SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Energizing Life in Our Communities

August 31, 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
Operation Compliance Monitoring Plan Annual Report
License Article 407

Dear Secretary Bose:

Enclosed is Public Utility District No. 1 of Snohomish County's Operation Compliance Monitoring Plan Annual Report for the Water Year July 2021 – June 2022 pursuant to License Article 407 for the Jackson Hydroelectric Project. No comments were received on the draft report provided to the Aquatic Resource Committee for a 30-day review and comment period; consultation documentation is included in the report's appendices.

If you have any questions on the report, please feel free to contact me.

Sincerely,

/s/ Keith Binkley

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

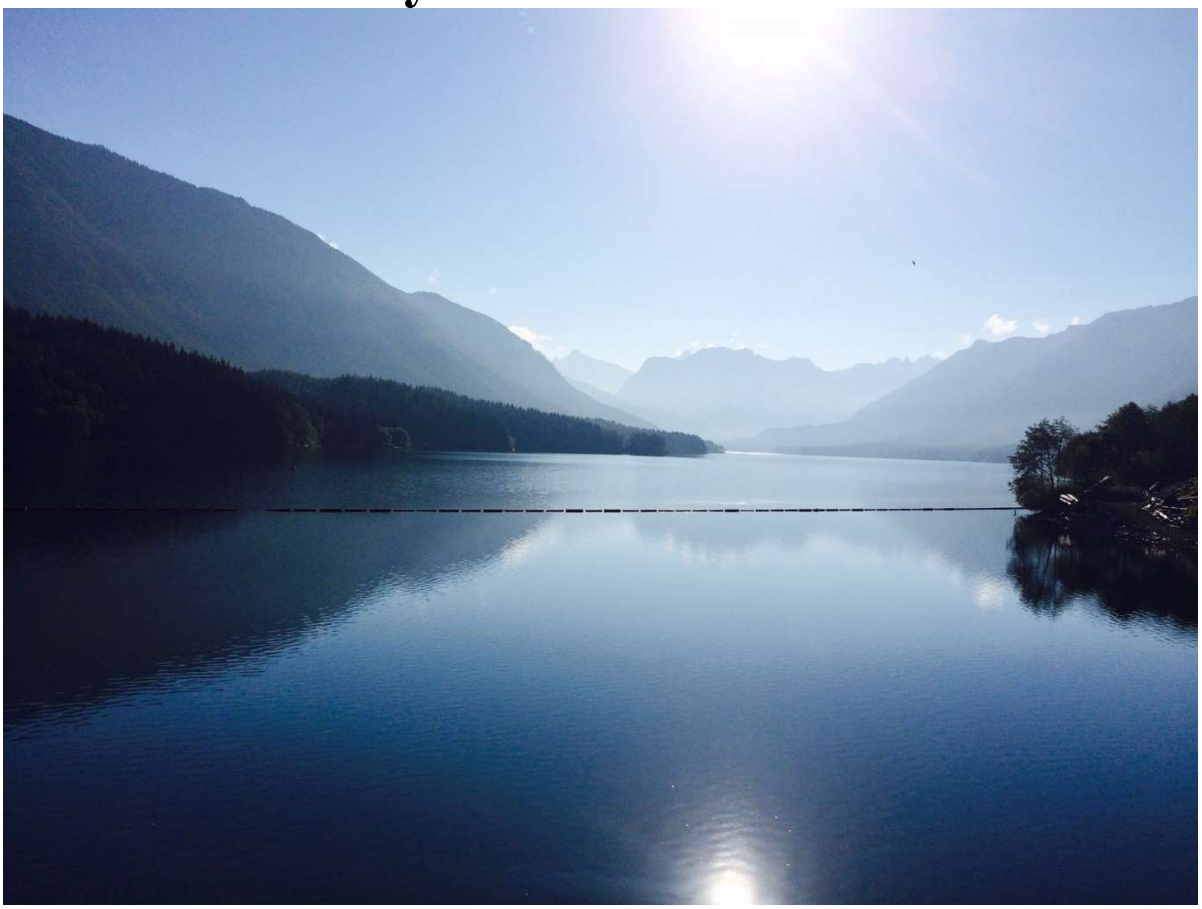
Enclosed: OCMP Annual Report

cc: ARC

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

Operation Compliance Monitoring Plan
(License Article 407)

Annual Report for Water Year
July 2021 – June 2022



Prepared By:

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Everett, WA

August 2022

Final – This document has been prepared by Snohomish PUD. It has been peer-reviewed 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 407: Operation Compliance Monitoring Plan Annual Report for Water Year July 2021 through June 2022, for the Henry M. Jackson Hydroelectric Project, FERC No. 2157. August 2022.

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Acronyms and Abbreviations

A-LA	Aquatic License Article
ARC	Aquatic Resource Committee
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
MW	megawatt
OCMP	Operation Compliance Monitoring Plan
PF Plan	Process Flow Plan
Project	Henry M. Jackson Hydroelectric Project, FERC No. 2157
RM	River Mile
SCADA	Supervisory Control and Data Acquisition
Snohomish PUD	Public Utility District No. 1 of Snohomish County
USGS	United States Geological Survey
WY	Water year

1. INTRODUCTION

Public Utility District No. 1 of Snohomish County (Snohomish PUD) received from the Federal Energy Regulatory Commission (FERC) a new license for the existing 111.8-megawatt (MW) Henry M. Jackson Hydroelectric Project (FERC No. 2157) (Project) on September 2, 2011. Snohomish PUD filed with the FERC the Operation Compliance Monitoring Plan (OCMP) in response to License Article 407. The FERC approved the OCMP on April 10, 2012. Per Section 9 of the OCMP, Snohomish PUD is to file an Annual Report by November 1 of each year, which documents the following for the previous water year (July through June):

> (a) the dates, duration, and quantities of the process flow released in accordance with the Process Flow Plan (PF Plan) required by Article 416;
>
> (b) Spada Lake Reservoir daily water surface elevations; and
>
> (c) if deviations from the targeted State 3 water surface elevations occurred, the reasons for the deviations and any proposals for corrective actions to avoid future occurrences, as appropriate.

This OCMP Annual Report covers activities for water year (WY) July 2021 – June 2022.

A copy of the draft report was provided on July 28, 2022, to National Marine Fisheries Service, U.S. Forest Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Washington Department of Ecology, Tulalip Tribes, Snohomish County, City of Everett, City of Sultan, and American Whitewater (collectively known as the Aquatic Resource Committee or ARC) for a 30-day review and comment period. No comments were received on the draft report.

Spada Lake Reservoir data in tabular format are included in Appendix 1. Consultation documentation with the ARC regarding the draft report is included in Appendix 2.

2. PROCESS FLOWS

Snohomish PUD provided process flow events pursuant to the Process Flow Plan (PF Plan) on four occasions during the July 2021 – June 2022 timeframe to provide both biological and habitat benefits in each of the three reaches of the lower Sultan River (Figure 1). These included, in chronological order: 1) a flushing of surficial fine sediment from the streambed and an upmigration flow for spawning salmonids in September 2021, 2) a channel maintenance event in November 2021, 3) a nighttime outmigration flow along with a sediment flushing flow in April 2022, and 4) a daytime juvenile outmigration flow in May 2022. The process flow events for the July 2021 – June 2022 timeframe are summarized, by these reaches, in Table 1. Snohomish PUD followed each process flow event with License-required downramping; downramping is evident on the descending limb of the hydrograph associated with each process flow event as shown in Figures 2 through 11. The full Process Flow Log (dating back to license issuance in September 2011) is posted to the web at: https://www.snopud.com/community-environment/environmental-commitment/stewardship/jackson-fish-program/fish-mgmt-plans/

