5.8
3/15	3.6	3.3				4.9	4.2	5.1	4.1	4.4	6.5	5.8
3/16	3.6	3.4				5.0	4.2	5.2	4.2	4.4	6.5	5.9
3/17	3.6	3.5				4.9	4.2	5.2	4.3	4.5	6.5	5.9
3/18	3.5	3.5				4.9	4.2	5.2	4.4	4.6	6.5	6.0
3/19	3.4	3.6				5.0	4.4	5.3	4.6	4.9	6.5	6.0
3/20	3.4	3.6				4.9	4.5	5.3	4.8	5.1	6.4	6.0
3/21	3.2	3.6				4.8	4.4	5.3	4.9	5.2	6.2	6.0
3/22	3.2	3.6				4.7	4.5	5.4	5.1	5.4	6.1	6.0
3/23	3.2	3.6				4.6	4.6	5.4	5.3	5.6	6.0	6.0
3/24	3.4	3.7				4.7	4.8	5.5	5.5	6.0	6.3	6.3
3/25	3.4	3.7				4.8	4.9	5.7	5.7	6.3	6.5	6.5
3/26	3.5	3.7				4.8	4.9	5.7	5.7	6.4	6.6	6.6
3/27	3.6	3.8				4.9	5.0	5.8	5.6	6.3	6.6	6.6
3/28	3.8	3.8				5.2	5.1	5.9	5.7	6.4	6.8	6.8
3/29	3.9	3.9				5.4	5.2	6.1	5.6	6.4	7.2	7.0
3/30	4.0	3.9				5.7	5.4	6.3	5.5	6.4	7.4	7.2
3/31	4.0	4.0				5.9	5.3	6.3	5.4	6.2	7.4	7.1

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
4/1	4.1	4.0	5.5	5.1	5.4	6.1	5.5	6.4	5.3	6.1	7.4	7.1
4/2	4.3	4.1	5.6	5.3	5.5	6.4	5.6	6.5	5.2	6.1	7.6	7.3
4/3	4.4	4.2	5.7	5.4	5.7	6.6	5.7	6.7	5.3	6.3	7.9	7.5
4/4	4.3	4.2	5.6	5.3	5.7	6.4	5.6	6.6	5.3	6.2	7.8	7.5
4/5	4.0	4.2	5.4	5.2	5.5	6.2	5.4	6.5	5.2	6.1	7.4	7.2
4/6	3.9	4.2	5.3	5.1	5.3	5.9	5.3	6.3	5.2	6.0	7.2	7.0
4/7	3.7	4.2	5.0	5.0	5.2	5.7	5.3	6.2	5.3	6.0	7.0	6.8
4/8	3.7	4.2	5.0	5.0	5.1	5.7	5.2	6.1	5.3	6.0	6.9	6.8
4/9	3.8	4.2	5.1	5.1	5.1	5.6	5.3	6.2	5.5	6.0	7.0	6.8
4/10	3.8	4.2	5.2	5.1	5.1	5.7	5.4	6.3	5.7	6.2	7.1	7.0
4/11	4.1	4.2	5.5	5.4	5.4	6.1	5.8	6.6	5.9	6.6	7.5	7.3
4/12	4.4	4.3	5.9	5.7	5.8	6.7	6.2	7.0	6.2	7.0	8.1	7.8
4/13	4.6	4.4	6.3	6.1	6.3	7.2	6.7	7.5	6.5	7.6	8.6	8.3
4/14	4.9	4.5	6.8	6.6	6.8	7.9	7.2	8.1	6.9	8.1	9.0	8.7
4/15	5.1	4.6	7.2	6.9	7.3	8.6	7.7	8.6	7.3	8.7	9.1	9.0
4/16	5.1	4.6	7.2	7.0	7.7	9.1	8.1	9.0	7.7	9.1	9.1	9.0
4/17	5.2	4.6	7.1	7.0	7.8	9.1	8.3	9.2	7.8	9.3	9.0	9.0
4/18	5.2	4.7	7.0	6.9	7.9	9.2	8.5	9.4	8.0	9.4	8.9	8.9
4/19	5.1	4.6	6.7	6.7	7.7	8.8	8.3	9.3	8.1	9.4	8.6	8.6
4/20	5.1	4.6	6.8	6.6	7.6	8.8	8.3	9.3	8.0	9.3	8.3	8.4
4/21	5.1	4.6	6.6	6.4	7.4	8.4	8.1	9.0	8.0	9.1	8.2	8.3
4/22	5.0	4.5	6.4	6.2	7.2	8.1	8.1	8.8	7.9	9.0	8.0	8.1
4/23	4.9	4.5	6.5	6.1	7.0	7.9	7.8	8.7	7.8	8.8	7.9	8.0
4/24	4.9	4.6	6.8	6.2	7.1	8.0	7.8	8.7	7.8	8.8	7.9	8.0
4/25	4.9	4.6	7.2	6.4	7.3	8.2	7.8	8.7	7.9	8.8	7.9	8.0
4/26	5.1	4.6	7.7	6.8	7.8	8.8	8.1	8.9	8.1	9.0	8.0	8.1
4/27	4.9	4.7	7.6	6.7	7.8	8.7	8.1	9.0	8.2	9.1	8.1	8.2
4/28	5.0	4.8	7.7	6.8	7.9	9.0	8.1	9.1	8.3	9.1	8.0	8.1
4/29	5.0	4.9	7.7	6.8	7.9	9.0	8.1	9.1	8.3	9.1	8.0	8.1
4/30	5.1	4.9	7.7	6.9	8.0	9.0	8.2	9.1	8.3	9.1	8.0	8.1

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
5/1	5.2	5.0	7.8	7.1	8.2	9.2	8.3	9.3	8.3	9.2	8.1	8.2
5/2	5.3	5.1	7.8	7.1	8.2	9.3	8.5	9.4	8.6	9.4	8.2	8.3
5/3	5.2	5.2	7.6	7.0	8.1	9.1	8.5	9.4	8.7	9.4	8.1	8.2
5/4	5.2	5.2	7.5	6.9	8.0	9.0	8.5	9.3	8.6	9.4	7.9	8.0
5/5	5.3	5.2	7.5	6.9	7.9	8.9	8.5	9.2	8.6	9.6	7.9	8.0
5/6	5.4	5.2	7.5	6.9	7.9	9.0	8.5	9.2	8.6	9.6	8.1	8.2
5/7	5.6	5.2	7.7	7.0	8.1	9.2	8.6	9.4	8.6	9.9	8.5	8.5
5/8	5.7	5.3	7.7	7.0	8.2	9.3	8.7	9.5	8.8	10.0	8.6	8.6
5/9	5.8	5.3	7.8	7.1	8.3	9.4	8.8	9.5	8.7	10.1	8.7	8.7
5/10	6.0	5.3	8.0	7.3	8.6	9.8	8.9	9.7	8.6	10.4	9.0	9.0
5/11	6.4	5.4	8.5	7.8	9.1	10.5	9.3	10.1	8.9	10.9	9.3	9.3
5/12	6.7	5.5	8.8	8.2	9.7	11.1	9.6	10.6	9.2	11.2	9.6	9.6
5/13	7.0	5.7	9.3	8.7	10.3	11.9	9.9	11.1	9.6	11.7	9.8	9.7
5/14	7.1	5.9	9.4	8.9	10.6	12.1	9.9	11.2	9.7	11.7	9.6	9.7
5/15	6.8	6.1	9.2	8.8	10.4	11.9	9.7	11.2	9.6	11.5	9.3	9.4
5/16	6.8	6.2	9.2	8.7	10.3	11.7	9.6	11.0	9.5	11.3	9.1	9.1
5/17	6.6	6.2	8.9	8.5	10.0	11.2	9.3	10.8	9.4	11.0	8.8	8.8
5/18	6.6	6.3	8.7	8.2	9.6	10.6	9.0	10.5	9.2	10.6	8.6	8.7
5/19	6.7	6.3	8.2	7.8	9.1	9.9	8.5	9.9	8.8	10.0	8.6	8.6
5/20	6.5	6.4	7.9	7.4	8.4	9.1	8.4	9.6	8.6	9.6	8.5	8.5
5/21	6.3	6.5	7.7	7.3	8.1	8.7	8.2	9.3	8.5	9.4	8.3	8.3
5/22	6.4	6.7	7.8	7.5	8.2	8.7	8.4	9.2	8.5	9.4	8.4	8.4
5/23	6.6	6.9	8.1	7.9	8.5	9.1	8.7	9.6	8.9	9.8	8.6	8.6
5/24	6.7	7.1	8.1	8.1	8.7	9.3	9.1	9.9	9.2	10.2	8.8	8.8
5/25	6.4	7.1	8.2	8.1	8.8	9.4	9.3	10.1	9.4	10.5	8.6	8.6
5/26	6.3	7.2	8.7	8.6	9.3	10.1	9.9	10.7	9.9	11.2	8.7	8.7
5/27	6.6	7.2	9.0	8.9	9.8	10.6	10.3	11.1	10.3	11.6	8.7	8.8
5/28	7.1	7.1	9.5	9.4	10.5	11.6	11.0	11.9	10.8	12.5	9.1	9.2
5/29	7.6	7.1	10.0	9.9	11.3	12.5	11.5	12.6	11.2	13.3	9.4	9.5
5/30	7.9	7.0	10.4	10.3	12.0	13.2	11.8	13.0	11.5	13.7	9.6	9.7
5/31	8.4	7.0	10.9	10.7	12.8	14.3	12.2	13.6	11.9	14.1	9.8	9.8

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
6/1	8.8	7.0	11.2	10.9	13.2	14.8	12.5	14.0	12.1	14.5	10.1	10.1
6/2	8.6	6.9	11.0	10.6	13.1	14.5	12.3	13.9	12.1	14.3	10.0	10.1
6/3	8.4	6.9	10.7	10.3	12.8	14.1	12.1	13.6	12.0	14.0	9.7	9.8
6/4	8.1	6.8	10.3	9.9	12.3	13.6	11.8	13.2	11.8	13.7	9.6	9.7
6/5	7.8	6.6	10.0	9.4	11.7	12.9	11.5	12.8	11.6	13.3	9.3	9.5
6/6	7.4	6.5	9.6	8.8	11.0	12.1	11.2	12.4	11.3	12.9	9.3	9.4
6/7	7.1	6.4	9.2	8.5	10.3	11.2	10.7	11.9	11.0	12.4	9.2	9.3
6/8	7.1	6.4	9.1	8.4	9.9	10.8	10.6	11.5	10.7	12.1	9.1	9.3
6/9	7.4	6.5	9.3	8.8	10.2	11.2	10.7	11.7	10.7	12.3	9.4	9.5
6/10	7.6	6.5	9.5	8.9	10.5	11.5	10.7	11.8	10.7	12.3	9.9	10.0
6/11	7.7	6.6	9.7	9.0	10.6	11.6	10.6	11.9	10.7	12.1	9.8	9.9
6/12	8.0	6.6	9.8	9.1	10.7	11.8	10.5	11.9	10.7	12.0	9.8	9.9
6/13	8.2	6.6	10.0	9.4	11.0	12.1	10.6	12.0	10.7	12.1	9.9	10.1
6/14	8.6	6.6	10.3	9.8	11.6	12.8	10.8	12.3	10.8	12.3	10.2	10.3
6/15	9.1	6.6	10.6	10.3	12.2	13.5	11.0	12.7	10.9	12.7	10.5	10.6
6/16	9.1	6.7	10.5	10.2	12.3	13.5	11.0	12.8	10.9	12.6	10.5	10.7
6/17	9.6	6.7	10.8	10.7	12.9	14.3	11.2	13.2	11.0	13.0	10.8	10.9
6/18	10.2	6.8	11.1	11.2	13.7	15.2	11.6	13.7	11.1	13.1	11.4	11.4
6/19	10.6	6.8	11.3	11.6	14.3	15.9	11.9	14.1	11.2	13.0	11.9	11.9
6/20	10.9	6.7	11.3	11.6	14.6	16.3	11.9	14.3	11.3	12.8	12.2	12.2
6/21	11.1	6.7	11.2	11.6	14.8	16.5	11.9	14.4	11.5	12.8	12.4	12.4
6/22	11.4	6.7	11.0	11.6	15.0	16.8	11.9	14.6	11.7	12.9	12.7	12.8
6/23	12.0	6.7	11.0	12.0	15.5	17.4	12.2	15.0	12.0	13.2	13.1	13.2
6/24	12.3	6.6	10.8	12.0	15.8	17.8	12.3	15.2	12.1	13.3	13.4	13.5
6/25	12.7	6.7	10.5	12.0	15.9	18.0	12.5	15.4	12.1	13.4	13.7	13.8
6/26	13.1	6.8	10.3	12.0	15.9	18.1	12.8	15.6	12.1	13.4	14.1	14.2
6/27	13.5	6.9	10.0	12.1	16.0	18.2	12.9	15.7	12.1	13.4	14.5	14.5
6/28	13.5	6.8	9.6	11.7	15.6	17.6	12.8	15.6	11.9	13.1	14.7	14.7
6/29	13.3	6.8	9.3	11.1	14.8	16.7	12.6	15.2	11.7	12.7	14.7	14.6
6/30	13.3	6.7	9.1	10.9	14.4	16.3	12.5	15.0	11.6	12.7	15.0	14.9

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
7/1	13.3	6.7	8.9	10.7	14.0	15.9	12.4	14.9	11.6	12.5	15.2	15.1
7/2	13.4	6.5	8.7	10.4	13.6	15.2	12.0	14.5	11.8	12.7	15.4	15.3
7/3	13.4	6.4	8.6	10.3	13.4	15.0	11.8	14.3	12.1	13.1	15.6	15.5
7/4	13.2	6.4	8.3	9.9	12.9	14.3	11.6	14.0	12.1	12.9	15.7	15.6
7/5	13.5	6.4	8.3	9.9	12.6	14.0	11.5	13.7	12.0	13.0	15.7	15.6
7/6	14.0	6.4	8.5	10.3	13.1	14.6	11.7	14.0	12.2	13.3	16.3	16.1
7/7	14.3	6.4	8.5	10.3	13.2	14.7	11.8	14.0	12.2	13.4	16.6	16.4
7/8	14.5	6.5	8.5	10.3	13.2	14.7	11.8	14.1	12.3	13.4	16.9	16.6
7/9	14.6	6.5	8.5	10.4	13.3	14.9	11.9	14.2	12.4	13.6	17.3	17.0
7/10	14.8	6.5	8.5	10.3	13.3	14.8	11.9	14.3	12.4	13.7	17.6	17.2
7/11	15.2	6.5	8.7	10.7	13.6	15.4	12.1	14.5	12.5	14.0	18.0	17.6
7/12	15.3	6.6	8.7	10.7	13.8	15.5	12.2	14.7	12.7	14.0	18.3	17.9
7/13	15.0	6.6	8.5	10.3	13.3	14.9	12.0	14.4	12.6	13.7	18.0	17.6
7/14	14.7	6.6	8.4	10.0	13.0	14.6	11.9	14.2	12.5	13.6	17.9	17.4
7/15	14.7	6.7	8.5	10.0	13.0	14.6	11.9	14.1	12.5	13.7	18.0	17.5
7/16	14.7	6.7	8.5	10.1	13.0	14.6	11.9	14.1	12.5	13.7	18.2	17.6
7/17	14.4	6.7	8.4	9.7	12.6	14.1	11.8	13.8	12.4	13.5	18.0	17.4
7/18	14.0	6.7	8.2	9.4	12.2	13.6	11.6	13.5	12.3	13.3	17.8	17.2
7/19	13.9	6.7	8.4	9.7	12.5	14.0	11.8	13.7	12.2	13.7	18.0	17.4
7/20	14.1	6.8	8.6	10.1	13.1	14.6	12.0	14.1	12.3	14.1	18.5	17.8
7/21	14.3	6.8	8.7	10.4	13.4	15.0	12.2	14.3	12.3	14.4	18.9	18.1
7/22	13.4	6.8	8.7	10.4	13.5	15.0	12.3	14.4	12.3	14.5	19.1	18.3
7/23	13.4	6.8	8.7	10.4	13.6	15.1	12.3	14.5	12.2	14.7	19.3	18.4
7/24	13.7	6.9	8.9	10.7	14.0	15.6	12.6	14.8	12.3	15.0	19.7	18.9
7/25	14.0	6.9	9.1	11.0	14.5	16.1	12.8	15.1	12.4	15.3	20.1	19.1
7/26	14.3	7.0	9.2	11.2	14.7	16.4	13.0	15.3	12.6	15.3	20.5	19.3
7/27	14.7	7.1	9.3	11.3	14.9	16.6	13.1	15.5	12.8	15.4	20.9	19.5
7/28	14.9	7.1	9.2	11.0	14.6	16.2	13.1	15.4	12.9	15.1	20.9	19.4
7/29	15.0	7.2	9.1	10.8	14.3	15.9	13.1	15.3	13.0	15.1	20.7	19.3
7/30	15.3	7.3	9.2	10.9	14.2	15.8	13.2	15.3	13.1	15.1	20.8	19.3
7/31	15.5	7.3	9.2	10.8	14.0	15.7	13.3	15.3	13.2	15.2	20.8	19.3