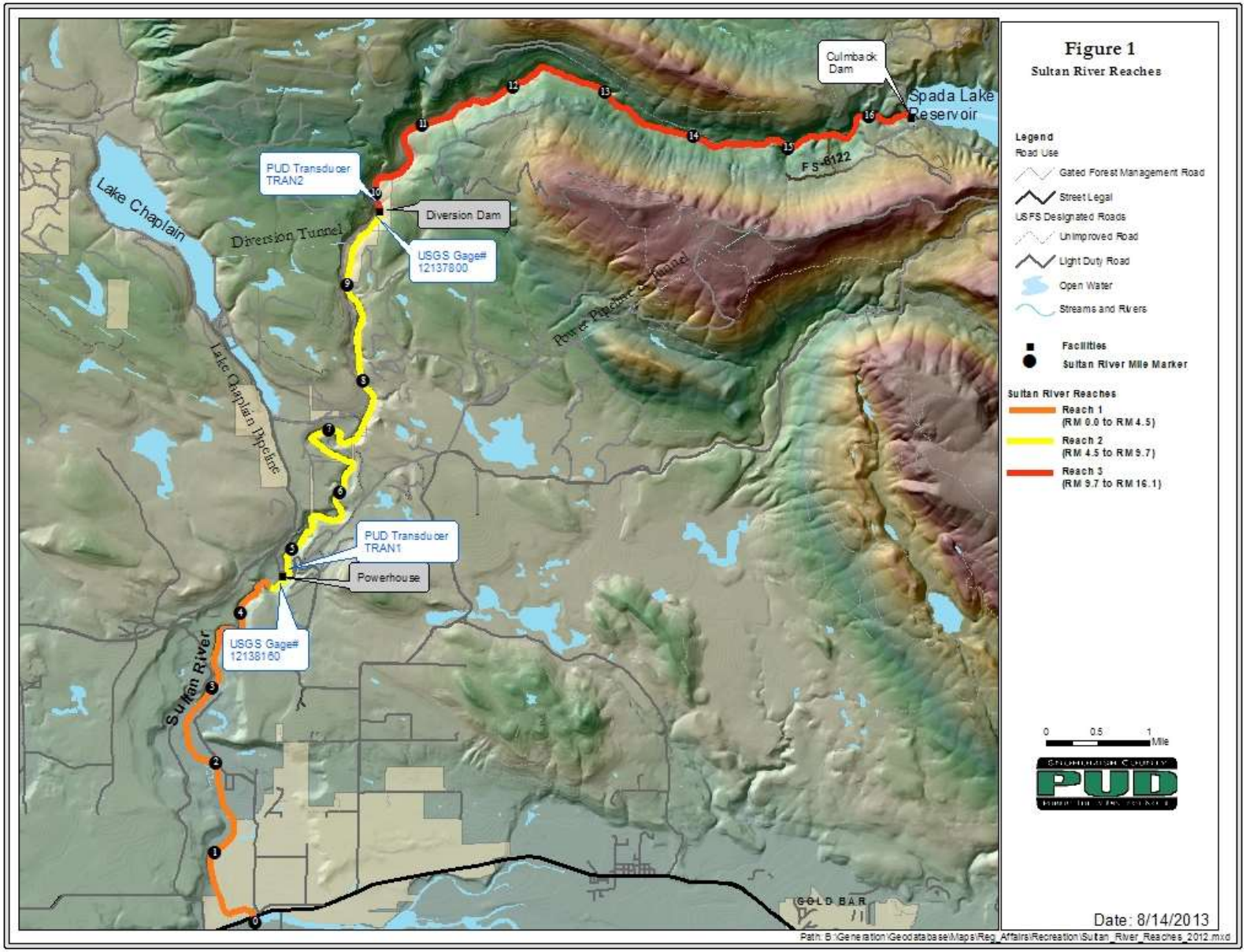

Figure 1. Sultan River reaches.

Table 1. Process Flow Log, July 2021 – June 2022.

Date[1]	Time[2]	Magnitude[3] (cfs)	Duration[4] (hours)	Accretion[5] (cfs)	Notes[6]	PF Type[7]
09/26/2021	12:00 to 21:00	R1 – 1,347 (average), Range 1,220 – 1,450	9.0 hours greater than 1,200 cfs	Estimated at 75 cfs	Reference Figure 2	FL, U
09/26/2021	11:30 to 06:15	R2 – 663 (average), Range 504 – 992	18.75 hours greater than 500 cfs	Estimated at 75 cfs	Reference Figure 3	FL, U
09/26/2021	10:00 to 03:45	R3 – 537 (average), Range 402 – 844	17.75 hours greater than 400 cfs	Estimated at 25 cfs	Reference Figure 4	FL, U
11/15-16/2021	11:45 to 12:45	R1 – 5,039 (average), Range 4,150 – 6,180	25 hours greater than 4,100 cfs	Variable, estimated between 500 – 1,000 cfs	Reference Figure 5	CM
4/21-22/2022	21:30 to 07:00	R3 – 441 (average), Range 401 – 463	9.5 hours greater than 400 cfs	Estimated at 55 cfs	Reference Figure 6	FL, O
4/21-22/2022	23:00 to 07:00	R2 – 632 (average), Range 575 – 653	8 hours greater than 500 cfs	Estimated at 30 cfs	Reference Figure 7	FL, O
4/21-22/2022	23:00 to 07:00	R1 – 1,676 (average), Range 1,610 – 1,700	8 hours greater than 1,500 cfs	Estimated at 30 cfs	Reference Figure 8	FL, O
5/21/2022	10:00 to 19:45	R1 – 1,457 (average), Range 901 – 1,860	Multiple days greater than 800 cfs	Estimated at 120 cfs	Reference Figure 9	O
5/21/2022	11:45 to 19:45	R2 – 861 (average), Range 475 – 1,165	8 hours greater than 400 cfs	Estimated at 60 cfs	Reference Figure 10	O
5/21/2022	10:30 to 19:45	R3 – 587 (average), Range 227 – 881	9.25 hours greater than 200 cfs	Estimated at 60 cfs	Reference Figure 11	O

[1] Start Date of Event (MM/DD/YYYY)
[2] Start Time to End Time
[3] Magnitude of the Event for Each Compliance Location (R1-Reach 1, R2-Reach 2, R3-Reach 3)
[4] Duration of Event
[5] Portion of Event Attributed to Accretion Flows
[6] Notes of Day's Event, Sequencing with Other Flow Events/Maintenance
[7] Channel Forming (CF), Channel Maintenance (CM), Flushing (FL), Outmigration (O), Upmigration (U) as defined in the PF Plan

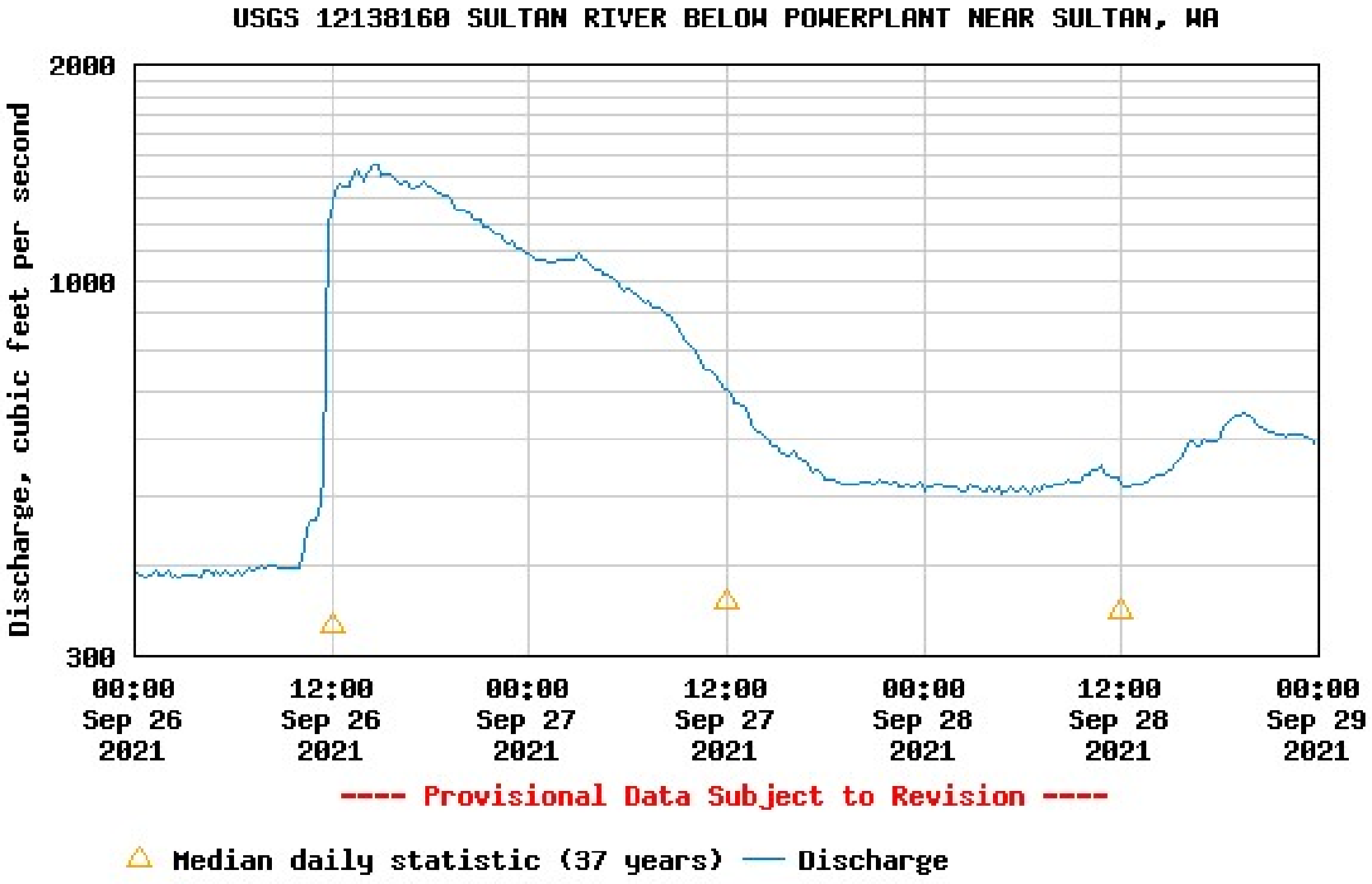

Figure 2. **Sultan River immediately downstream of Powerhouse – 09/26/2021**

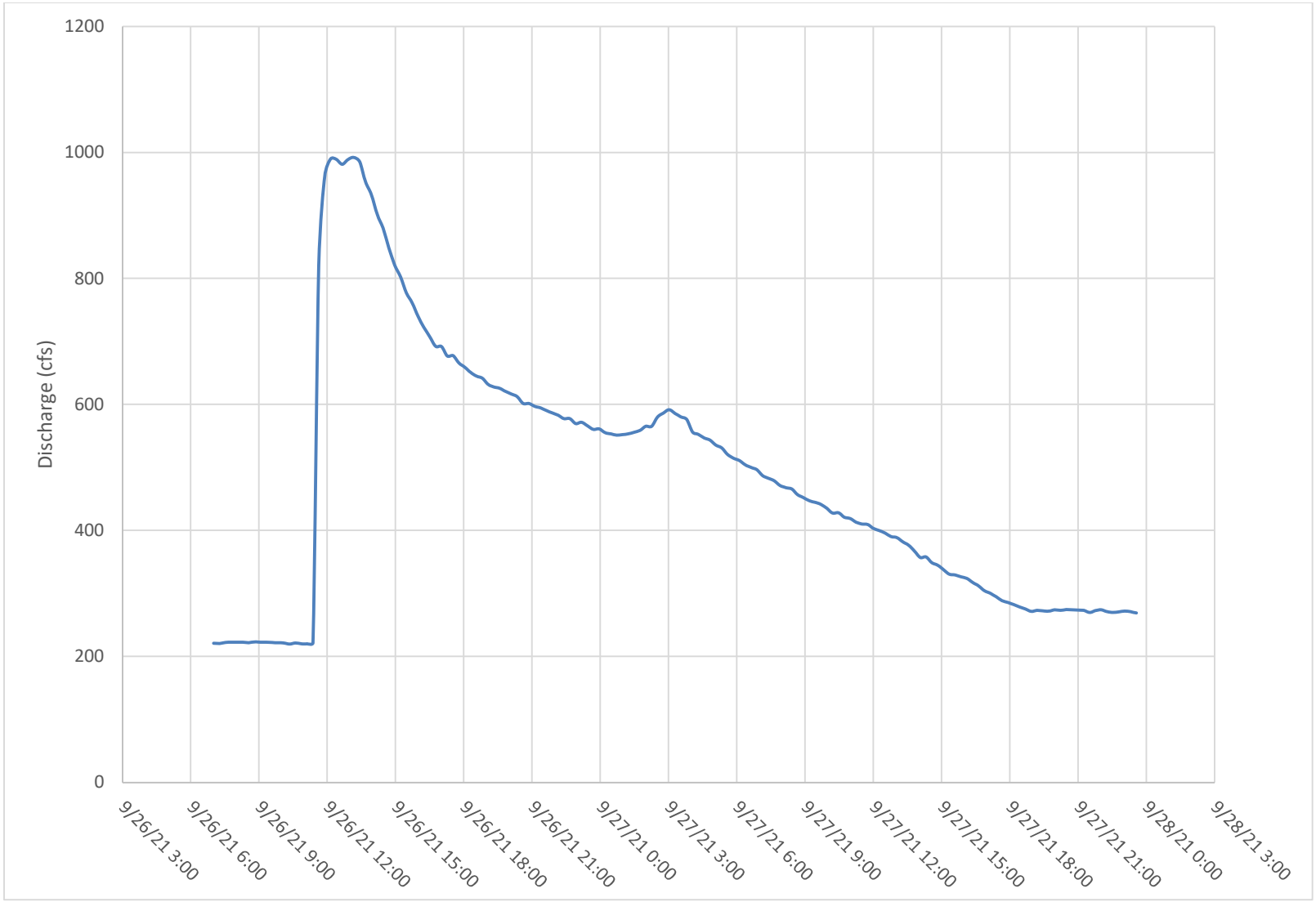

Figure 3. Sultan River immediately upstream of Powerhouse – 09/26/2021

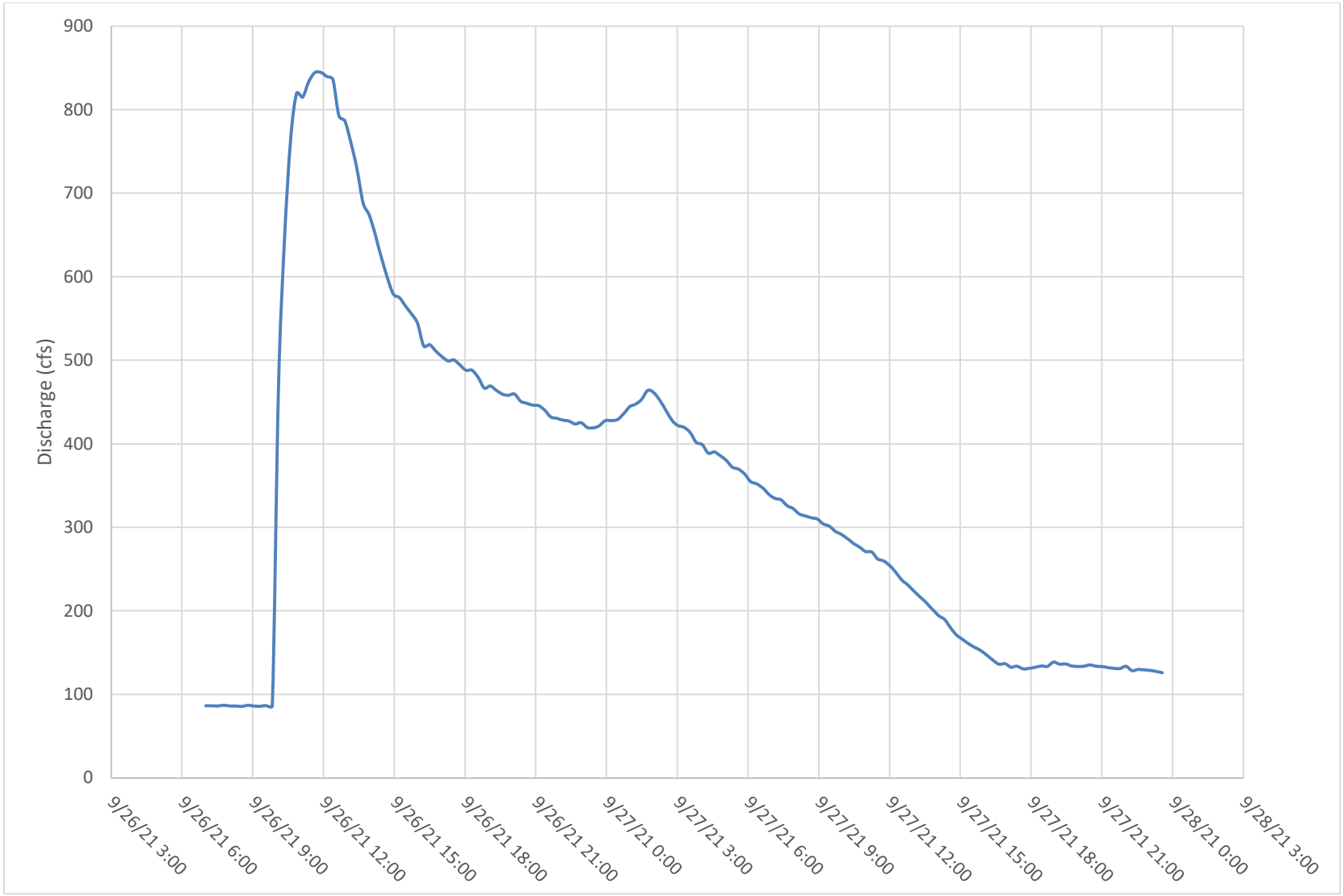

Figure 4. Sultan River immediately upstream of Diversion Dam – 09/26/2021

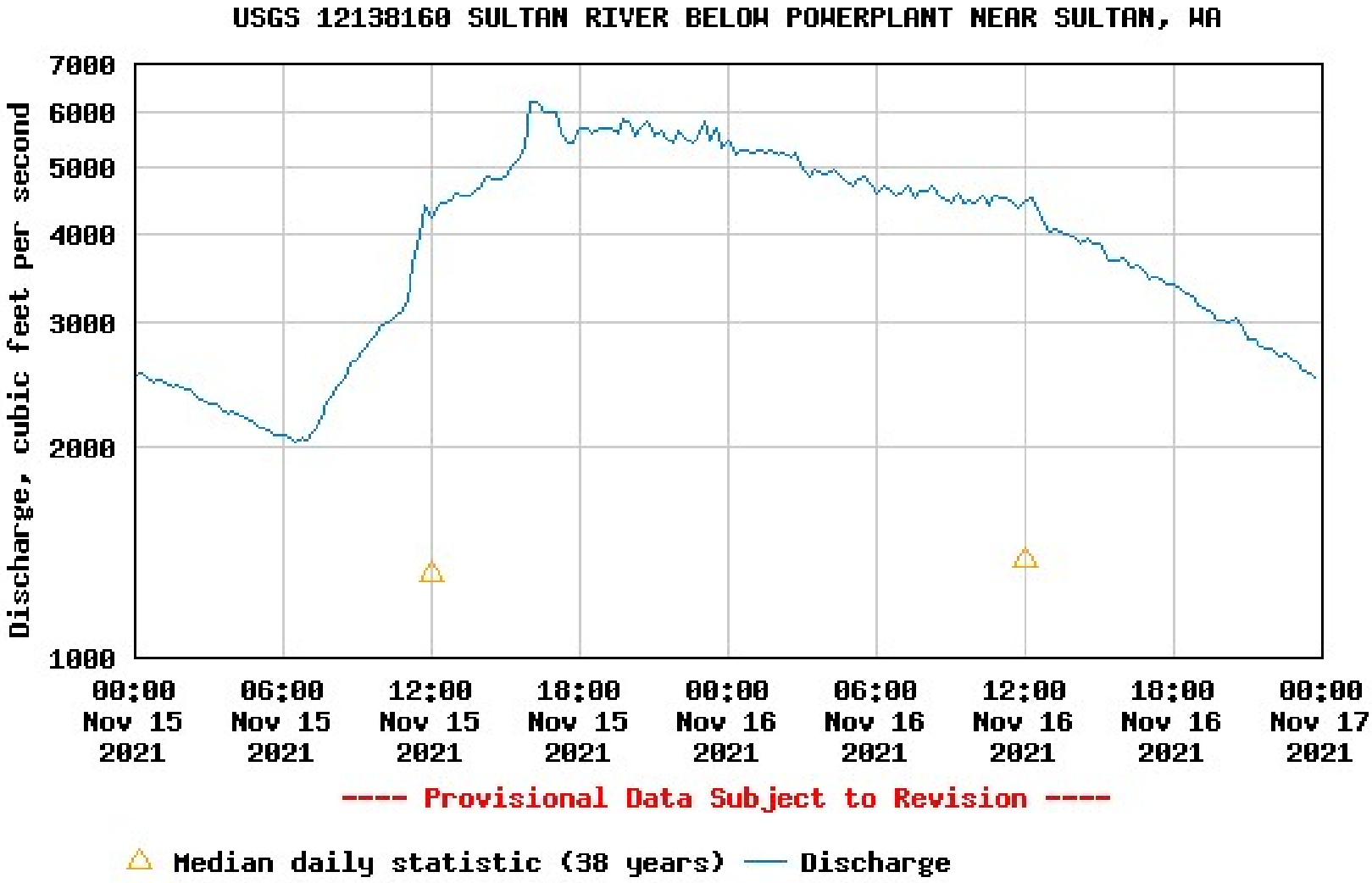

Figure 5. Sultan River immediately downstream of Powerhouse – 11/15-16/2021

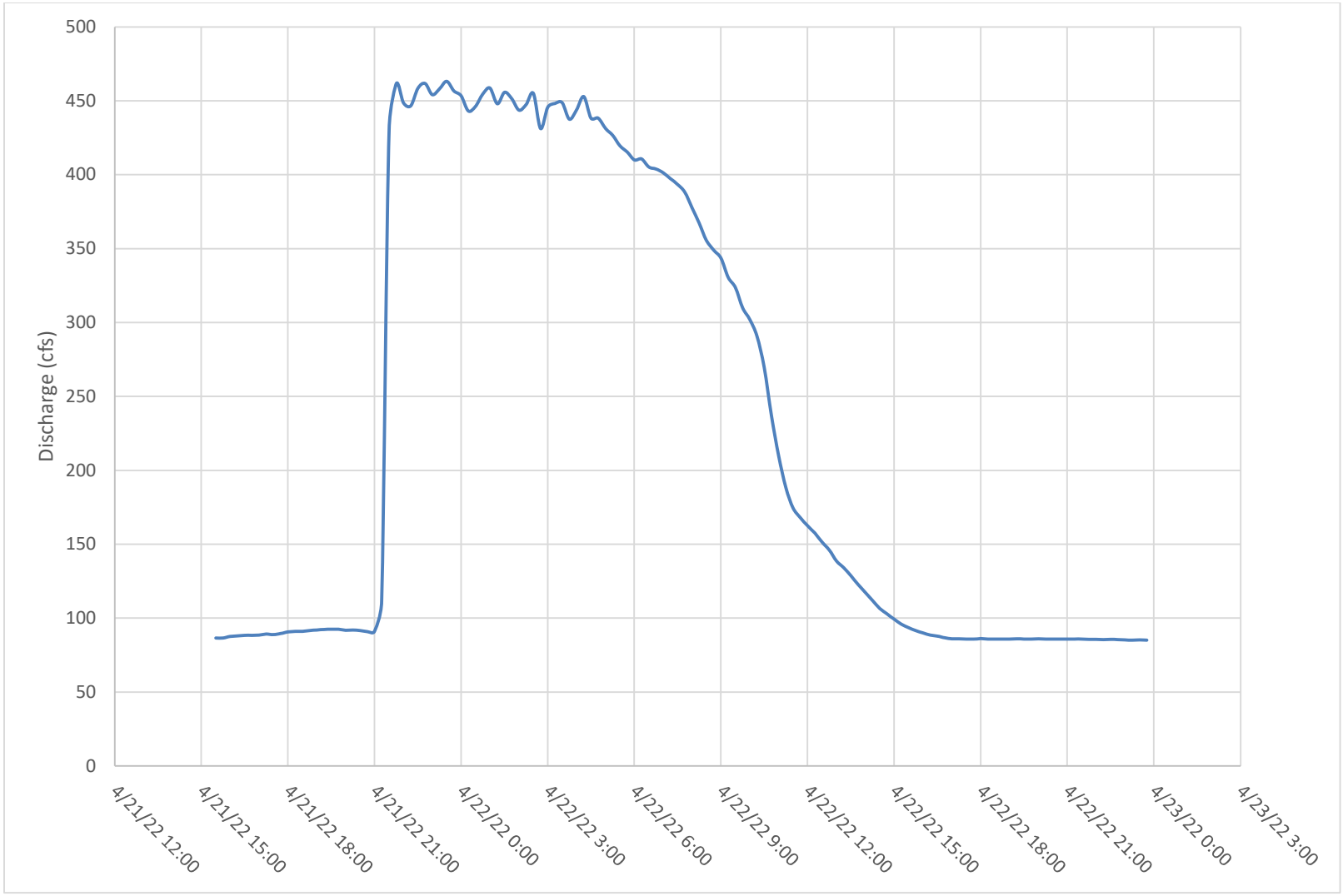