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
8/1	15.6	7.4	9.3	10.9	14.0	15.7	13.5	15.4	13.4	15.3	21.1	19.6
8/2	15.7	7.4	9.2	10.9	13.8	15.5	13.5	15.4	13.5	15.4	21.1	19.7
8/3	17.2	7.4	9.1	10.5	13.3	14.9	13.4	15.2	13.6	15.3	20.9	19.8
8/4	16.0	7.4	9.1	10.5	13.1	14.5	13.3	15.1	13.6	15.4	20.6	19.7
8/5	15.5	7.4	9.1	10.3	12.7	14.0	13.3	14.8	13.7	15.2	20.2	19.4
8/6	15.2	7.4	9.0	10.2	12.3	13.5	13.2	14.6	13.7	15.2	20.0	
8/7	15.0	7.4	8.9	10.2	12.2	13.4	13.3	14.6	13.8	15.3	19.8	
8/8	14.8	7.5	8.9	10.2	12.2	13.3	13.4	14.7	13.9	15.3	19.8	
8/9	14.9	7.6	9.0	10.3	12.2	13.4	13.5	14.8	14.0	15.3	20.0	
8/10	15.1	7.8	9.2	10.6	12.4	13.7	13.8	15.0	14.1	15.3	20.3	
8/11	15.5	7.9	9.4	10.9	12.9	14.3	14.2	15.4	14.4	15.6	20.7	
8/12	16.2	8.0	9.5	11.3	13.4	15.1	14.6	15.9	14.7	16.1	21.4	
8/13	16.4	8.1	9.5	11.2	13.5	15.1	14.6	16.2	15.0	16.2	21.7	
8/14	16.2	8.1	9.4	10.9	13.2	14.6	14.6	16.0	15.1	16.0	21.5	
8/15	16.0	8.1	9.3	10.8	12.9	14.3	14.6	15.9	15.1	16.1	21.0	
8/16	15.7	8.0	9.2	10.5	12.6	14.0	14.5	15.7	15.2	16.3	20.6	
8/17	15.2	7.9	9.0	10.2	12.2	13.4	14.3	15.5	15.2	16.2	20.0	
8/18	14.7	7.9	8.8	9.8	11.7	12.7	14.1	15.2	15.0	16.1	19.3	
8/19	14.0	7.8	8.6	9.4	11.1	12.0	13.8	14.8	14.8	15.8	18.4	
8/20	13.5	7.8	8.6	9.4	10.9	11.8	13.8	14.6	14.7	15.8	18.0	
8/21	13.4	7.8	8.6	9.6	11.0	12.0	13.9	14.7	14.8	16.1	17.9	
8/22	13.1	7.8	8.6	9.5	10.9	12.0	14.0	14.7	14.8	16.0	17.7	
8/23	12.9	7.8	8.6	9.4	10.8	11.7	13.9	14.6	14.8	16.0	17.5	
8/24	12.7	7.8	8.6	9.5	10.8	11.7	14.0	14.5	14.8	16.0	17.3	
8/25	12.6	7.8	8.7	9.7	11.0	12.0	14.1	14.6	14.9	16.3	17.5	
8/26	12.7	7.8	8.8	10.0	11.3	12.4	14.4	14.9	15.1	16.5	17.9	
8/27	12.6	7.9	8.8	9.8	11.3	12.4	14.4	14.9	15.1	16.4	17.9	
8/28	12.4	8.1	8.9	9.8	11.0	12.0	14.1	14.7	15.0	16.1	17.6	
8/29	12.1	8.4	9.1	9.9	10.9	11.9	13.9	14.4	14.8	15.9	17.3	
8/30	12.0	8.8	9.4	10.3	11.1	12.1	13.8	14.3	14.7	15.9	17.3	
8/31	12.0	9.1	9.7	10.6	11.2	12.3	13.8	14.2	14.6	16.0	17.4	

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
9/1	12.0	9.4	10.0	10.7	11.3	12.3	13.7	14.1	14.5	15.8	17.2	
9/2	11.9	9.7	10.2	10.8	11.3	12.3	13.6	14.0	14.4	15.6	17.1	
9/3	12.1	10.1	10.6	11.2	11.6	12.6	13.7	14.0	14.4	15.8	17.3	
9/4	12.3	10.2	10.7	11.5	12.0	13.0	13.9	14.1	14.5	16.1	17.7	
9/5	12.5	10.3	10.8	11.6	12.2	13.2	14.1	14.5	14.7	16.3	18.1	
9/6	12.7	10.3	10.9	11.7	12.3	13.3	14.2	14.6	14.8	16.4	18.4	
9/7	12.7	10.4	10.9	11.6	12.3	13.2	14.2	14.6	14.9	16.3	18.5	
9/8	12.8	10.4	10.9	11.6	12.3	13.1	14.2	14.6	14.9	16.3	18.6	
9/9	12.8	10.5	10.9	11.6	12.2	13.0	14.0	14.5	14.9	16.2	18.4	
9/10	12.6	10.5	10.9	11.5	12.1	12.8	13.9	14.3	14.9	16.1	18.1	
9/11	12.4	10.5	10.9	11.4	12.0	12.5	13.8	14.2	14.8	15.9	17.7	
9/12	12.2	10.3	10.7	11.2	11.7	12.3	13.6	13.9	14.5	15.4	17.2	
9/13	11.9	10.2	10.5	11.0	11.4	12.0	13.5	13.6	14.2	15.1	16.7	
9/14	11.7	10.1	10.4	10.8	11.2	11.8	13.3	13.4	14.0	14.8	16.3	
9/15	11.5	9.9	10.4	10.7	11.1	11.7	13.2	13.4	13.8	14.5	15.7	
9/16	11.0	9.7	10.2	10.6	10.9	11.5	13.2	13.2	13.5	14.2	15.1	
9/17	10.7	9.5	10.0	10.4	10.8	11.3	13.0	13.1	13.3	13.9	14.5	
9/18	10.9	9.4	9.9	10.3	10.7	11.3	12.9	13.1	13.1	13.8	14.2	
9/19	11.0	9.4	9.9	10.2	10.6	11.1	12.7	13.0	13.0	13.7	13.9	
9/20	11.2	9.4	9.9	10.2	10.7	11.2	12.6	13.0	13.0	13.7	13.8	13.7
9/21	11.3	9.4	9.9	10.3	10.8	11.4	12.6	13.1	13.0	13.8	13.8	13.8
9/22	11.3	9.4	9.8	10.2	10.7	11.3	12.6	13.0	13.0	13.9	14.1	14.0
9/23	11.4	9.4	9.8	10.2	10.7	11.3	12.5	13.0	13.1	13.9	14.5	14.3
9/24	11.5	9.4	9.8	10.1	10.5	11.0	12.5	12.9	13.1	13.7	14.5	14.3
9/25	11.0	9.4	9.7	10.1	10.5	10.9	12.4	12.7	13.1	13.6	14.3	14.1
9/26	10.6	9.3	9.7	10.0	10.4	10.7	12.3	12.6	13.1	13.5	14.0	13.8
9/27	10.3	9.3	9.7	10.0	10.3	10.6	12.2	12.4	13.0	13.3	13.5	13.3
9/28	9.9	9.2	9.6	9.8	10.2	10.5	12.0	12.2	12.9	13.1	13.0	12.9
9/29	9.6	9.1	9.5	9.7	10.1	10.3	11.8	12.0	12.7	12.8	12.4	12.4
9/30	9.4	8.9	9.4	9.6	10.1	10.3	11.6	11.9	12.6	12.7	12.0	12.0

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
10/1	9.3	8.9	9.3	9.5	10.1	10.4	11.5	12.0	12.5	12.8	11.9	12.0
10/2	9.2	8.8	9.2	9.4	10.0	10.3	11.5	11.9	12.3	12.7	11.8	11.9
10/3	9.0	8.7	9.1	9.3	9.8	10.2	11.4	11.8	12.2	12.5	11.7	11.9
10/4	8.7	8.5	8.9	9.1	9.6	10.0	11.3	11.7	12.1	12.5	11.8	11.9
10/5	8.5	8.5	8.8	9.0	9.4	9.8	11.3	11.6	12.1	12.4	11.6	11.8
10/6	8.3	8.5	8.7	8.9	9.3	9.5	11.2	11.4	12.0	12.2	11.3	11.5
10/7	8.0	8.6	8.8	8.9	9.1	9.4	11.1	11.2	12.0	12.1	11.0	11.3
10/8	7.7	8.5	8.7	8.8	9.0	9.2	10.9	11.0	11.8	11.9	10.6	10.8
10/9	7.5	8.4	8.6	8.7		9.1	10.8	10.8	11.7	11.7	10.2	10.5
10/10	7.2	8.3	8.5	8.5		8.9	10.7	10.6	11.6	11.5	9.9	10.2
10/11	7.1	8.3	8.4			8.7	10.5	10.4	11.4	11.3	9.5	9.8
10/12	7.1	8.2	8.4			8.7	10.4	10.3	11.3	11.2	9.2	9.6
10/13	7.1	8.1	8.3			8.8	10.2	10.3	11.2	11.2	9.4	9.7
10/14	7.2	7.9	8.2			8.8	10.2	10.3	11.1	11.1	9.4	9.7
10/15	7.3	7.8	8.1			8.9	10.1	10.3	10.9	11.1	9.5	9.8
10/16	7.4	7.6	8.0			8.9	10.1	10.4	10.9	11.1	9.7	10.0
10/17	7.6	7.5	7.9			9.0	10.1	10.5	10.9	11.1	10.0	10.2
10/18	7.8	7.4	7.9			9.1	10.1	10.7	10.9	11.3	10.2	10.4
10/19	7.9	7.3	7.8			9.2	10.2	10.7	10.9	11.3	10.4	10.6
10/20	7.9	7.2	7.7			9.1	10.3	10.7	10.9	11.2	10.3	10.6
10/21	7.8	7.0	7.6			8.9	10.2	10.6	10.9	11.2	10.2	10.5
10/22	7.7	7.0	7.6			8.8	10.2	10.5	10.9	11.1	10.0	10.3
10/23	7.6	7.0	7.6			8.7	10.1	10.4	10.8	11.0	9.8	10.1
10/24	7.5	7.0	7.6			8.7	10.0	10.2	10.6	10.8	9.5	9.8
10/25	7.6	7.1	7.9			8.8	9.8	10.1	10.4	10.6	9.3	9.6
10/26	7.5	7.1	8.0			8.9	9.7	10.0	10.1	10.4	9.0	9.3
10/27	7.3	7.1	7.9			8.7	9.6	9.8	9.9	10.1	8.9	9.1
10/28	7.1	7.1	7.8			8.5	9.4	9.4	9.6	9.8	8.8	8.7
10/29	7.0	7.1	7.8			8.4	9.3	9.2	9.3	9.5	8.8	8.4
10/30	6.9	7.1	7.8			8.3	9.0	9.0	8.9	9.2	8.8	8.2
10/31	6.9	7.1	7.8			8.3	8.7	8.8	8.8	9.0	8.9	8.2