Figure 6. Sultan River immediately upstream of Diversion Dam – 04/21-22/2022

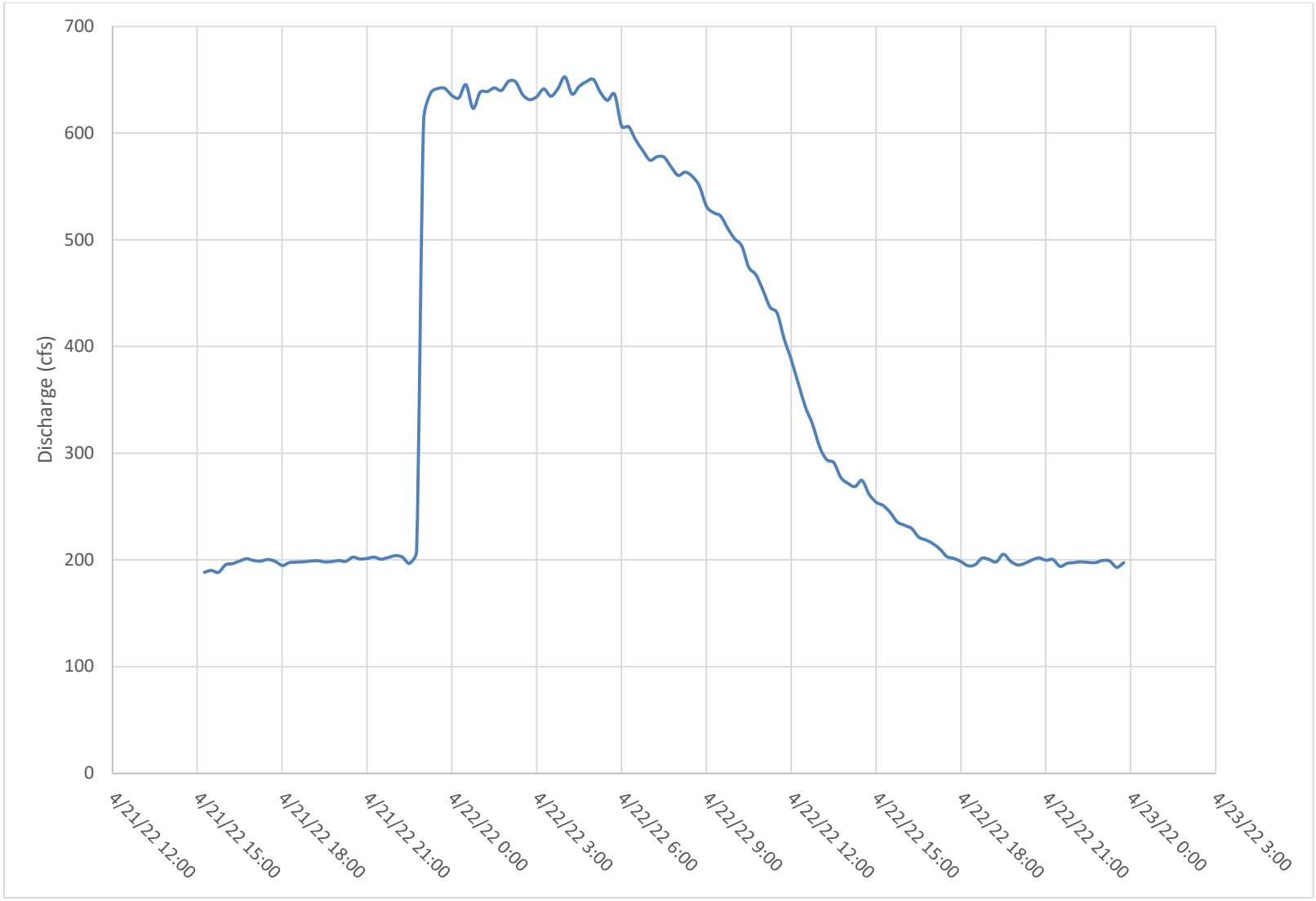

Figure 7. Sultan River immediately upstream of Powerhouse – 04/21-22/2022

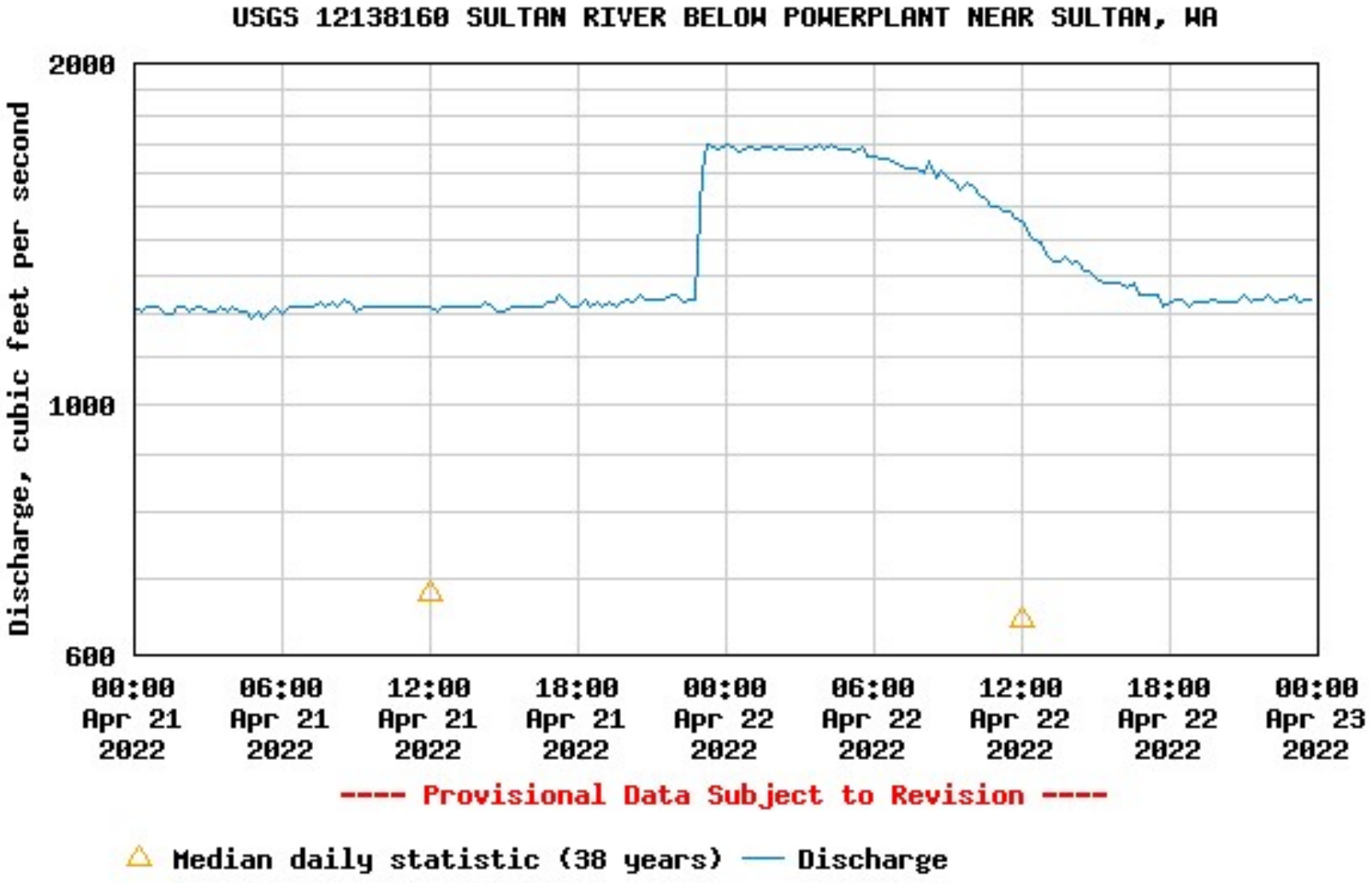

Figure 8. Sultan River immediately downstream of Powerhouse – 04/21-22/2022

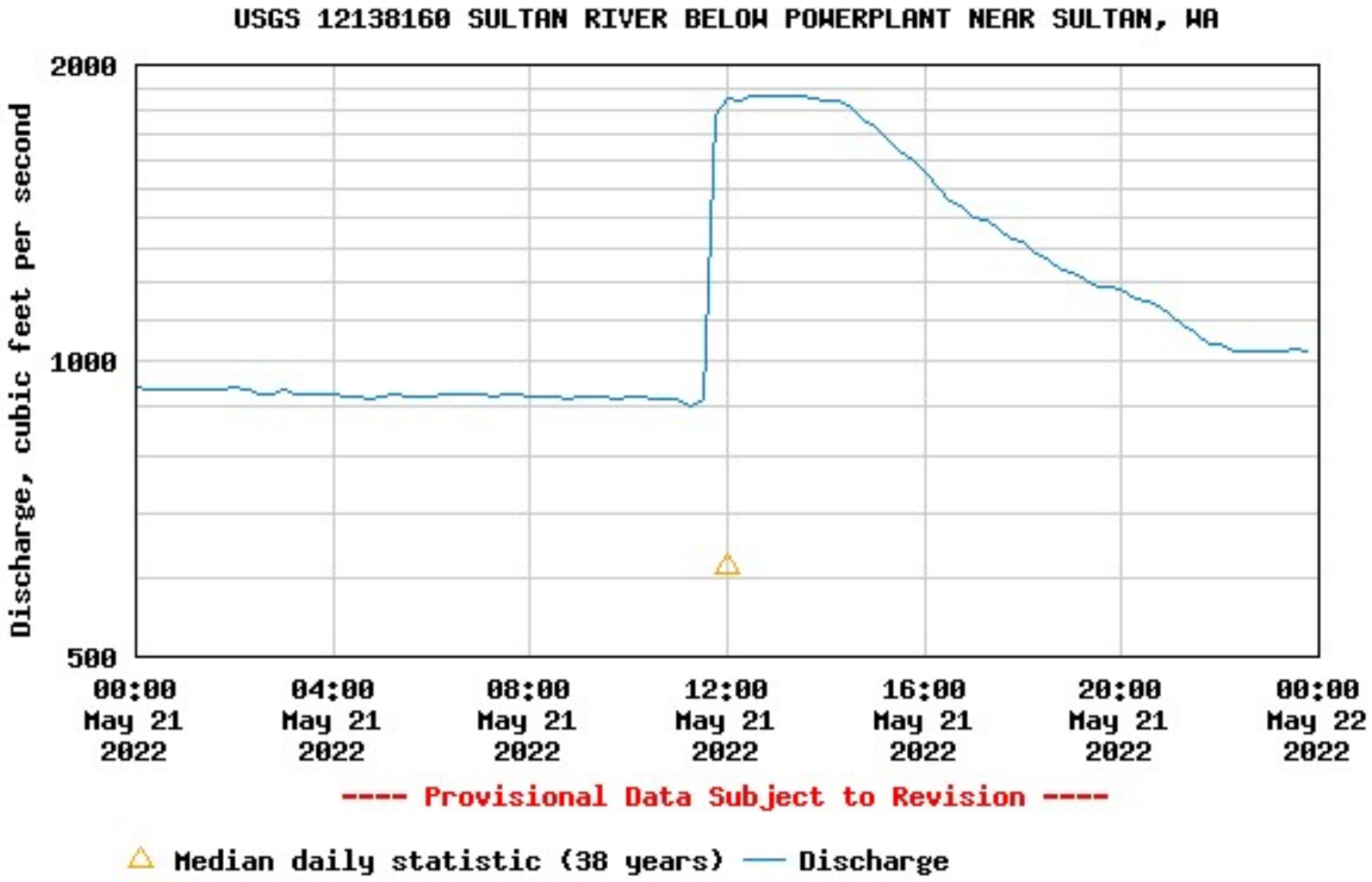

Figure 9. Sultan River immediately downstream of Powerhouse – 05/21/2022

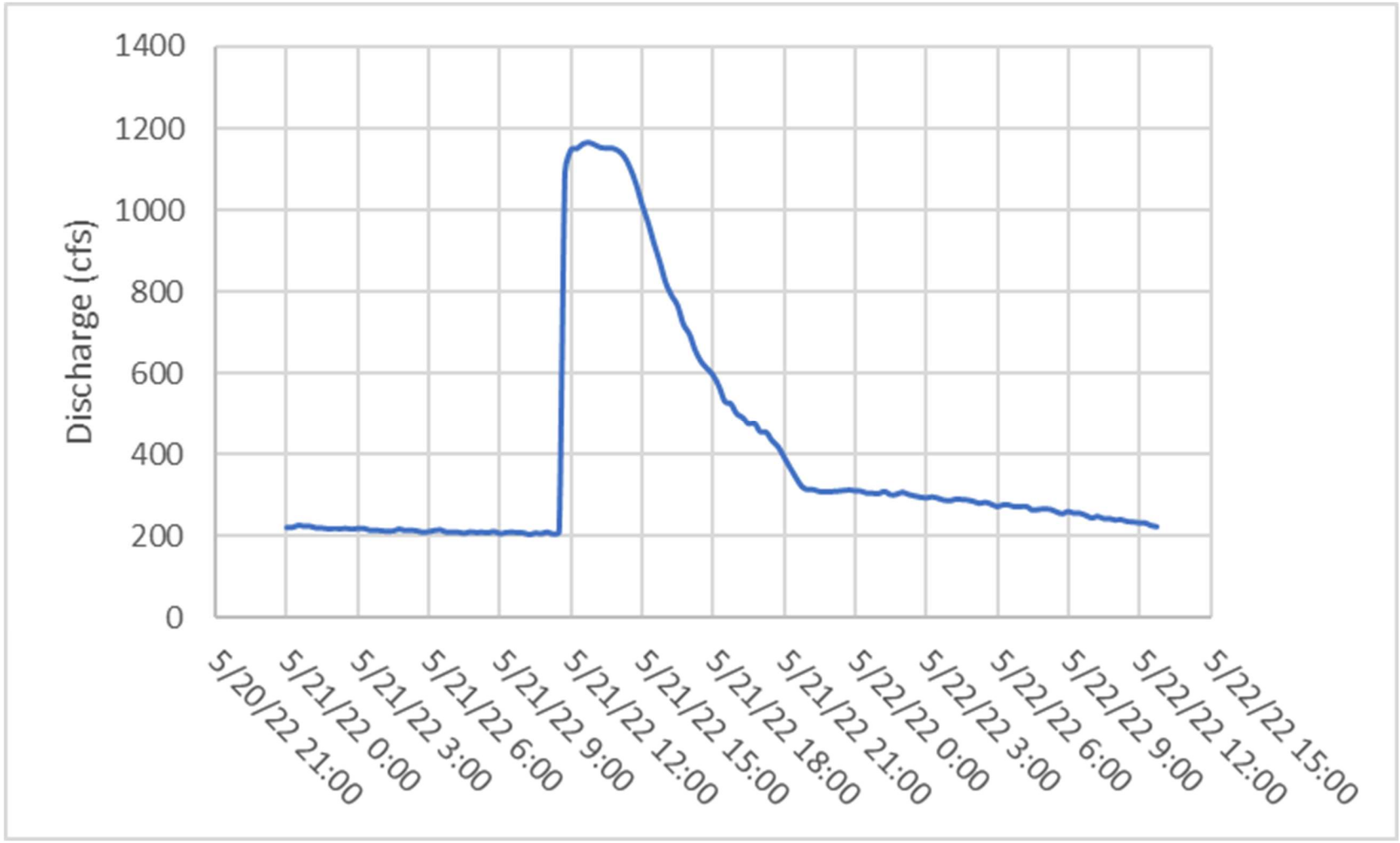

Figure 10. Sultan River immediately upstream of Powerhouse – 05/21/2022