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
11/1	6.8	7.1	7.5			8.0	8.5	8.6	8.6	8.9	9.0	8.2
11/2	6.7	7.1	7.4			7.8	8.2	8.4	8.5	8.7	9.0	8.2
11/3	6.7	7.1	7.4			7.7	7.9	8.3	8.4	8.7	8.9	8.1
11/4	6.6	7.1	7.3			7.7	7.9	8.3	8.4	8.7	8.8	8.1
11/5	6.4	7.2				7.6	7.8	8.2	8.4	8.8	8.6	8.1
11/6	6.3	7.2				7.6	7.7	8.2	8.5	8.8	8.5	8.0
11/7	6.0	7.2				7.4	7.7	8.1	8.5	8.7	8.2	7.7
11/8	5.7	7.2				7.4	7.7	8.0	8.2	8.6	7.9	7.5
11/9	5.6	7.3				7.5	7.6	8.1	8.2	8.6	7.7	7.4
11/10	5.7	7.3				7.7	7.7	8.3	8.1	8.6	7.5	7.3
11/11	6.0	7.3				7.9	7.9	8.4	8.1	8.6	7.5	7.5
11/12	6.2	7.4				8.2	8.0	8.7	8.0	8.6	7.5	7.6
11/13	6.2	7.3				8.2	8.2	8.7	7.9	8.6	7.5	7.6
11/14	6.1	7.2				8.2	8.3	8.6	7.8	8.4	7.4	7.5
11/15	6.0	7.1				8.1	8.3	8.5	7.7	8.3	7.1	7.3
11/16	5.9	7.0				7.8	8.2	8.2	7.6	8.1	6.8	7.1
11/17	5.8	6.9				7.6	7.9	7.9	7.4	8.0	6.7	7.0
11/18	5.4	6.8				7.3	7.7	7.7	7.3	7.8	6.4	6.7
11/19	5.1	6.5				6.9	7.5	7.3	7.2	7.6	6.2	6.4
11/20	4.9	6.4				6.7	7.2	7.1	7.1	7.5	6.0	6.3
11/21	4.8	6.3				6.6	7.0	7.1	7.0	7.4	5.9	6.3
11/22	4.7	6.3				6.6	6.9	7.1	7.0	7.3	5.9	6.3
11/23	4.6	6.3				6.7	6.8	7.1	7.0	7.3	6.0	6.4
11/24	4.7	6.2				6.7	6.8	7.2	6.9	7.3	6.1	6.5
11/25	4.8	6.3				7.0	6.8	7.4	6.9	7.4	6.2	6.6
11/26	5.0	6.4				7.1	6.9	7.6	6.9	7.5	6.4	6.8
11/27	5.2	6.4				7.3	7.1	7.7	6.9	7.6	6.6	6.9
11/28	5.5	6.4				7.4	7.3	7.9	7.0	7.7	6.8	7.1
11/29	5.8	6.4				7.5	7.4	8.0	6.9	7.7	7.1	7.3
11/30	5.9	6.4				7.4	7.5	7.9	6.9	7.6	7.2	7.4

DATE	RM 18.2 (SFK) 7 Day Avg Max	RM 15.8 7 Day Avg Max	RM 15.5 7 Day Avg Max	RM 14.3 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	Skykomish Above 7 Day Avg Max	Skykomish Below 7 Day Avg Max
12/1	5.9	6.4				7.3	7.4	7.8	6.8	7.6	7.1	7.3
12/2	5.6	6.2				7.0	7.3	7.5	6.7	7.4	6.8	7.0
12/3	5.2	6.0				6.7	7.0	7.2	6.6	7.2	6.5	6.7
12/4	4.9	5.9				6.5	6.7	7.0	6.5	7.0	6.2	6.5
12/5	4.6	5.7				6.3	6.5	6.8	6.4	6.9	5.9	6.2
12/6	4.2	5.6				6.1	6.2	6.6	6.4	6.7	5.5	5.9
12/7	3.9	5.5				5.8	6.0	6.4	6.3	6.6	5.2	5.6
12/8	3.7	5.4				5.7	5.8	6.2	6.2	6.5	5.0	5.4
12/9	3.7	5.4				5.7	5.8	6.2	6.1	6.4	5.1	5.4
12/10	3.7	5.4				5.7	5.8	6.2	6.1	6.4	5.1	5.4
12/11	3.6	5.3				5.6	5.7	6.1	6.0	6.3	5.0	5.3
12/12	3.5	5.2				5.5	5.6	5.9	5.9	6.1	4.9	5.2
12/13	3.4	5.1				5.4	5.5	5.8	5.9	6.0	4.8	5.1
12/14	3.4	5.0				5.3	5.5	5.8	5.8	6.0	4.8	5.2
12/15	3.2	4.9				5.1	5.4	5.6	5.7	5.9	4.7	5.1
12/16	3.1	4.9				5.0	5.3	5.5	5.6	5.7	4.6	5.0
12/17	3.1	4.8				4.9	5.1	5.3	5.5	5.6	4.5	4.9
12/18	3.0	4.7				4.8	5.0	5.3	5.4	5.6	4.4	4.8
12/19	3.1	4.7				4.8	5.0	5.3	5.4	5.5	4.5	4.8
12/20	3.2	4.7				4.8	4.9	5.3	5.4	5.5	4.5	4.8
12/21	3.2	4.6				4.8	5.0	5.3	5.3	5.4	4.5	4.7
12/22	3.1	4.4				4.7	4.9	5.2	5.2	5.3	4.5	4.7
12/23	3.0	4.3				4.6	4.8	5.1	5.1	5.1	4.4	4.6
12/24	2.8	4.1				4.3	4.6	4.8	4.9	5.0	4.2	4.4
12/25	2.5	4.0				3.9	4.4	4.5	4.7	4.8	3.8	3.9
12/26	2.2	3.8				3.5	4.2	4.1	4.6	4.6	3.4	3.3
12/27	1.8	3.6				3.1	3.9	3.7	4.4	4.4	3.0	2.9
12/28	1.6	3.5				2.8	3.6	3.4	4.2	4.2	2.7	2.8
12/29	1.4	3.4				2.6	3.4	3.2	4.0	4.0	2.3	2.4
12/30	1.3	3.3				2.5	3.3	3.1	3.8	3.9	2.2	2.1
12/31	1.3	3.2				2.5	3.1	3.0	3.7	3.7	2.0	1.8

APPENDIX D

2021 Steelhead Spawning Ground Survey Field Data

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	3/15/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Poor	60%	sunny,894 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	3/29/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Fair	70%	sunny,397 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/12/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Fair	70%	sunny,834 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/26/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Fair	75%	overcast,522 cfs	2021	STHD	4	0	0	0
Sultan River	Snohomish PUD	5/10/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Good	85%	sunny,435 cfs	2021	STHD	2	4	1	0
Sultan River	Snohomish PUD	5/24/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Good	85%	light rain,397 cfs	2021	STHD	13	6	1	0
Sultan River	Snohomish PUD	6/8/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Low	Excellent	90%	sunny,404 cfs	2021	STHD	2	16	0	0
Sultan River	Snohomish PUD	6/25/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Low	Excellent	90%	sunny,1 live Pacific lamprey,404 cfs	2021	STHD	0	14	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	5/18/2021	7.0881	2.9	4.5	McDonnell	Legare	SUPP	FOOT	Medium	Good	85%	rain,404 cfs	2021	STHD	6	0	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	3/15/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Fair	70%	sunny,171 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	3/30/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Good	75%	sunny,161 cfs	2021	STHD	1	0	0	0
Sultan River	Snohomish PUD	4/15/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,154 cfs	2021	STHD	2	1	0	0
Sultan River	Snohomish PUD	4/27/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	overcast,152 scf	2021	STHD	2	3	0	0
Sultan River	Snohomish PUD	5/11/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,150 cfs	2021	STHD	5	5	0	0
Sultan River	Snohomish PUD	5/24/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	rain,163 cfs	2021	STHD	0	9	1	0
Sultan River	Snohomish PUD	6/8/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	partly cloudy,156 cfs	2021	STHD	0	8	0	0
Sultan River	Snohomish PUD	6/21/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	sunny,109 cfs	2021	STHD	0	7	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	5/19/2021	7.0881	5.2	7.2	McDonnell	Legare	SUPP	FOOT	Medium	Good	85%	sunny,152 cfs	2021	STHD	17	0	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	3/15/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Fair	70%	sunny,171 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	3/30/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,161 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/12/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Good	85%	sunny,167 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/27/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Good	85%	overcast,152 scf	2021	STHD	2	0	0	0
Sultan River	Snohomish PUD	5/11/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Good	85%	sunny,150 cfs	2021	STHD	6	2	0	0
Sultan River	Snohomish PUD	5/24/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Good	85%	rain,163 cfs	2021	STHD	0	8	0	0
Sultan River	Snohomish PUD	6/8/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	partly cloudy,156 cfs	2021	STHD	0	7	0	0
Sultan River	Snohomish PUD	6/21/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	sunny,109 cfs	2021	STHD	0	6	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	5/19/2021	7.0881	7.5	9.2	McDonnell	Legare	SUPP	FOOT	Medium	Good	85%	sunny,152 cfs	2021	STHD	6	0	1	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	3/15/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Fair	70%	sunny,171 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	3/30/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,161 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/15/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,154 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	4/26/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Fair	75%	overcast,152 scf	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	5/10/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	sunny,152 cfs	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	5/24/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	rain,163 cfs	2021	STHD	1	0	0	0
Sultan River	Snohomish PUD	6/8/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	partly cloudy,156 cfs	2021	STHD	0	1	0	0
Sultan River	Snohomish PUD	6/21/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	sunny,109 cfs	2021	STHD	0	1	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	3/15/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Good	85%	sunny	2021	STHD	0	0	0	0
Sultan River	Snohomish PUD	3/30/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Excellent	90%	sunny	2021	STHD	1	0	0	0
Sultan River	Snohomish PUD	4/12/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Excellent	90%	sunny	2021	STHD	0	1	0	0
Sultan River	Snohomish PUD	4/26/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	overcast	2021	STHD	1	1	0	0
Sultan River	Snohomish PUD	5/10/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	sunny	2021	STHD	0	2	0	0
Sultan River	Snohomish PUD	5/18/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Good	80%	rain	2021	STHD	0	2	0	0
Sultan River	Snohomish PUD	5/24/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	rain	2021	STHD	0	2	0	0
Sultan River	Snohomish PUD	6/8/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	partly cloudy	2021	STHD	0	1	0	0
Sultan River	Snohomish PUD	6/21/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Excellent	90%	sunny	2021	STHD	0	1	0	0

StreamName	Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	VisibilityType	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Sultan River	Snohomish PUD	5/18/2021	7.0881	10.4	11.1	McDonnell	Legare	SUPP	FOOT	Medium	Good	80%	rain	2021	STHD	2	0	0	0
Sultan River	Snohomish PUD	5/18/2021	7.0881	11.1	12.0	McDonnell	Legare	SUPP	FOOT	Medium	Good	80%	rain	2021	STHD	1	0	0	0
Sultan River	Snohomish PUD	5/20/2021	7.0881	12.0	14.3	McDonnell	Legare	SUPP	FOOT	Medium	Good	80%	overcast	2021	STHD	1	0	0	0

			RIVER MILE			SURVEY	SURVEY	OBSERVED	OBS REDDS	PEAK	TOTAL		
DRAINAGE	REACH	WRIA	BEGIN	END	LENGTH	METHOD	TYPE	REDDS	PEAK SUPPLEM	MLTPLIR	REDDS	REDDS/MI	ESCAPEMENT
SULTAN	Mainstem	.0881	0.00	2.90	2.90	B	I	21	19		21	7.2	34
	Mainstem	.0881	2.90	4.50	1.60	F	S		6	1.11	7	3.8	11
	Mainstem	.0881	4.50	5.20	0.70	F	I	10	9		10	14.3	16
	Mainstem	.0881	5.20	7.20	2.00	F	S		17	1.05	18	8.5	29
	Mainstem	.0881	7.20	7.50	0.30	F	I	8	8		8	26.7	13
	Mainstem	.0881	7.50	9.20	1.70	F	S		6	1.05	6	3.5	10
	Mainstem	.0881	9.20	9.70	0.50	F	I	1	1		1	2.0	2
	Mainstem	.0881	9.80	10.40	0.60	F	I	2	2		2	3.3	3
	Mainstem	.0881	10.40	11.10	0.70	F	S		2	1.05	2	2.9	3
	Mainstem	.0881	11.10	12.00	0.90	F	S		1	1.05	1	0.0	2
	Mainstem	.0881	12.00	14.30	2.30	F	S		1	1.05	1	0.0	2
								42			77		123

APPENDIX E

2021 Chinook Spawning Ground Survey Field Data

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd _Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	9/3/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Low	Clear	90%	20, sunny, 385 cfs	2021	CHIN	0		0	0
Snohomish PUD	9/14/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Low	Medium	85%	20, overcast/mist, 378 cfs	2021	CHIN	2		11	0
Snohomish PUD	9/21/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Medium	75%	24, sunny, 532 cfs	2021	CHIN	3	1	15	0
Snohomish PUD	9/29/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Medium	75%	24, overcast, 515 cfs	2021	CHIN	12	3	55	8
Snohomish PUD	10/7/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	BOAT	Medium	Medium	75%	24, partly sunny, 546 cfs	2021	CHIN	6	14	23	20
Snohomish PUD	10/15/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	FOOT	Medium	Medium	75%	24, light rain/overcast, 569 cfs	2021	CHIN	3	19	16	9
Snohomish PUD	11/2/2021	7.0881	0.0	2.9	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, rain, 523 cfs	2021	CHIN	5	22	20	2

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd _Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/6/2021	7.0881	2.9	4.5	McDonnell	Legare	SUPP	FOOT	Medium	Medium	75%	24, overcast, 546 cfs	2021	CHIN	0		0	

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd _Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	9/3/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, sunny, 121 cfs	2021	CHIN	0		0	0
Snohomish PUD	9/14/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, overcast, 118 cfs	2021	CHIN	1		1	0
Snohomish PUD	9/21/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Medium	75%	24, sunny, 260 cfs	2021	CHIN	3	1	11	0
Snohomish PUD	9/30/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Medium	75%	24, overcast, 212 cfs	2021	CHIN	6	4	20	1
Snohomish PUD	10/5/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, rain, 212 cfs	2021	CHIN	8	8	23	
Snohomish PUD	10/13/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, overcast, 208 cfs	2021	CHIN	6	15	18	1
Snohomish PUD	10/21/2021	7.0881	4.5	5.2	McDonnell	Legare	INDX	FOOT	Medium	Medium	85%	24, overcast, 206 cfs	2021	CHIN	0	21	2	2

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd _Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/5/2021	7.0881	5.2	7.2	McDonnell	Legare	SUPP	FOOT	Medium	Medium	80%	24, rain, 212 cfs	2021	CHIN	8		11	

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	9/3/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, sunny, 121 cfs	2021	CHIN	0		0	0
Snohomish PUD	9/14/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, overcast, 118 cfs	2021	CHIN	4		7	0
Snohomish PUD	9/20/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Medium	85%	24, partly cloudy, 237 cfs	2021	CHIN	0	3	3	1
Snohomish PUD	9/30/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Medium	75%	24, overcast, 212 cfs	2021	CHIN	2	1	10	1
Snohomish PUD	10/6/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, overcast, 221 cfs	2021	CHIN	2	3	4	
Snohomish PUD	10/13/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, overcast, 208 cfs	2021	CHIN	2	5	6	
Snohomish PUD	10/26/2021	7.0881	7.2	7.5	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24,rain/overcast, 265 cfs	2021	CHIN	1	7	4	0

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/6/2021	7.0881	7.5	9.2	McDonnell	Legare	SUPP	FOOT	Medium	Medium	80%	24, overcast, 221 cfs	2021	CHIN	3		4	

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	9/3/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, sunny, 121 cfs	2021	CHIN	0		0	0
Snohomish PUD	9/14/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, overcast, 118 cfs	2021	CHIN	0		0	0
Snohomish PUD	9/20/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Medium	85%	24, partly cloudy, 237 cfs	2021	CHIN	0		2	0
Snohomish PUD	9/30/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, rain, 212 cfs	2021	CHIN	4		11	2
Snohomish PUD	10/5/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, rain, 212 cfs	2021	CHIN	2		3	
Snohomish PUD	10/12/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24, overcast, 208 cfs	2021	CHIN	3	6	7	0
Snohomish PUD	10/27/2021	7.0881	9.2	9.7	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24,rain/overcast, 283 cfs	2021	CHIN	1	9	0	0