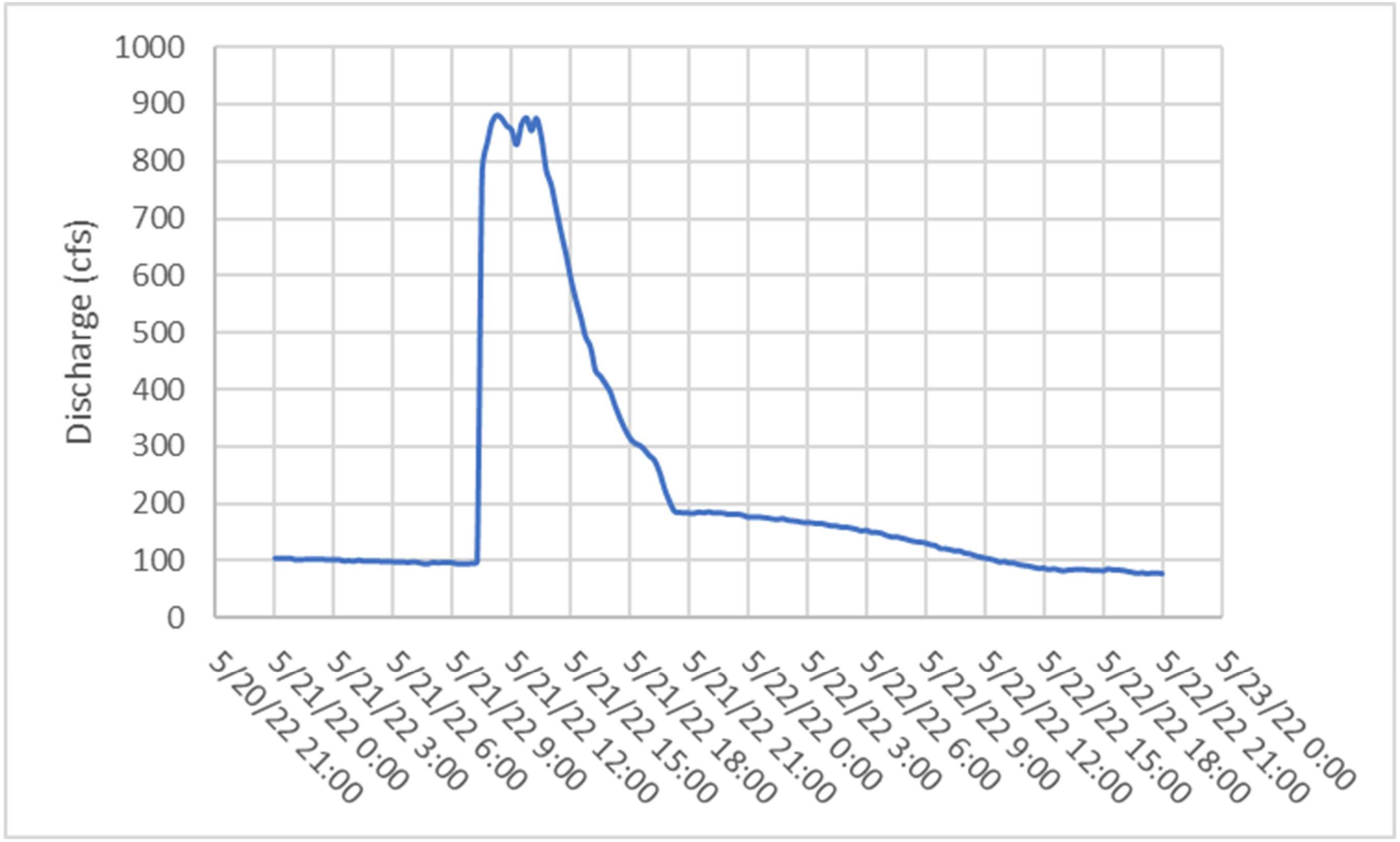

Figure 11. Sultan River immediately upstream of Diversion Dam – 05/21/2022

3. SPADA LAKE RESERVOIR WATER SURFACE ELEVATIONS

During this reporting period, Spada Lake Reservoir daily water surface elevations ranged between 1,410.2 and 1,452.1 feet msl, with the low on February 27, 2022, and the high on November 29, 2021. A shutdown of the project occurred in March 2022. During the initial phase of the shutdown, the water level sensor that records Spada Lake Reservoir's elevation