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	9/3/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20. sunny	2021	CHIN	0		0	0
Snohomish PUD	9/14/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Clear	90%	20, overcast	2021	CHIN	0		0	0
Snohomish PUD	9/20/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Clear	85%	23, partly cloudy	2021	CHIN	0		0	0
Snohomish PUD	9/30/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Clear	85%	23, rain	2021	CHIN	0		0	0
Snohomish PUD	10/5/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Low	Medium	85%	21, rain	2021	CHIN	0		0	
Snohomish PUD	10/12/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Clear	85%	23, rain	2021	CHIN	0		0	0
Snohomish PUD	10/27/2021	7.0881	9.8	10.4	McDonnell	Legare	INDX	FOOT	Medium	Medium	80%	24,rain/overcast, 283 cfs	2021	CHIN	0		0	0

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/12/2021	7.0881	10.4	11.1	McDonnell	Legare	SUPP	FOOT	Low	Clear	85%	20, overcast	2021	CHIN	23		2	1

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/12/2021	7.0881	11.1	12.0	McDonnell	Legare	SUPP	FOOT	Low	Clear	85%	20, overcast	2021	CHIN	16		6	2

Agency	Date (mm/dd/yyyy)	StreamCode	RMLower	RMUpper	Observ1	Observ2	TypeCount	TypeSurvey	FlowType	Visibility Type	EstPercentSeen	Comments	RunYear	Species	New_Redd_Count	PrevRedds	Live_Count	Dead_Count
Snohomish PUD	10/14/2021	7.0881	14.3	14.8	McDonnell	Legare	SUPP	FOOT	Low	Clear	85%	20, rain	2021	CHIN	0		0	

		RIVER MILE				SURVEY	SURVEY	OBSERVED	OBS REDDS	PEAK	TOTAL		
DRAINAGE	REACH	WRIA	BEGIN	END	LENGTH	METHOD	TYPE	REDDS	PEAK SUPPLEM	MLTPLIR	REDDS	REDDS/MI	ESCAPEMENT
SULTAN	Mainstem	.0881	0.00	2.90	2.90	B	I	31	20		31	10.7	78
	Mainstem	.0881	2.90	4.50	1.60	F	S		0	1.55	0	0.0	0
	Mainstem	.0881	4.50	5.20	0.70	F	I	24	16		24	34.3	60
	Mainstem	.0881	5.20	7.20	2.00	F	S		8	1.50	12	6.0	30
	Mainstem	.0881	7.20	7.50	0.30	F	I	11	5		11	36.7	28
	Mainstem	.0881	7.50	9.20	1.70	F	S		3	2.20	7	3.9	17
	Mainstem	.0881	9.20	9.70	0.50	F	I	10	9		10	20.0	25
	Mainstem	.0881	9.8	10.4	0.60	F	I	0	0		0	0.0	0
	Mainstem	.0881	10.4	11.1	0.70	F	S		23	1.24	29	40.7	71
	Mainstem	.0881	11.1	12.0	0.90	F	S		16	1.24	20	22.0	50
	Mainstem	.0881	12.0	14.3	2.30	F	S		7	1.00	7	3.0	18
								76			150		375

APPENDIX F

Article 407(7), Salmon Ceiling Deviations between September 26 and October 1, 2021

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Energizing Life in Our Communities

October 8, 2021

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

Re Jackson Hydroelectric Project, FERC No. 2157
Article 407(7), Salmon Ceiling Deviations between September 26 and October 1, 2021

Dear Secretary Bose:

This letter is to inform you of recent deviations relative to the imposed 550 cubic feet per second (cfs) Chinook spawning flow ceiling required by Appendix A, condition 5.2 (A-LA 5) under License Article 407(7) and as amended on August 26, 2021, for the Jackson Hydroelectric Project (Project). A-LA 5 states that the Project shall institute a salmon ceiling flow of 550 cfs (mean daily discharge measured at the Powerhouse gage) during the September 15 to October 15 period of peak spawning for Chinook salmon, unless natural accretion flows or Spada Lake inflows supersedes the Licensee's hydraulic control of the Project.

On September 26, 2021, a combined flow release for upstream migration, flushing, and whitewater boating was conducted in the Sultan River. Beginning on September 26 and extending through October 1, 2021, several storms were documented at the Project. These storms produced a total rainfall of 4.33 inches over six successive days resulting in a substantial in1crease in inflows throughout the Sultan Basin as indexed by the gage on the South Fork Sultan River (Figure 1). During this period, mean daily discharge at the Powerhouse gage exceeded the applicable salmon ceiling on four occasions with the magnitude of the exceedance ranging between 5 and 28 cfs (Table 1).

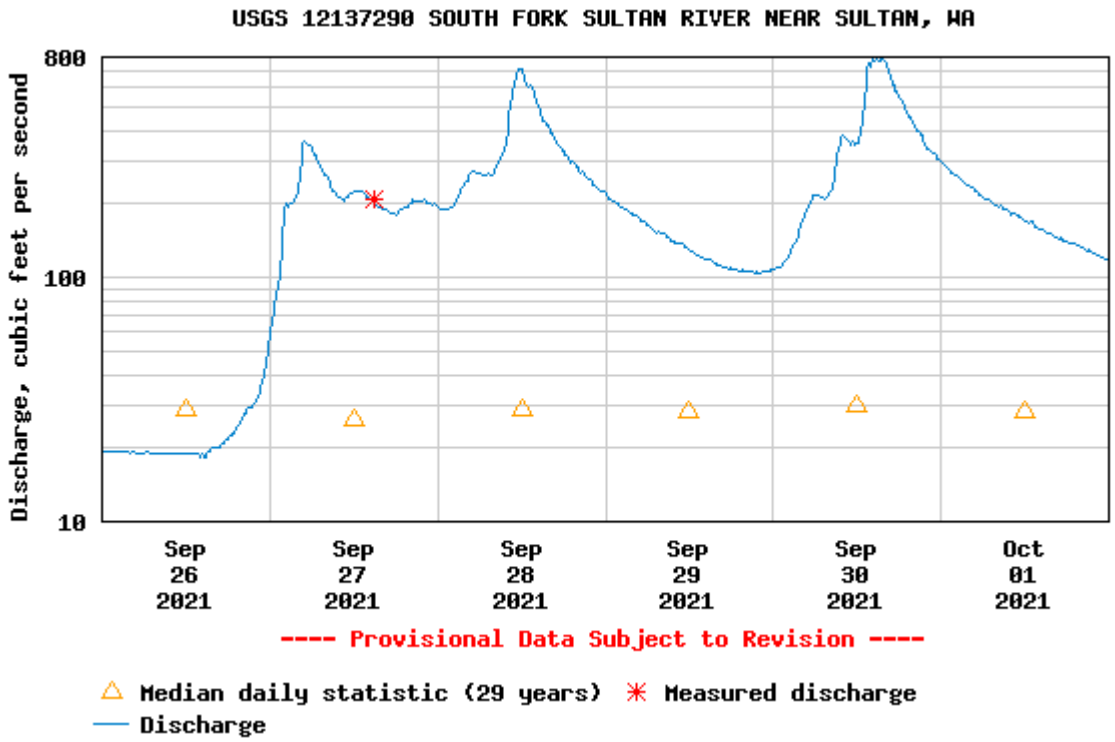


Figure 1. Mean daily unregulated discharge on South Fork Sultan River.

Table 1. Mean daily discharge, generation, and rainfall, Jackson Hydroelectric Project, 9/26 to 10/1/2021.

Date	Mean Daily Discharge (cfs)*	Deviation from Salmon Ceiling (cfs)	Project Generation (megawatts)	Daily Rainfall (inches)	Cumulative Rainfall over 6-Day Period (inches)
9/26/21	855	5	Increased up to 59 during release	1.17	1.17
9/27/21	758		Post release ramp down to base of 25	0.14	1.31
9/28/21	554	4	25	1.82	3.13
9/29/21	532		25	0.31	3.44
9/30/21	578	28	25	0.89	4.33
10/01/21	569	19	25	0.00	4.33

* mean daily discharge computed based on 15-minute unit values recorded at USGS Gaging Station 12138160, Sultan River downstream of Powerplant, near Sultan, WA.

Prior to October 1, a total of 17 Chinook salmon redds were observed in the lower river index area over the course of several spawning surveys. At the time of the surveys, the water depth at all redd locations was not less than 10 inches and the corresponding mainstem discharges indicated that all redds will remain fully wetted throughout the incubation period if flows approach the allowable minimum flow of 300 cfs. Given the natural accretion inflow over this period of time, the District is not proposing any corrective actions for this deviation. Adjusting Project operations in response to

these hydrologic events is outside the hydraulic control of the Project in that rapid operational reactions in response to these events has a higher probability of resulting in ramping and potentially minimum flow excursions.

This letter serves as the 10-day notice and 30-day report, since all information for these reports is provided in this letter. The Aquatic Resource Committee will be provided a copy of this notice. If you have any questions regarding the content of this letter, please contact Keith Binkley, Manager of Natural Resources, at (425) 783-1769.

Sincerely,

/s/ Brad Spangler

Brad Spangler
Senior Manager of Generation
BRSpangler@snopud.com
(425) 783-8151

cc: Aquatic Resource Committee

APPENDIX G

Article 407(7), Salmon Ceiling Deviations October 10, 13, 14, 15, 2021

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Energizing Life in Our Communities

October 22, 2021

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

Re Jackson Hydroelectric Project, FERC No. 2157
Article 407(7), Salmon Ceiling Deviations October 10, 13, 14, 15, 2021

Dear Secretary Bose:

This letter is to inform you of recent deviations relative to the imposed 550 cubic feet per second (cfs) Chinook spawning flow ceiling required by Appendix A, condition 5.2 (A-LA 5) under License Article 407(7) and as amended on August 26, 2021, for the Jackson Hydroelectric Project (Project). A-LA 5 states that the Project shall institute a salmon ceiling flow of 550 cfs (mean daily discharge measured at the Powerhouse gage) during the September 15 to October 15 period of peak spawning for Chinook salmon, unless natural accretion flows or Spada Lake inflows supersedes the Licensee's hydraulic control of the Project. The amendment allows for a single operational release during the ceiling period and this year that release occurred on September 26, 2021. In accordance with the 10-day reporting requirements, this letter represents the second report on deviations during this 30-day ceiling period.

Beginning on October 10 and extending through October 15, 2021, several storms were documented at the Project. These storms produced a total rainfall of 3.34 inches over six successive days resulting in a substantial increase in inflows throughout the Sultan Basin as indexed by the gage on the South Fork Sultan River (Figure 1). During this period, mean daily discharge at the Powerhouse gage exceeded the applicable salmon ceiling on four occasions with the magnitude of the exceedance ranging between 9 and 26 cfs (Table 1).

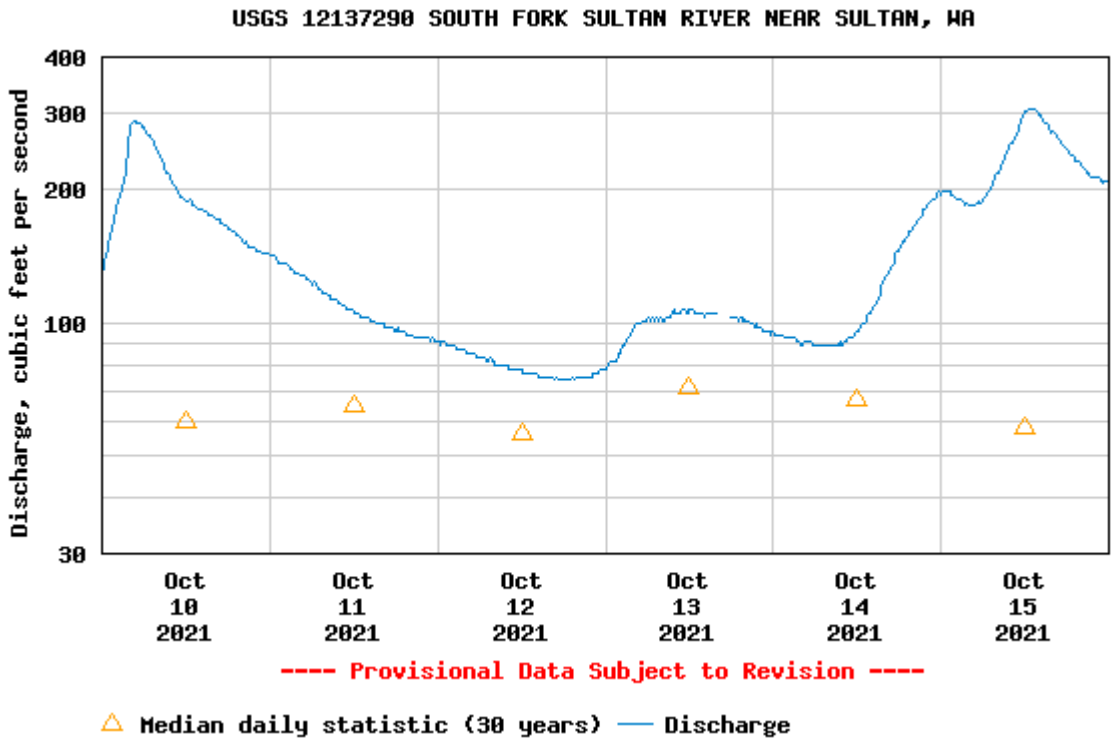


Figure 1. Mean daily unregulated discharge on South Fork Sultan River.

Table 1. Mean daily discharge, generation, and rainfall, Jackson Hydroelectric Project, 10/10-15/2021.

Date	Mean Daily Discharge (cfs)*	Deviation from Salmon Ceiling (cfs)	Project Generation (megawatts)	Daily Rainfall (inches)	Cumulative Rainfall over 6-Day Period (inches)
10/10/21	562	12	30	0.74	0.74
10/11/21	549	0	30	0.02	0.76
10/12/21	534	0	30	0.36	1.12
10/13/21	559	9	30	0.66	1.78
10/14/21	561	11	30	0.52	2.30
10/15/21	576	26	30	1.04	3.34

* mean daily discharge computed based on 15-minute unit values recorded at USGS Gaging Station 12138160, Sultan River downstream of Powerplant, near Sultan, WA.

Prior to October 15, a total of 23 Chinook salmon redds were observed in the lower river index area over the course of several spawning surveys. At the time of the surveys, the water depth at all redd locations was not less than 10 inches and the corresponding mainstem discharges indicated that all redds will remain fully wetted throughout the incubation period if flows approach the allowable minimum flow of 300 cfs. Given the natural accretion inflow over this period of time, the District is not proposing any corrective actions for this deviation. Adjusting Project operations in response to these hydrologic events is outside the hydraulic control of the Project in that rapid operational

reactions in response to these events has a higher probability of resulting in ramping and potentially minimum flow excursions.

This letter serves as the 10-day notice and 30-day report, since all information for these reports is provided in this letter. The Aquatic Resource Committee will be provided a copy of this notice. If you have any questions regarding the content of this letter, please contact Keith Binkley, Manager of Natural Resources, at (425) 783-1769.

Sincerely,

/s/ Brad Spangler

Brad Spangler
Senior Manager of Generation
BRSpangler@snopud.com
(425) 783-8151

cc: Aquatic Resource Committee

APPENDIX H

DDVPP Supplement Report No. 2

TECHNICAL MEMORANDUM

TO: File
FROM: Keith Binkley, Manager – Natural Resources, Generation
DATE: May 19, 2022
RE: JHP (FERC No. 2157) – A-LA 13: DDVP Fish Size Survey 2017, 2019, 2021

Summer evaluation of young of the year salmonid size in Reach 3 of the Sultan River
Report No. 2 – Post-passage 2017, 2019, 2021

Background

This technical memo report documents the size (length) of young of the year (age 0+) resident and anadromous salmonids in Reach 3 of the Sultan River, as required by the Supplement to Aquatic License Article 13 (Supplement) to the Diversion Dam Volitional Passage Plan (DDVPP). Fish sampling was conducted by Public Utility District No. 1 of Snohomish County (Snohomish PUD) staff and occurred during summer/fall months of 2017, 2019, and 2021. This technical memo is the second and final report related to the Supplement and presents field observations of salmonid fork lengths in a post-passage environment.

The Federal Energy Regulatory Commission (FERC) approved the DDVPP on March 6, 2012. During the development of the design plans for fish passage at the Diversion Dam, the City of Everett (Everett) requested re-evaluation of the methods for excluding fish from entering Everett's Lake Chaplain Reservoir during the rare severe drought or emergency situations as identified in the DDVPP. Snohomish PUD and Everett cooperatively explored options for excluding these fish and developed an approach that would use screens to prevent entrainment into the tunnel infrequently used for routing river water directly to Lake Chaplain.

The plan for screening was developed in accordance with existing National Marine Fisheries Service (NMFS) screening criteria (NMFS 2011). This plan states that approach velocity, which is the water velocity component perpendicular to and approximately three inches in front of the screen face, may be seasonally adjusted depending on the size, in length, of age 0+ salmonids within Reach 3. Information on fish size and Everett water demand will dictate decisions on appropriate approach velocities as identified in the Supplement. To determine size of these fish, the Supplement states that annual snorkeling surveys will be conducted during September in the downstream portion of the reach near river mile (RM) 11.3 and in the upper portion of the reach, near RM 14.3. Surveys occurred in 2016 (Snohomish PUD, 2017) 2017, 2019, and 2021. The Supplement also states that when possible, the use of complementary ESA-approved sampling techniques, such as minnow traps, may be employed to increase sample sizes and to measure and verify the sizes of fish observed by snorkeling.