was not supplied with power between March 20 – 22, 2022. Figure 12 displays the daily water surface elevations of Spada Lake Reservoir, and Appendix 1 contains the data in tabular format.

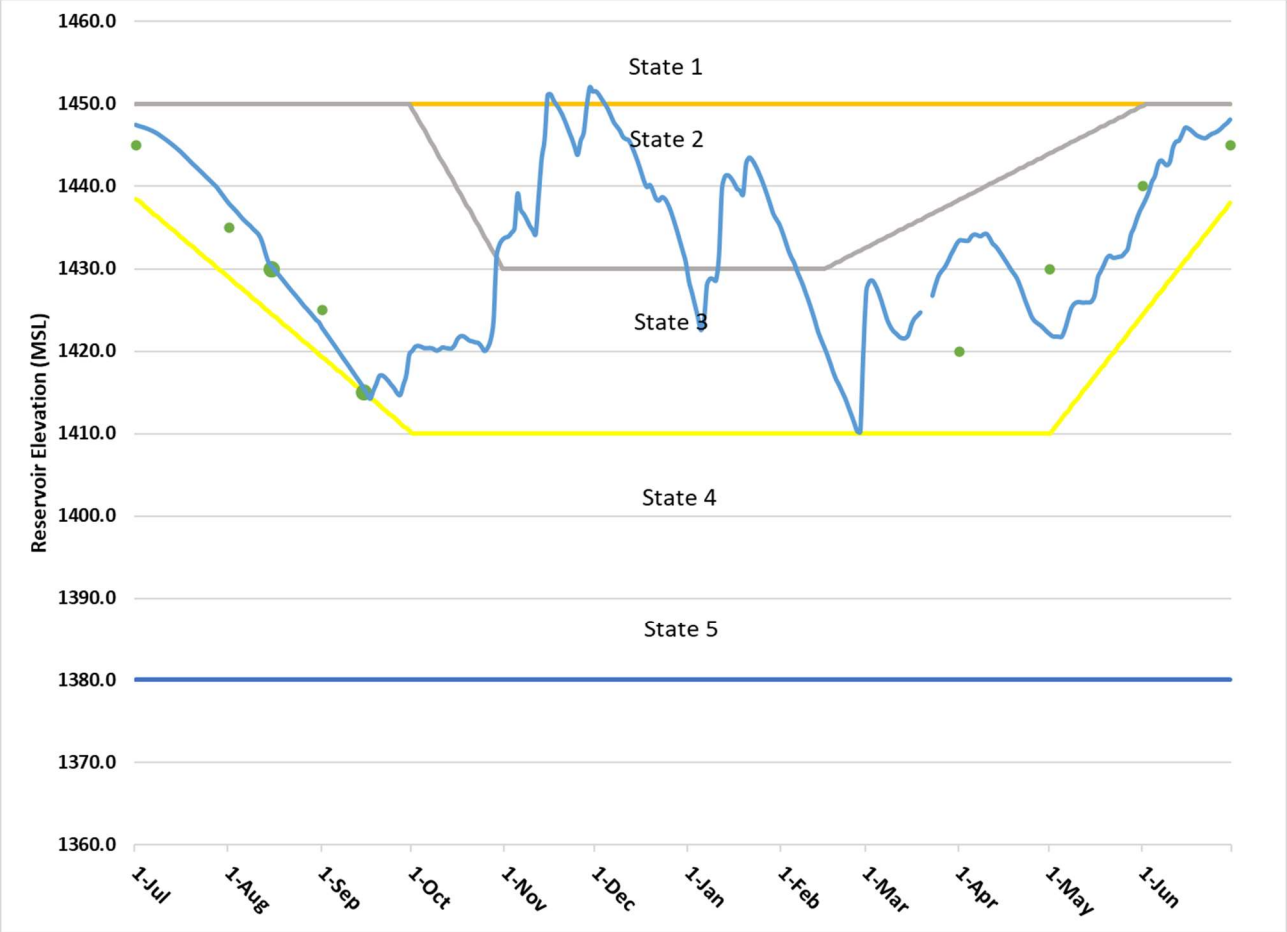

Figure 12. Water surface elevation, Spada Lake Reservoir, July 1, 2021 – June 30, 2022.

4. DEVIATIONS FROM STATE 3

License Article 406 requires:

> *When Spada Lake is in State 3, subject to meeting the (1) City of Everett's water supply requirements and other conditions of this license,…[a]fter the temperature conditioning structure is installed and operational, the licensee shall maintain a minimum*

impoundment water surface elevation in Spada Lake above 1,415 feet msl from August 16 through September 15.[8]

During August 16 – September 15, 2021, the water surface in Spada Lake Reservoir did not go below the target elevation of 1,415 feet msl.

[8] *Public Utility District No. 1 of Snohomish County,* 137 FERC ¶ 61,221 (2011), Order Denying Rehearing and Granting Clarification, issued December 15, 2011.

Appendix 1

Spada Lake Reservoir Daily Elevations Tabular Format

Date	Reservoir Elevation (feet)	Date	Reservoir Elevation (feet)	Date	Reservoir Elevation (feet)
7/1	1447.5	8/1	1438.0	9/1	1422.8
7/2	1447.4	8/2	1437.6	9/2	1422.3
7/3	1447.3	8/3	1437.2	9/3	1421.8
7/4	1447.2	8/4	1436.8	9/4	1421.3
7/5	1447.0	8/5	1436.3	9/5	1420.8
7/6	1446.9	8/6	1435.9	9/6	1420.2
7/7	1446.7	8/7	1435.6	9/7	1419.7
7/8	1446.5	8/8	1435.3	9/8	1419.2
7/9	1446.3	8/9	1434.9	9/9	1418.7
7/10	1446.0	8/10	1434.5	9/10	1418.1
7/11	1445.7	8/11	1434.1	9/11	1417.6
7/12	1445.5	8/12	1433.3	9/12	1417.1
7/13	1445.2	8/13	1432.1	9/13	1416.5
7/14	1444.9	8/14	1431.0	9/14	1416.0
7/15	1444.6	8/15	1430.4	9/15	1415.4
7/16	1444.2	8/16	1430.0	9/16	1414.8
7/17	1443.9	8/17	1429.5	9/17	1414.2
7/18	1443.5	8/18	1429.1	9/18	1415.2
7/19	1443.1	8/19	1428.6	9/19	1416.0
7/20	1442.8	8/20	1428.2	9/20	1417.0
7/21	1442.4	8/21	1427.7	9/21	1417.1
7/22	1442.1	8/22	1427.3	9/22	1416.8
7/23	1441.7	8/23	1426.9	9/23	1416.4
7/24	1441.4	8/24	1426.4	9/24	1415.9
7/25	1441.0	8/25	1426.0	9/25	1415.5
7/26	1440.7	8/26	1425.5	9/26	1414.9
7/27	1440.3	8/27	1425.1	9/27	1414.7
7/28	1439.9	8/28	1424.7	9/28	1415.9
7/29	1439.4	8/29	1424.3	9/29	1417.1
7/30	1438.9	8/30	1423.8	9/30	1419.6
7/31	1438.4	8/31	1423.5		

Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)
10/1	1420.1		11/1	1433.8		12/1	1451.6
10/2	1420.6		11/2	1434.0		12/2	1451.2
10/3	1420.6		11/3	1434.4		12/3	1450.7
10/4	1420.6		11/4	1434.9		12/4	1450.1
10/5	1420.4		11/5	1439.1		12/5	1449.5
10/6	1420.4		11/6	1437.3		12/6	1448.7
10/7	1420.4		11/7	1436.7		12/7	1447.8
10/8	1420.3		11/8	1436.1		12/8	1447.3
10/9	1420.1		11/9	1435.3		12/9	1446.8
10/10	1420.2		11/10	1434.7		12/10	1446.1
10/11	1420.5		11/11	1434.2		12/11	1445.8
10/12	1420.4		11/12	1438.8		12/12	1445.6
10/13	1420.4		11/13	1443.4		12/13	1444.9
10/14	1420.3		11/14	1445.8		12/14	1444.0
10/15	1420.7		11/15	1451.1		12/15	1443.0
10/16	1421.5		11/16	1451.2		12/16	1441.9
10/17	1421.8		11/17	1450.5		12/17	1440.8
10/18	1421.8		11/18	1449.9		12/18	1440.0
10/19	1421.6		11/19	1449.4		12/19	1440.2
10/20	1421.3		11/20	1448.6		12/20	1439.5
10/21	1421.2		11/21	1447.8		12/21	1438.6
10/22	1421.1		11/22	1446.8		12/22	1438.3
10/23	1421.0		11/23	1445.9		12/23	1438.7
10/24	1420.6		11/24	1444.8		12/24	1438.5
10/25	1420.0		11/25	1443.9		12/25	1437.9
10/26	1420.4		11/26	1445.6		12/26	1437.0
10/27	1421.3		11/27	1446.6		12/27	1435.9
10/28	1423.6		11/28	1449.7		12/28	1434.7
10/29	1431.5		11/29	1452.1		12/29	1433.4
10/30	1433.0		11/30	1451.6		12/30	1432.1
10/31	1433.6					12/31	1430.7

Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)
1/1	1428.5		2/1	1434.6		3/1	1427.4
1/2	1427.1		2/2	1433.5		3/2	1428.4
1/3	1425.7		2/3	1432.4		3/3	1428.6
1/4	1424.1		2/4	1431.5		3/4	1428.1
1/5	1422.6		2/5	1430.8		3/5	1427.2
1/6	1423.7		2/6	1429.7		3/6	1426.1
1/7	1428.1		2/7	1428.9		3/7	1424.9
1/8	1428.8		2/8	1428.0		3/8	1423.8
1/9	1428.8		2/9	1426.9		3/9	1423.0
1/10	1428.6		2/10	1425.9		3/10	1422.4
1/11	1431.6		2/11	1424.8		3/11	1422.1
1/12	1439.8		2/12	1423.6		3/12	1421.8
1/13	1441.3		2/13	1422.3		3/13	1421.6
1/14	1441.4		2/14	1421.4		3/14	1421.6
1/15	1441.1		2/15	1420.5		3/15	1422.0
1/16	1440.5		2/16	1419.6		3/16	1423.2
1/17	1439.8		2/17	1418.6		3/17	1424.0
1/18	1439.5		2/18	1417.5		3/18	1424.3
1/19	1439.0		2/19	1416.5		3/19	1424.7
1/20	1442.8		2/20	1415.9		3/20	
1/21	1443.5		2/21	1415.0		3/21	
1/22	1443.3		2/22	1414.3		3/22	
1/23	1442.6		2/23	1413.3		3/23	1426.8
1/24	1441.9		2/24	1412.3		3/24	1428.1
1/25	1441.0		2/25	1411.3		3/25	1429.1
1/26	1440.0		2/26	1410.3		3/26	1429.7
1/27	1439.0		2/27	1410.2		3/27	1430.2
1/28	1437.9		2/28	1419.7		3/28	1430.8
1/29	1436.8					3/29	1431.6
1/30	1436.1					3/30	1432.3
1/31	1435.5					3/31	1433.0

Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)		Date	Reservoir Elevation (feet)
4/1	1433.5		5/1	1422.1		6/1	1437.8
4/2	1433.5		5/2	1421.8		6/2	1438.5
4/3	1433.4		5/3	1421.8		6/3	1439.4
4/4	1433.5		5/4	1421.8		6/4	1440.6
4/5	1434.0		5/5	1421.8		6/5	1441.3
4/6	1434.2		5/6	1422.6		6/6	1442.7
4/7	1434.1		5/7	1423.8		6/7	1443.2
4/8	1434.0		5/8	1425.1		6/8	1442.9
4/9	1434.2		5/9	1425.7		6/9	1442.6
4/10	1434.3		5/10	1425.9		6/10	1443.0
4/11	1433.8		5/11	1426.0		6/11	1444.7
4/12	1433.1		5/12	1425.9		6/12	1445.5
4/13	1432.8		5/13	1425.9		6/13	1445.6
4/14	1432.3		5/14	1425.9		6/14	1446.3
4/15	1431.7		5/15	1426.1		6/15	1447.2
4/16	1431.2		5/16	1426.9		6/16	1447.1
4/17	1430.6		5/17	1429.0		6/17	1446.9
4/18	1430.0		5/18	1429.7		6/18	1446.5
4/19	1429.5		5/19	1430.5		6/19	1446.2
4/20	1428.9		5/20	1431.3		6/20	1446.1
4/21	1428.1		5/21	1431.6		6/21	1445.9
4/22	1427.1		5/22	1431.4		6/22	1445.9
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4/28	1423.1		5/28	1434.2		6/28	1447.4
4/29	1422.8		5/29	1435.0		6/29	1447.7
4/30	1422.4		5/30	1436.1		6/30	1448.2
			5/31	1437.0			

Appendix 2

Consultation Documentation Regarding Draft Report

Presler, Dawn

From: Presler, Dawn
Sent: Thursday, July 28, 2022 7:49 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 OCMP Annual Report for your 30-day review and comments
Attachments: 202207 DRAFT OCMP Annual Report WY 21-22.pdf

Dear ARC Members,
Attached is the Draft Operation Compliance Monitoring Plan Annual Report WY2021-2022 for your 30-day review. Please provide comments, if any, back to me by Monday August 29, 2022. Replies stating you have no comments are appreciated too.

Hope you are enjoying the summer.

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

(425) 783-1709 (work)