Methods

The resident trout population in Reach 3 is of relatively low density (Normandeau and TRPA 2008) and the anadromous populations are presently in the early stages of recolonizing the newly available habitat. Therefore, to increase sample size, staff found that the most efficient method for observing juvenile salmonids was to use a multi-faceted approach. Methods for collecting and measuring fish included a smolt trap, snorkeling, minnow trapping, and by walking and visually surveying the shallow margins of the river. To further increase the sample size, fork lengths of salmonids observed outside the spatial extent of Reach 3 are included. Although the Supplement states that surveys will be conducted during September, Snohomish PUD biologists began observing and documenting juvenile salmonids as early as June, and as late as October.

Surveys took place on 26- days across the three-year period of post-passage monitoring. June was the earliest month surveyed (2019), whereas October was the latest month surveyed (2019/2021). August and September surveys occurred in each of the three years post-passage. Surveys were only conducted when conditions of flow and water visibility were safe and effective for data collection. Viewing conditions were consistently rated as "excellent" with no rain and low, clear water during all surveys. Minnow traps were "fished" for 2-3 days prior to retrieval, whereas smolt traps were "fished" the night before retrieval. All captured fish were measured prior to release. Fork lengths of salmonids observed passively via snorkeling and walking margins were estimated and noted at the time of their observation.

Results

2017

During 2017, a total of 93 juvenile *Oncorhynchus mykiss* (*O. mykiss*) and 50 age 0+ coho, were observed (Table 1). All *O. mykiss* in the size range of 25-35 mm were likely offspring of steelhead since all fish sampled in 2016, prior to fish passage, were greater than 60 mm. All juvenile coho salmon and 2 *O. mykiss* were captured in minnow traps and physically measured. Young of the year steelhead were not physically captured, and so direct measurements were not made, rather size was estimated. Walking shallow margins was an effective method for enumerating and assessing steelhead size, whereas minnow traps were most efficient for capturing larger sized juvenile *O. mykiss* and coho salmon.

Table 1. Date, location, and fork length of juvenile salmonids, Sultan River, 2017.

Date	Location (RM)	*Oncorhynchus mykiss*		Coho	Estimated Fork Length (mm)	Measured Fork Length (mm)	Method	Comments
		Young of Year steelhead	All other *O. mykiss*					
8/10/2017	10.1	60	0	0	25-35		Walking Margins	
8/27-30/2017	10.0	0	0	17		66-77	Minnow Trap	8 minnow traps set for 3 nights
8/27-30/2017	10.0	0	2	0		63, 130	Minnow Trap	
8/27-30/2017	10.0	30	0	0	35-45		Visual	While setting minnow traps
9/7/2017	10.2	0	0	0			Walking Margins	No fry immediately following process flow
9/13/2017	10.2	0	0	0			Walking Margins	
9/13-15/2017	10.1	0	0	19		51-79	Minnow Trap	8 minnow traps set for 2 nights
9/14/2017	10.0	0	0	0			Walking Margins	
9/14/2017	4.7	1	0	0	50		Walking Margins	Observed during Chinook spawner survey
9/25/2017	10.0	0	0	0			Walking Margins	
9/26-28/2017	4.8	0	0	14		68-79	Minnow Trap	4 minnow traps set for 2 nights

*Non-Reach 3 surveys are shaded in gray

2019

During 2019, a total of 9 age 0+ coho were captured, and 74 juvenile *O. mykiss* were observed (Table 2). Unlike 2017 when steelhead were all age 0+, differentiating between larger age 1+ steelhead and rainbow trout in 2019 was not possible as juvenile *O. mykiss* could have resident or anadromous life histories. All age 0+ coho salmon were captured in minnow traps and physically measured. Nine young of the year steelhead were captured in a smolt trap located at RM 0.2 and directly measured. A total of 65 young of the year steelhead were not physically captured, and so direct measurements were not made, and size was estimated. Walking shallow margins was an effective method for enumerating and assessing steelhead size, whereas minnow traps were most efficient for capturing larger sized juvenile *O. mykiss* and coho salmon.

Table 2. Date, location, and fork length of juvenile salmonids, Sultan River, 2019.

Date	Location (RM)	*Oncorhynchus mykiss*		Coho	Estimated Fork Length (mm)	Measured Fork Length (mm)	Method
		Young of Year steelhead	All other *O. mykiss*				
8/30/2019	10.0	4	0	35-40		Walking Margins	
8/30/2019	4.7	50	0	35-40		Walking Margins	Observed during Chinook spawner survey
8/30/2019	7.4	5	0	35-40		Walking Margins	Observed during Chinook spawner survey
9/5/2019	10.0	0	6		60-75	Minnow Trap	
9/5/2019	4.7	0	3		57-64	Minnow Trap	
9/11/2019	Walked 9.8-11.1 (mining) with WDFW Habitat Biologist	0	0			Walking Margins	Observed no YOY steelhead
9/19/2019	0-2.9	4	0	35-40		Float/Walking Margins	Observed during Chinook spawner survey
10/7/2019	5.2-7.2	2	0	35-40			Chinook spawner survey

2021

During 2021, a total of 230 *O. mykiss* and 17 age 0+ coho were observed (Table 3). All age 0+ coho salmon were observed and lengths estimated via snorkeling. Eight young of the year steelhead were captured in smolts traps located at RM 0.2 and RM 9.9 and directly measured. The remaining 222 *O. mykiss* tallied in 2021 were observed via snorkeling and by walking margins.

Table 3. Date, location, and fork length of juvenile salmonids, Sultan River, 2021.

Date	Location (RM)	*Oncorhynchus mykiss*		Coho	Estimated Fork Length (mm)	Measured Fork Length (mm)	Method
		Young of Year steelhead	All other *O. mykiss*				
7/8/2021	9.9	1	0	0		28	Smolt trap
7/15/2021	0.2	6	0	0		28-32	Smolt trap
7/15/2021	9.9	1	0	0		46	Smolt trap
8/5/2021	9.9	0	1	0	>150		Snorkel
8/5/2021	9.9	0	0	9	<50		Snorkel
8/5/2021	4.7	70	0	0	<50 mm		Snorkel
8/5/2021	1.2	2	0	0	<50 mm		Snorkel
8/10/2021	9.9	0	0	8	50-100		Snorkel
8/10/2021	9.9	0	4	0	50-150		Snorkel
8/10/2021	4.7	68	0	0	<50 mm		Snorkel
8/10/2021	1.2	0	0	0			Snorkel
9/10/2021	10.0	0	0	0			Walk Margins
9/10/2021	4.7	35	0	0	<50 mm		Walk Margins
9/20/2021	7.2	42	0	0	<50 mm		Walk Margins
10/12/2021	11.3	0	0	0			Walk Margins
10/14/2021	14.3	0	0	0			Walk Margins

The Supplement states:

- For salmonid fry (less than 2.36" or 60 mm in length), the approach velocity shall not exceed 0.40 feet per second (fps). This approach velocity will apply if any of the sampled fish are less than 60 mm in length.
- For salmonid fingerlings (greater than or equal to 2.36 inches (60 mm) in length), the approach velocity shall not exceed 0.80 fps. This approach velocity will apply only if 100 percent of the sampled fish are greater than 60 mm in length

Field observations from Report No. 1 (2017) found all sampled fish were greater than or equal to 60 mm in length; therefore, met the NMFS criteria which allows approach velocity of 0.80 fps. However, subsequent surveys conducted in a post-fish passage environment and presented here, indicate the presence of young of the year steelhead fry in all three years sampled. These fish were all less than 60 mm in length, and in accordance with NMFS established criteria, approach velocity shall not exceed 0.40 fps. This standard will be implemented if water from the Sultan River is diverted directly from the Diversion Dam to the City of Everett facilities at Lake Chaplain.

References

NMFS (National Marine Fisheries Service). 2011. Anadromous Salmonid Passage Facility Design. NMFS, Northwest Region, Portland, Oregon. http://www.westcoast.fisheries.noaa.gov/publications/hydropower/fish_passage_design_criteria. pdf

Normandeau and TRPA. 2008. Revised Study Plan 2: Population Analysis of Coastal Cutthroat Trout in the Bypass Reach of the Sultan River, Summer 2007, dated June 2008. Prepared for Snohomish County PUD and City of Everett.

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APPENDIX I

Consultation Documentation Regarding Draft Report

Presler, Dawn

From: Presler, Dawn
Sent: Monday, May 23, 2022 8:21 AM
To: Anne Savery; Brock Applegate; Jeff Garnett; Jennifer Bailey; Mike Rustay; Monica Kannadaguli; Nate Morgan; Richard Vacirca; Tom O'Keefe; elizabeth.babcock@noaa.gov
Cc: Andrew McDonnell; Keith Binkley
Subject: JHP (FERC No. 2157) - draft Fish Habitat and Monitoring 2021 Annual Rpt for your 30day review
Attachments: DRAFT_2021 FHMP Annual Report.docx

Dear ARC Members,
Attached is the draft 2021 Fish Habitat and Monitoring Report for the Jackson Project for your 30-day review. Comments, if any, can be emailed to me (cc Keith) by June 24, 2022. Thanks again for your ongoing support and interest in the Jackson Hydro Project.

Cheers,
Dawn Presler
Sr. Environmental Coordinator
Generation – Natural Resources
Snohomish County PUD No. 1
Everett, WA

(425) 783-1709 (work)